

Developing the East of England Implementation Plan

Theme development advice: Utilities

December 2008

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1: Scope of the Theme Advice

1.1 This chapter set outs:

- the scope of the Utilities Theme
- the process through which Theme advice has been developed

Scope of the Theme

The Utilities Theme focuses on investment in utilities infrastructure, including the supply of energy, water and telecommunications, and the processing of waste. However, many of the outcome targets and priorities relating to energy, water, waste and ICT are more appropriately addressed wholly or primarily through other Themes or as part of the cross cutting resource efficiency theme. For example, achieving a 20% reduction in household water consumption by 2030 requires interventions under the housing theme to reduce water use in new and existing housing, and in the utilities theme to reduce leakage in water supply systems. Improving ICT skills requires interventions under the skills theme. The scope of the Utilities theme, including examples of what it excludes, is summarised in Table 1-1.

Theme includes...	Theme excludes...
Capital investment in energy supply to meet increasing demand from existing and new customers within the region	Investment in new power generation capacity for national markets (local energy generation schemes to meet local/regional may be included)
Resource efficiency measures to reduce energy losses and carbon emissions in generation and supply systems	Resource efficiency measures to reduce energy usage/waste in buildings and domestic and business processes (covered in housing and innovations themes)
Capital investment in ICT infrastructure, including cable networks and exchanges, to meet increasing demand from existing and new customers	ICT training and business support to promote greater use of ICT (covered in Skills and Innovation Themes)
Capital investment in ICT systems to ease congestion on major roads (also relevant to Transport Theme)	Support for ICT as a sector (covered in Innovation theme)
Development of ICT skills (also relevant to Skills Theme)	
Capital investment in water supply to meet increasing demand from existing and new customers and to increase security of water supplies within the region	Capital investment by water companies in flood prevention (covered under Green Infrastructure theme)
Resource efficiency measures to reduce water losses in water supply networks	Investment in facilities outside the region to meet demand within it
Capital investment in waste treatment facilities to meet increasing demand from existing and new customers	Investment in facilities outside the region to meet demand within it
Resource efficiency measures to improve the efficiency and reduce carbon emissions in waste treatment	Resource efficiency measures to reduce waste generated in domestic and business processes (covered in housing and innovation themes)

Development of theme paper

1.2 The development of the evidence base relating to the **Utilities Theme** varied between the four components of the Theme.

- For Energy – inputs were provided by EEDA. In addition, meetings were held with all of the main publically funded energy support organisations in the region to obtain their views and inputs to the range of programmes to be included in the JIP
- For ICT – the content for the ICT sub theme was developed primarily by the ICT team in EEDA, with inputs from BT, with whom two meetings were held. Two presentations were made to the Digital Partnership, the first to confirm the approach and the second to confirm the scope of main programmes to be included in the Theme paper and the JIP.
- For water – the Environment Agency played the lead role in developing water related programmes for the JIP. They also involved Anglia Water in meetings and inputs.
- For waste – inputs were provided by EERA.

The lead Steering Group members for the purposes of preparing the Implementation Plan with regard to the Utilities theme were Andrew Fisher (energy, ICT and water) and James Cutting (waste). Support was provided by:

- Johnathan Reynolds (EEDA) in relation to energy
- Jan Pinkerton and Laurence Ramsey (EEDA) in relation to ICT
- Graham Wilson (Environment Agency) in relation to investment in water supply
- Deborah Sacks (EERA) in relation to waste.

1.3 Key documents and sources include:

General

- EEDA RES Evidence Base, 2008

Energy

- Renewables East Annual Review 2007/08
- EEDA 2006 *State of the Regional Economy*
- *Resource-use and CO2 Emissions Modelling*, Cambridge Econometrics and SQW Consulting – Report to the East of England Development Agency, May 2008
- <http://www.renewableseast.org.uk>

ICT

- East of England Regional ICT Benchmarking Survey 2007/08 (BMG, 2008)

- DTI (2004) Business in the Information Age: The International Benchmarking Study
- e-skills UK (Sector Skills Council) (2005) IT Insights – Regional Skills in the East of England
- Caio Review

Water

- Anglian Water Strategic Direction Statement 2010-2035

Waste

- East of England Plan

2: The contribution of the Theme to the two strategies

2.1 This chapter sets out:

- why the Utilities Theme matters in relation to RES/RSS, with reference to:
 - the performance of the region in relation to relevant high level ambition targets, and the scale of the gap between trajectory and target
 - the role of the Theme in relation to relevant high level ambition targets
- what the two strategies demand of the Theme – focusing on the Theme-specific policies, priorities and targets
- distinctive spatial dimensions in relation to strategic imperatives linked to utilities.

Relationship to key regional outcome targets from RES/RSS

Table 2-1: Summary - relationship between interventions related to the Utilities Theme and their likely impacts on high level outcome indicators

Headline Indicator	Direct effects	Indirect effects	"Induced"/second order
GVA per capita / per worker		↑	
Employment rate			↔
Earnings inequality			↔
Water consumption	↑		
CO ₂ emissions	↑		
Skills – Leitch targets	↑		
Net additional dwellings		↑	
Jobs growth		↑	
Affordable Housing			↑

Key: ↑ impacts ought to be positive in relation to the headline indicator; ↓ impacts likely to be negative in relation to the outcome indicator; ↔ impacts could be either positive or negative

2.2 Table 2-1 summarises the relationship between the high level regional outcome targets and interventions relating to the Utilities theme.

2.3 Investment in utilities is likely to have positive effects on

- GVA per capita/per worker – e.g. provision of faster broadband services across more of the region should support growth of GVA per capita per worker. Research from both USA and UK demonstrates that ICT is a key productivity driver¹
- Water consumption – investment in water supply systems should reduce leakage
- CO₂ emissions - through investment in the supply of renewable and low carbon energy, and through the impact of ICT systems on transport congestion

¹ See RES Evidence Base, paragraphs 5.18-5.19

- Net additional dwellings and jobs growth – investment in water and energy supply systems to overcome constraints will support development of housing and employment land, and therefore the achievement of RSS housing and jobs growth targets. Strategic planning of utilities provision is essential to support longer term housing development and jobs growth plans
- The beneficial effect of utilities investment on housing development should indirectly support achievement of affordable housing, although this is dependent on housing and planning policies and practices
- Investment in ICT skills training will have a direct beneficial impact on the achievement of skills targets, and should also help to increase productivity and GVA growth per employee.

2.4 The effect of investment in utilities on the employment rate and earnings inequality is uncertain. Although utilities investment should increase per capita GVA and jobs growth, whether this leads indirectly to an increase in the employment rate and a reduction in earnings inequalities depends on the type of jobs growth and the distribution of skills (eg growth in capital intensive sectors may increase GVA per capita and in total, but could lead to lower levels of employment and greater income inequalities).

Wider trends and drivers

2.5 Wider trends and drivers are mainly considered under each of the sub theme sections. However, a common feature across the Utilities theme is that investment in utilities infrastructure is principally the responsibility of private sector companies operating in a regulated environment. The capacity of utilities companies to invest for growth is therefore constrained by commercial considerations. There are issues concerning the effect of the regulations on the utility companies' ability to invest in advance of growth, because their principal responsibility to the regulator is to provide good quality, value for money services to existing customers. Investment to accommodate future growth, when the precise timing and scale of the growth is uncertain, is problematic for the utility companies. But failure to invest to increase capacity can constrain growth.

3: Energy programmes

Regional context and ambitions set out in the RES and RSS

- 3.1 The region is a major generator and supplier of energy. It supplies half the UK's domestic gas requirements, it generates and supplies nuclear energy, and it is the leading region for renewable generating capacity. However, the scale of growth planned for the region means that the supply of energy will need to increase, both overall and in particular localities where there are already constraints. In particular, the supply of renewables will need to increase rapidly if the RES target of 44% of the region's electricity to come from renewable sources by 2020 is to be achieved.
- 3.2 The targets and priorities for energy set out in the RES and RSS are summarised in Table 3.1.

Table 3-1 Energy targets and priorities in the RES and RSS

TARGETS

Renewable Energy

- By 2010, 14% of the region's electricity supply should come from renewable sources (10%, excluding offshore wind)
- By 2020, 44% of the region's electricity should come from renewable sources (20%, excluding offshore wind) OR
- By 2020, 15% of the region's primary energy consumption should come from renewable sources. (n.b. anticipated UK policy)

Energy in Buildings

- 10% of the supply of energy for developments of more than 1,000 sqm of non residential floorspace, or more than 10 residential dwellings, should be from decentralised, renewable and low carbon energy sources.

Note: The Renewable energy targets for 2010 and 2020 have been amended from 'energy' to 'electricity'. This is due to changes in the definition of 'energy' in relation to Government policy, where it is clear from the RSS evidence base that these targets are electricity only.

PRIORITIES

From the RES

- The region needs to radically change patterns of resource-use – energy, materials, water – to reduce our unsustainable ecological footprint and carbon emissions; [RES section 1.3]
- Growth in the region's sustainable energy sector and maintain the region's lead position in renewable energy generation; [RES section 3.4]
- Strengthening clusters around leading private sector R&D companies and research-intensive universities in major 'knowledge-generating' clusters and emerging strengths in high-growth areas such as environmental technologies and renewable energy. [RES Innovation - Priority 3]
- Leading the UK in sustainable energy production and the widespread deployment of renewable and low-carbon energy technologies, both offshore and onshore. In particular, significant opportunities in R&D and technology development for offshore renewables through wind, wave and tidal and in carbon-abatement technologies such as carbon capture and storage. [RES Resource Efficiency – Priority 2]
- Increasing share of environmental goods and services markets. [RES Resource Efficiency – Priority 3]

Four specific spatial priorities have been identified within the RES aligned to this theme:

- Thames Gateway South Essex - develop as a centre for investment in environmental technologies and services, including potential leadership in automotive energy efficiency in Basildon and a new bioenergy park in Thurrock.
- Greater Norwich Sub Region - develop Norwich as an international exemplar of a low-carbon city, with the promotion of renewable energy, combined heat and power, wind, solar and biomass;
- Great Yarmouth and Lowestoft - A leading centre for offshore energy with emerging economic catalysts in Great Yarmouth, e.g. EastPort, and offshore renewable energy in Lowestoft supported by OrbisEnergy;
- Market towns and the economy of rural areas:
 - encourage a positive planning framework that enables greater certainty to the market on the deployment of renewable energy.

-
- maintain the East of England as the UK's leader in agriculture and food sector, supported by leading research centres of excellence and knowledge exchange in fields such as biofuels, non-food crops and agricultural engineering

From the RSS

- To reduce the region's impact on, and exposure to, the effects of climate change by maximising the energy efficiency of development and promoting the use of renewable and low carbon energy sources; [RSS Objective]
- To seek community support and participation in promoting responsible waste behaviour and approaches to management, viewing waste as a resource and maximising re-use, recycling, composting and energy recovery; [RSS WM1]
- Local Development Documents should support the sustainable and dynamic growth of inter-regional and intraregional sectors and business clusters including:
 - the energy cluster on the Norfolk/Suffolk coast; and
 - the environmental technologies cluster stretching from Essex to Cambridgeshire with a particular focus on Peterborough; [RSS POLICY E4]
- To meet emission reduction targets, Local authorities should encourage the supply of energy from decentralised, renewable and low carbon energy sources and through Development Plan Documents set ambitious but viable proportions of the energy supply of new development to be secured from such sources and the development thresholds to which such targets would apply. [RSS ENG1]
- Local Authorities should promote innovation through incentivisation, master planning and development briefs which seek to maximise opportunities for developments to achieve, and where possible exceed national targets for the consumption of energy. To help realise higher levels of ambition local authorities should encourage energy service companies (ESCOs) and similar energy saving initiatives. [RSS ENG1]
- Promote radical change in the economy building on the area's established sectors and diversifying into new and emerging sectors including: – the renewable energy cluster, building on offshore engineering skills; [RSS POLICY GLY1]

National Planning Policy (PPS10) seeks to drive the management of waste up the waste hierarchy of reduction, re-use, recycling and composting, energy recovery from material defined as biomass under the Renewables Obligation, and as a last resort, disposal. Policy WM1 reinforces aspects of national policy that will need to apply across the region if waste generation is to be successfully decoupled from economic growth. [RSS POLICY WM1]

Source: EEDA

Wider Trends and Driver for Energy

- 3.3 Energy policy in the UK faces two very serious challenges: tackling climate change by reducing emissions both here and abroad, and ensuring that our energy supply remains secure. The Energy White Paper 2007 set out the Government's response to these challenges.
- 3.4 As well as strongly supporting international action to address climate change at EU, G8 and UN level, the UK has set the ambitious target of reducing the UK's greenhouse gas emissions by at least 80% by 2050. Under the Climate Change Act 2008 our emission reduction goals will become statutory, with the introduction of five-year 'carbon budgets' (total emission limits).
- 3.5 To deliver energy security and accelerate the transition to a low carbon economy requires urgent and ambitious action. We need to:
- save energy;
 - develop cleaner energy supplies; and
 - secure reliable energy supplies at prices set in competitive markets.
- 3.6 While saving energy is often the most cost effective way to reduce emissions, development and enhanced support for renewable and sustainable energy technologies are key to our low-carbon energy future. We need to radically reduce greenhouse gas emissions, as well as

diversify our energy sources. As part of this move to a low-carbon economy, we need a step change in renewable energy use in heat, electricity and transport.

- 3.7 Last spring the UK agreed with other Member States to an EU-wide target of 20% renewable energy by 2020 – including a binding 10% target for the transport sector. The European Commission has proposed that the UK share of this target would be to achieve 15% of the UK's energy from renewables by 2020 which is equivalent to almost a ten-fold increase in renewable energy consumption from current levels.
- 3.8 To meet the UK's contribution of EU Renewable Energy target, we will need a radical shift in programme strategy and interventions to increase the contribution of renewable sources in the three main energy-consuming sectors – electricity, heat and transport.
- 3.9 In November 2008, three new pieces of energy related legislation gained Royal Assent: the Energy Act 2008, Climate Change Act 2008 and the Planning Act 2008.
- 3.10 The Energy Act 2008 contains the legislative provisions required to implement UK energy policy following the publication of the Energy Review 2006 and the Energy White Paper 2007, and will:
- Strengthen the regulatory framework for offshore gas supply infrastructure to enable private sector investment
 - Create a regulatory framework to enable private sector investment in Carbon Capture and Storage projects
 - Strengthen the Renewables Obligation to drive greater and more rapid deployment of renewables in the UK
 - Strengthen statutory decommissioning provisions for offshore renewables and oil and gas installations to minimise the risk of liabilities falling to the Government
 - Improve the offshore oil and gas licensing regime in response to changes in the commercial environment and enable the Government to carry out its regulatory functions more effectively
 - Ensure the operators of new nuclear power stations accumulate funds to meet the full costs of decommissioning and their full share of waste management costs
 - Introduce amending powers such that Ofgem is able to run the offshore electricity transmission licensing regime more effectively.
- 3.11 The Climate Change Act 2008 contains provisions that will set a legally binding target for reducing UK greenhouse gas emissions by at least 34 per cent by 2020 and at least 80 per cent by 2050, compared to 1990 levels.
- 3.12 It is an important piece of legislation in relation to energy policy, and in particular the likely impact of decisions on energy supplies and the carbon and energy intensity of the economy. The Act includes changes in emissions trading, and in particular where activities are regarded as indirectly causing or contributing to greenhouse gas emissions if they involve the consumption of energy, or the use of materials in whose production energy was consumed. It

also supports the Energy Act 2008 in policy areas for electricity and heat generated by micro generation, and also amendments to the Renewable Transport Fuel Obligation.

3.13 The Planning Act 2008 introduces a new system for approving major infrastructure of national importance, such as harbours, waste facilities, and energy generation facilities, and replaces current regimes under several pieces of legislation. The key headlines of this Act in relation to energy are:

- Decisions will be taken by a new Infrastructure Planning Commission, where an onshore generation facility is greater than 50MW, or where an offshore generation facility is greater than 100MW.
- National significant infrastructure projects include gas storage projects and construction or alteration of pipeline infrastructures.
- The new regime will be used for energy developments including nuclear power
- The Secretary of State will no longer have the final say on major infrastructure decisions
- Planning appeals for minor developments will be heard by a panel of local councillors rather than by a planning inspector.
- There will be a new Community Infrastructure Levy on developments to finance infrastructure.

On-going activity

3.14 On-going and committed energy programmes are summarised in Table 3.2. These include some programmes/projects which are also included under other themes, but are mentioned here because of their importance to achieving the RES/RSS energy targets and priorities. They can be categorised as follows:

- Financial and business support for energy businesses – this includes access to finance programmes (for which energy is a key sector) for proof of concept and R&D, enterprise hubs focusing on renewable energy (OrbisEnergy) and related areas (eg environmental industries, high performance engineering, construction), supply chain development (Woodfuels East)
- Technology transfer and industry/research links - including the Virtual Hub for Advanced Biofuels and the RE Technology Acceleration programme
- Support for investment in energy efficiency, available to all sectors/types of firm – this includes the regional ERDF programme which is supporting low carbon growth
- Skills upgrading – including Beyond 2010, for which low carbon technologies is a key sector, and the Skills for Energy Partnership
- Energy efficiency and use in firms and communities – including Resource Efficiency East and Community Renewables Development and Fuel Poverty pilot

- Feasibility studies for capital investment in energy initiatives – including a bio-renewable energy research park, a solar energy park, an offshore operation and maintenance centre, and wave and tidal test bed.

3.15 In general these programmes having funding commitments to 2011 (the duration of EEDA's current Corporate Plan),. At present there is no reason to suppose that most or all will not continue beyond 2011, and will therefore contribute longer term to achieving the RES/RSS targets and priorities. In addition, the feasibility studies could lead to a requirement for capital investment beyond 2011.

Table 3-2: existing and committed regional-scale energy programmes and programmes affecting energy

Programme Title	Objectives & key components	Anticipated Outcomes & RES/RSS Impacts
Access to Finance - Proof of Concept	Enable entrepreneurs to test the commercial viability of innovative business ideas – Energy identified as a key sector Grants between £5,000 and £40,000, but limited to 75 per cent of project's total cost. Core product under BSSP	Promotion of innovation to realise higher levels of ambition particularly energy saving initiatives Strengthening clusters and strengths in environmental technologies and renewable energy
Access to Finance - Grants for Research and Development	Enable technology-focussed businesses to carry out research and development work on innovative products and processes – Energy identified as a key sector	Promotion of innovation to realise higher levels of ambition particularly energy saving initiatives Strengthening clusters and strengths in environmental technologies and renewable energy
Beyond 2010	Demand led skills and training funding for SME's – Low Carbon technologies identified as a key sector.	140 businesses assisted / 350 individuals assisted or gaining L3/L4 skills.
Enterprise Hubs – OrbisEnergy	To stimulate growth in the offshore renewable energy supply chain.	XX new tenants in the offshore renewable supply chain and contribution to spatial aspirations for Great Yarmouth/Lowestoft Maximising significant opportunities R&D and technology development for offshore renewables
Environment East	Environmental Industries hub for the East of England which aims to support businesses working in the environmental goods and services sector	Focus on environmental companies (as per DTI definitions) with high growth potential and the large corporates or private investors who can accelerate the market adoption of these more sustainable technologies, products and services
Innovation in Construction and the Built Environment	The BRE Enterprise Hub will be a 'one-stop-shop' for knowledge based enterprises (KBes), including technology orientated SMEs supplying into the construction sector	Creation of a built environment and sustainable construction innovation centre and park Strengthening clusters and strengths in environmental technologies and renewable energy & encouragement of Energy Service Companies ESCO's
Woodfuels East	Regional Woodfuel supply chain programme operated by the Forestry Commission	Encouragement of Energy Service Companies ESCO's Increasing the share of environmental goods and services markets Promote the use of renewable and low carbon energy sources Maintain the region as the UK leader in fields such as bio fuels, non-food crops and agricultural engineering
Virtual Hub for Advanced Biofuels	Virtual hub to facilitate contact between industry and academia to drive the development of advance generation	Maximising significant opportunities R&D and research intensive universities in major clusters and emerging strengths in environmental technologies

Table 3-2: existing and committed regional-scale energy programmes and programmes affecting energy

Programme Title	Objectives & key components	Anticipated Outcomes & RES/RSS Impacts
	biofuels	Maintain the region as the UK leader in fields such as bio fuels, non-food crops and agricultural engineering
Community Renewables Development	Community projects delivering renewables projects to address fuel poverty	Seek community support and participation in promoting waste and energy behaviour. Encourage supply of energy from decentralised, renewable and low carbon energy sources
Resource Efficiency East	REE aims to improve resource efficiency among the region's businesses, particularly among SMEs. Working in partnership with EEDA, Business Link and other ResEff delivery bodies to enable REE to be the post-IDB intervention for SMEs	3500 businesses receiving assistance, 315 receiving priority 3 assistance Maximising energy efficiency of development and promoting the use of renewable and low carbons energy sources
RE Technology Acceleration programme	Identifying technologies and accelerating their deployment to investment	30 screened / 10 supported p.a. Maximising significant opportunities R&D and research intensive universities in major clusters and emerging strengths in environmental technologies
Skills for Energy Partnership	identify, develop, co-ordinate and deliver a programme of activities which will ensure that the skilled individuals needed by the energy industry over the coming years are available, are suitably trained and developed leading to long term careers in energy	Skills programme to support RES/RSS ambitions for energy Sustaining and growing the regions position as the leading the UK in sustainable energy production
Capital Feasibility: Bio-Renewable Energy Research Park	Research to develop the next generation of bio fuels and bio energy technologies	Development of a business case to underpin long term investment Maximising significant opportunities R&D and research intensive universities in major clusters and emerging strengths in environmental technologies Maintain the region as the UK leader in fields such as bio fuels, non-food crops and agricultural engineering
Capital Feasibility: Solar Energy Park	Underpinning research for the development of the UK's first Solar Energy Park	Development of a business case to underpin long term investment Maximising significant opportunities R&D and technology development Promote radical change in the economy building on the regions established sectors and diversifying into new and emerging sectors.
Capital Feasibility: Offshore Operation and Maintenance Centre	Underpinning research for the development of world-class facilities around servicing the offshore wind industry	Development of a business case to underpin long term investment Promote radical change in the economy building on the regions offshore engineering skills Leading the UK in the deployment renewable and low carbon energy technologies both onshore and offshore.
Capital Feasibility: Wave and Tidal Test Bed	Underpinning research for the development of test facilities for wave and tidal devices for the East Coast	Development of a business case to underpin long term investment Promote radical change in the economy building on the regions offshore engineering skills

How far on-going activity is likely to take us: baseline and trends

Renewable energy

- 3.16 The current baseline of renewables' economic impact indicated in the EEDA RES Evidence Base is a total turnover in renewable energy products and services of between £50m and £100m per year and employment of between 600-800 people.
- 3.17 Recent figures suggest the East of England is the UK's leading region in terms of renewable energy production with 8.9% of electricity supply, and 2.2% of primary energy overall, coming from renewables. This compares with earlier figures quoted in the EEDA RES Evidence Base of 5.9% of the region's own electricity coming from renewables.
- 3.18 This proportion of renewables production compares against a national average of 1.4% (Renewables East Annual Review 2007/08). The region contributes 22.3% of national energy production from renewables (EEDA RES Evidence base).
- 3.19 In terms of potential, the East of England is estimated to have the highest capacity for electricity generation from wind and landfill gas in the country. With assets such as its large coast line for wind energy, shallow sea, and an agricultural base for bio fuels, the region has the potential to achieve 20% of final energy consumption from renewables by 2020, and could therefore surpass the Government's target for 15% of primary energy requirements to come from renewables by 2020 (report commissioned by Renewables East, cited in Renewables East Annual Review 2007/08). The map below shows the extent of the areas off the region's coast which are considered by the Crown Estates to be likely development zones for wind energy.

Indicative Economic Potential
for Offshore Wind
The Crown Estates' 4th June 2008
announcement on Round 3 for
offshore wind developments further
emphasised the East of England's
role at the forefront of the offshore
renewable energy industry.

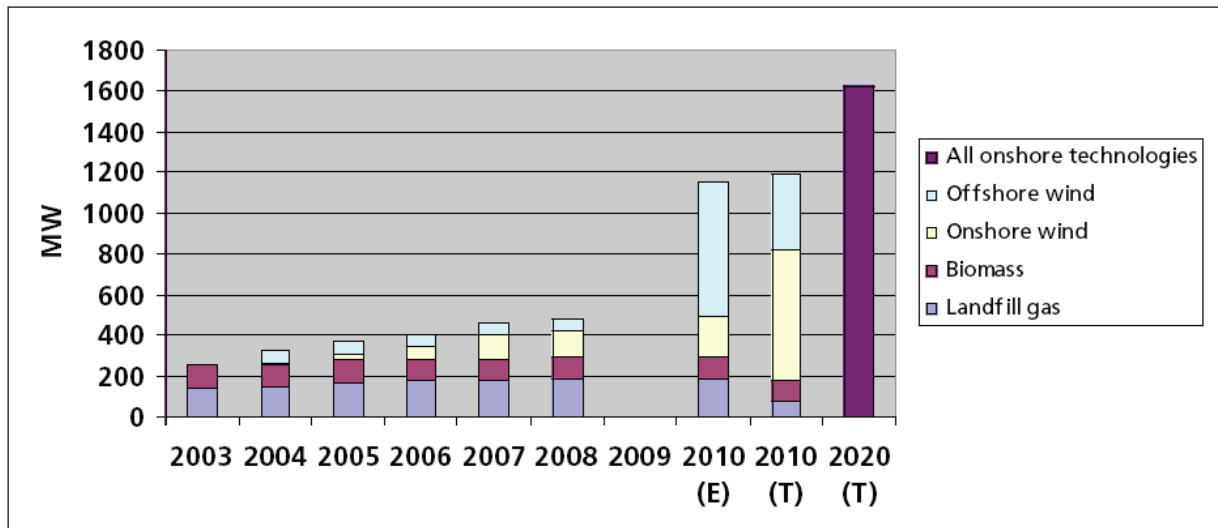
Legend
■ Round 2 Development Zones
■ Potential Round 3
Development Zones
— UK Territorial Sea Limit

Note
This map represents The Crown
Estate's initial view of locations of
potential zones for the development
of offshore wind farms. It will be
subject to revision. The zones do
not in any way reflect the output
of BERR's SEA.



3.20 However, the region's 2020 target - of at least 20% electricity from renewables excluding offshore wind – will be impossible to achieve if the prevailing rate of planning permissions for onshore wind schemes is maintained. The region only has some 70 turbines - or 120MW of installed capacity - up and running so far. During the 12 months to June 08, only 4 schemes (53 MW) were approved and 8 schemes (99MW) were refused (Renewables East Annual Review 2007/08). A graph taken from the Renewables East annual review below depicts current progress and required trend to 2020 targets.

Progress – Installed capacity of all Renewables Against 2010 and 2020 Targets (MW)



Notes: The data for 2003-2006 is taken from BERR's Sept 2007 Energy Trends.
 Data for 2007 by Renewables East.
 2010(E) illustrates Renewables East's expectation of delivery by end 2010.
 The 2010 (T) column shows the 2010 regional target .restated in the East of England Plan (May 2008)
 The 2020(T) column shows the 2020 target published in the East of England Plan which excludes off-shore technologies.

Energy in buildings

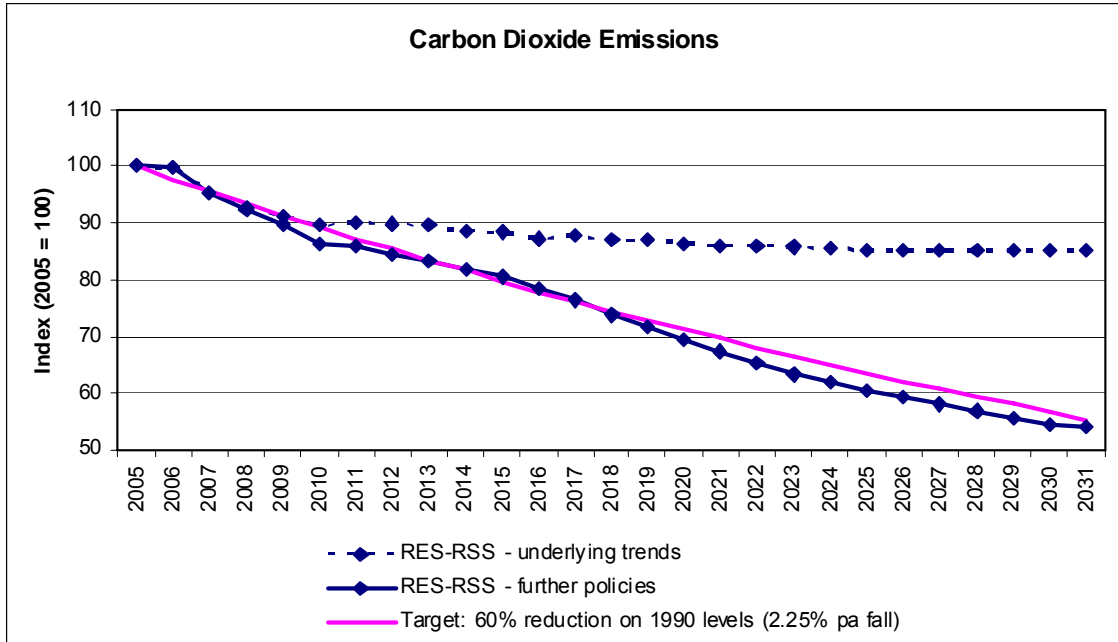
3.21 The EEDA RES Evidence base notes that the region particularly stands out as having one of the highest rates of domestic energy use. The Renewables East Annual Review (2007/08) states that over 30% of the region's housing is currently not connected to the gas network and that, often, these properties are poorly insulated, and together with using heating oil, are responsible for high costs and carbon emissions.

3.22 The desired trajectory in Figure 3-1 is mainly predicated on the following methods for reducing CO2 emissions, which include greater efficiency and use of renewables but also other measures:

- Improved energy efficiency of new and existing homes and commercial property
- Increased production and use of renewable energy sources Increased use of cleaner technologies to minimise the harmful effects of production/service delivery
- Increased use of more sustainable modes of transport
- Switch to cleaner fuels

- Reduction in the need to travel
- More efficient infrastructure use.

Figure 3-1 Trajectory for regional CO2 emissions



Source: EEDA

New energy programmes

The following energy programmes have been developed to address the RES/RSS targets and priorities. They include both the expansion and consolidations of some existing energy programmes summarised in Table 2-2, and new programmes. However, as stated previously, there are various programmes under other themes that will have an important effect on the ability to achieve the RES/RSS ambitions for energy.

Table 3.3: Regional Renewable Electricity Delivery Programme

<p>Objectives and key components</p>	<p>Key components of this programme would include:</p> <ul style="list-style-type: none"> • Improving access to the electricity network (on-shore & off-shore); • Support development of strong supply chains for generation plant, components and associated goods and services, in response to the increased demand (e.g. gearboxes or switchgear for wind turbines); • Working with regional universities and colleges to develop skills base that will contribute to new technology transfer and development; • Support centres of expertise in renewable technology research (e.g. fuel cell development in Cambridge, solar PV development at UEA); • Development of hydrogen based energy storage and carrier technologies • Continued development of regional Enterprise hubs to support knowledge transfer and business growth (e.g. OrbisEnergy at Lowestoft, Hethel Engineering Centre in Norfolk) • Review and assessment of potential of emerging technologies (e.g. tidal/ wave, fuel cell and energy storage)
<p>Rationale for intervention</p>	<p>The UK Renewable Energy Strategy due for final publication in Spring 2009 will require an estimated increase of renewable electricity from currently about 5% in the UK to around 34% in 2020.</p> <p>Approximately half of the UK's share of the EU 2020 renewable energy target might need to be met in the electricity sector. On that basis, perhaps a third or more of electricity would come from renewable sources by 2020 – compared to less than 5% today. We expect the majority of this would come from onshore and offshore wind, with important contributions from biomass.</p>
<p>Stage of development and delivery timescale (including phasing)</p>	<p>Further detailed work needs to be carried out early in 2009 to fully develop the specific strands of this programme.</p>
<p>Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap</p>	<p>The total cost of this programme is indeterminable until further scoping has been undertaken, however significant public sector support both at regional and local level will be required which is expected to generate private sector investment in technology development and deployment.</p>
<p>Delivery processes and responsibilities</p>	<p>Renewables East, core funded by EEDA, is one of the key delivery partners that will support this programme. Due to the breadth of this programme we must ensure that appropriate additional regional partners are engaged and support the development and delivery of this programme once fully scoped.</p> <p>The Renewable Energy Strategy may also call for regional targets for electricity that will contribute to the overall national target. Should this be the case we must ensure that all sub-regional partners are adequately supported (and joined up) to ensure regional cohesion.</p>
<p>Key constraints and issues regarding delivery</p>	<p>The key constraint of this programme is its breadth. The required interventions on renewable electricity are diverse and will require a number of delivery partners working together towards shared goals. The creation of a strategic forum to lead the broader energy agenda will be key in mitigating against regional fragmentation on delivery.</p>
<p>Expected outputs and outcomes</p>	<p>Whilst the expected outputs will meet electricity generation targets, there will be wider benefits and outcomes in supply chain and sector development and provision of support for the broader economic and housing growth agendas.</p>
<p>Link to high level RES/RSS outcomes</p>	<p>Direct link to renewable electricity generation targets.</p> <p>This theme will also support delivery against the following RES priorities:</p> <ul style="list-style-type: none"> • The region needs to radically change patterns of resource-use • Growth in the region's sustainable energy sector and maintain the region's lead position in renewable energy generation • Strengthening clusters around leading private sector R&D companies and research-intensive universities in major 'knowledge-generating' clusters such as renewable energy • Leading the UK in sustainable energy production and the widespread deployment of renewable and low-carbon energy technologies • Increasing share of environmental goods and services markets
<p>Spatial dimensions</p>	<p>non specific as region wide.</p>

Table 3.4: Regional Renewable Transport Fuels Delivery Programme

<p>Objectives and key components</p>	<ul style="list-style-type: none"> • Infrastructure development programme to support second generation biofuels • Work with key ports and logistics operators to promote the region as centre for handling import/exports of sustainable biofuels • Support research into second (and third) generation biofuels at regional universities and research institutes • Work with farmers, universities and businesses to implement demonstration projects in second generation biofuel feedstock production • Review commercial availability, and explore required interventions to support the creation of 2nd generation biofuels production facilities • Review commercial availability, and explore required interventions to support the creation of other transport fuels – Biogas, Hydrogen, Electric vehicles & associated network. • Work with regional businesses to support the production of biofuels from second generation biofuels • Assess the potential for a network of renewable non-liquid transport fuels for public transport systems and small/med scale fleets e.g. hydrogen/biogas/electric or hybrids
<p>Rationale for intervention</p>	<p>The UK Renewable Energy Strategy due for final publication in Spring 2009 will require an estimated increase of renewable transport fuels from currently about 1% in the UK to around 10% in 2020.</p> <p>The region currently accounts for around 12% of national transport fuel consumption (3rd highest in UK). With forecast growth in demand, the carbon intensity of existing fuels, and global security of supply, more needs to be done to encourage sustainable, low carbon transport fuels most notably biofuels in short to medium term.</p> <p>The EU's draft Renewable Energy Directive includes a binding target for all Member States to source 10% of their transport energy consumption (excluding aviation and shipping) from renewable sources by 2020[1]. At present the main source of renewable energy available for transport is biofuels. However, vehicles powered through the electricity grid using renewable energy, or from hydrogen or biogas will have a growing part to play.</p> <p>In 2006, biofuels accounted for less than 1% of the UK's road transport fuel. However, the Renewable Transport Fuel Obligation, which was introduced in April this year, now requires fuel suppliers to ensure that their road transport fuel contains 2.5% by volume of biofuels, rising to 5% in 2010.</p>
<p>Stage of development and delivery timescale (including phasing)</p>	<p>Further detailed work needs to be carried out early in 2009 to fully develop the specific strands of this programme.</p>
<p>Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap</p>	<p>The total cost of this programme is indeterminable until further scoping has been undertaken, however significant public sector support both at regional and local level will be required which is expected to generate private sector investment in technology development and deployment.</p>
<p>Delivery processes and responsibilities</p>	<p>Renewables East, core funded by EEDA, is one of the key delivery partners that will support this programme. Due to the breadth of this programme we must ensure that appropriate additional regional partners are engaged and support the development and delivery of this programme once fully scoped.</p> <p>The Renewable Energy Strategy may also call for regional targets that will contribute to an overall national target. Should this be the case we must ensure that all sub-regional partners are adequately supported (and joined up) to ensure regional cohesion.</p>
<p>Key constraints and issues regarding delivery</p>	<p>The key constraint of this programme is its breadth. The required interventions on renewable transport fuels are diverse and will require a number of delivery partners working together towards shared goals. The creation of a strategic forum to lead the broader energy agenda will be key in mitigating against regional fragmentation on delivery.</p>
<p>Expected outputs and outcomes</p>	<p>Whilst the expected outputs will meet national, and possibly regional, transport fuels targets being developed by government as part of the Renewable Energy Strategy, there will be wider benefits and outcomes in supply chain and sector development and provision of support for the broader economic growth agenda</p>
<p>Link to high level RES/RSS outcomes</p>	<p>No direct link to targets, but supportive of various regional priorities. For example:</p> <ul style="list-style-type: none"> • Growth in the region's sustainable energy sector and maintain the region's lead position in renewable energy generation • Leading the UK in sustainable energy production and the widespread deployment of renewable and low-carbon energy technologies

Spatial dimensions	Region wide programme
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Table 3.5: Regional Renewable Heat Delivery Programme

Objectives and key components	<ul style="list-style-type: none"> • Support the development of district heating infrastructure and high proportion of renewables in new settlements at early project stage • Work with National Grid/Ofgem to support the introduction of biogas into the gas distribution network • Map regional and sub regional biomass supply chains, including identifying organic waste material that could be used for renewable energy production • Work with councils and local waste authorities to divert biodegradable municipal waste from landfill • Identify opportunities for advanced energy from waste facilities (e.g. pyrolysis, gasification) • Work with agricultural sectors, sewage treatment companies and others to develop biogas CHP and biomethane injection projects • Regional woodfuel supply chain programme – potential extension of Woodfuels East, plus investigation into waste wood opportunities. • Extension of biomass boilers in schools, to include all public service buildings e.g. doctors / dentists / hospitals / supermarkets etc.
Rationale for intervention	<p>The UK Renewable Energy Strategy due for publication in Spring 2009 will require an estimated increase of renewable heat from currently about 0.6% to 14% in 2020.</p> <p>Heating accounts for the largest single proportion of the UK's final energy demand at approximately 49%, and also the largest proportion of our carbon emissions at 47%. Increasing renewable heat is therefore crucial for delivering the UK target. However deployment is presently at a very early stage, and only about 0.6% of heat is generated in the UK from renewable sources. Unlike electricity, heat cannot travel for long distances without significant losses and expense so most deployment is decentralised and local. Because heat is typically generated on site, the existing market consists of fuel, equipment and services. There is thus no heat unit price or traded sector as there is for electricity. The fragmented nature of the heat market, compared to electricity, means it is more difficult to develop renewable heat policies that encourage efficient and cost-effective deployment of these technologies and fuels.</p>
Stage of development and delivery timescale (including phasing)	Further detailed work needs to be carried out early in 2009 to fully develop the specific strands of this programme.
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	The total cost of this programme is indeterminable until further scoping has been undertaken, however significant public sector support both at regional and local level will be required which is expected to generate private sector investment in technology development and deployment.
Delivery processes and responsibilities	<p>Renewables East, core funded by EEDA, is one of the key delivery partners that will support this programme. Due to the breadth of this programme we must ensure that appropriate additional regional partners are engaged and support the development and delivery of this programme once fully scoped.</p> <p>The Renewable Energy Strategy may also call for regional targets that will contribute to an agreed overall national target. Should this be the case we must ensure that all sub-regional partners are adequately supported (and joined up) to ensure regional cohesion.</p>
Key constraints and issues regarding delivery	The key constraint of this programme is its breadth. The required interventions on renewable electricity are diverse and will require a number of delivery partners working together towards shared goals. The creation of a strategic forum to lead the broader energy agenda will be key in mitigating against regional fragmentation on delivery.
Expected outputs and outcomes	Whilst the expected outputs will meet national, and possibly regional, heat generation targets being developed by government as part of the Renewable Energy Strategy, there will be wider benefits and outcomes in supply chain and sector development and provision of support for the broader economic and housing growth agendas.
Link to high level RES/RSS outcome	This programme will support achievement of the target to ensure that 10% of the supply of energy for developments of more than 1,000 sqm of non residential floorspace, or more than 10 residential dwellings, is from decentralised, renewable

	<p>and low carbon energy sources.</p> <p>It is also supportive of various regional priorities, including</p> <ul style="list-style-type: none"> • Growth in the region's sustainable energy sector and maintain the region's lead position in renewable energy generation (RES) • Leading the UK in sustainable energy production and the widespread deployment of renewable and low-carbon energy technologies (RES) • Local authorities should encourage the supply of energy from decentralised, renewable and low carbon energy sources and through Development Plan Documents set ambitious but viable proportions of the energy supply of new development to be secured from such sources and the development thresholds to which such targets would apply (RSS) • .
Spatial dimensions	Region wide

Table 3.6: Sustainable engineering: Technology and Skills Transfer programme

Objectives and key components	<ul style="list-style-type: none"> • Extension of the Manufacturing Advisory Service programme to target key sectors and supply networks e.g. renewables and nuclear (as per the national manufacturing strategy review in 2007). • Enhance the existing Skills for Energy partnership to ensure skills transferability between key engineering sectors. • Explore engineering and manufacturing related disciplines, identifying key areas of technology and skills transfer and sector specific support enabling programmes.
Rationale for intervention	<p>Research commissioned in 2004 showed the energy industry in the region had an ageing workforce and suggested that more employers will be seeking to recruit from a diminishing pool of skilled workers. Within the companies surveyed, only 5% of employees were aged under 25 and only a quarter were under 35. Employers estimate that a quarter of the workforce will retire within the next 10 years. At the same time there was general concern about the difficulty attracting young people (of the right calibre) and the lack of apprentices and young people being taken on in the industry. It was stated that "the industry's recruitment and skills issues can only become more problematic".</p> <p>The Development of new and emerging energy technologies will be important for meeting our targets and for our longer term climate change goals. The energy sector is predominantly engineering focussed and it is essential that diversification between engineering supply chains be encourage as a key enabler for the region to capitalise on knowledge, skills and technology transfer, e.g oil and gas expertise into offshore renewables, civil engineering into new nuclear, chemical engineering and geosciences supporting CCS development etc.</p>
Stage of development and delivery timescale (including phasing)	Further detailed work needs to be carried out early in 2009 to fully develop the specific strands of this programme.
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	The total cost of this programme is indeterminable until further scoping has been undertaken to fully understand the scale of the required intervention, however there will significant public sector funding required through potential extensions to existing provision.
Delivery processes and responsibilities	<p>Whilst further work needs to be developed it is anticipated that existing contracting arrangements would be used to delivery these programmes. EEDA currently manages the Manufacturing Advisory Service and offers funding support for the Skills for Energy programme.</p> <p>EEDA, the Learning and Skills Council, Job Centre Plus, the East of England Skills and Competitiveness Partnership as well as partners within the relevant business support programmes would all need to be engaged in developing a cross-sector programme.</p>
Key constraints and issues regarding delivery	<p>There are two key principle constraints with the development of this programme.</p> <ul style="list-style-type: none"> • That the focus of the programme on technology and skills transfer could be extremely broad based across many manufacturing and engineering related disciplines, to the point that the focussed intervention of diversification for the benefit of the energy and environmental sectors become diluted. • The second constraint will be resources and capacity to deliver this programme in conjunction with existing provision or broadening the remit of existing programme support for manufacturing and engineering whilst remaining BSSP compliant.
Expected outputs and	The outputs of this programme would be aligned with relevant business support related intervention outputs, and not directly associated with the energy theme priorities due to

outcomes	the cross-cutting nature of engineering related disciplines across multiple sectors.
Link to high level RES/RSS outcomes	This programme will contribute to RES skills and innovation priorities such as strengthening clusters in high-growth areas such as renewable energy.
Spatial dimensions	n/a

Table 3.7: Carbon Capture & Storage Regional Supply Chain Programme

Objectives and key components	Development, demonstration and deployment of Carbon Capture and Storage technologies and associated technologies and supply chains.
Rationale for intervention	<p>Within the last few years, a growing consensus has been reached that Carbon Capture and Storage (CCS) can play a major role in reducing global and UK greenhouse gas emissions. This is because CCS appears to be technically feasible, allows continued use of fossil fuels for power generation, offers potential new markets related to CO₂ and heat, and appears to be relatively cost-effective, compared with several alternatives.</p> <p>The UK government and EU are proposing a major increase in investment in CCS within the next ten years, including subsidies worth tens of millions of pounds for CCS demonstration projects. The nature and locations of these demonstration projects, and the companies that will supply into these, have yet to be decided.</p> <p>More generally, companies based in the East of England may be able to develop experience supplying into CCS projects, regardless of location, given expertise and capabilities built from servicing the global oil and gas industries. If CCS is adopted across Europe, the US, Australia, China and India, this potential long-term market size could be hundreds of billions of pounds. The skills required for a successful CCS project span a number of disciplines, including chemistry, power engineering, process engineering, pipelines, geology, financing, legal, and offshore work.</p> <p>CCS technology development over the past few years has focussed on large scale concepts associated with conventional power generation, most notably coal fired power stations or 'clean' coal. There is wide consensus that there are significant opportunities both in offshore gas storage in the Southern North Sea which may compliment CCS, and in small and medium carbon capture processes. These require further investigation. Carbon capture at small/medium scale may be associated with heavy industrial processes, gas turbine or smaller power generation facilities e.g. CCGT or biomass fired power stations, petrochemical industries, or CHP projects where the CO₂ may be captured and used in, for example, algal sequestration or injected into a food/farming such as those at British Sugar's Wigginton facility. Such opportunities provide a larger market for CO₂, which may also have an impact on emerging strategies around heat.</p>
Stage of development and delivery timescale (including phasing)	CCS technologies are still in an early stage of development in the UK. Further detailed work needs to be carried out early in 2009 to fully develop specific strands of this programme.
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	The total cost of this programme is indeterminable until further scoping has been undertaken, however public sector support will be required in the early stages which is expected to generate private sector investment in technology development and further deployment.
Delivery processes and responsibilities	This programme would be lead by EEDA through it's innovation programme working with key strategic partners, for example, DECC, the Science and Industry Council and the Technology Strategy Board and industry groups such as the East of England Energy Group.
Key constraints and issues regarding delivery	The key constraint of this programme will be the scope and distinction between large offshore CCS technologies and small to medium CCS projects which are potentially diverse and will require a number of partners working together towards shared goals. The creation of a strategic forum to lead the broader energy agenda will be key in mitigating against regional fragmentation on delivery.
Expected outputs and outcomes	the key output would be quantifiable amounts of CO ₂ not being emitted which could play a major contrition to the regional carbon reduction target.
Link to high level RES/RSS outcomes	No direct link to targets, but supportive of various regional priorities, including the resource efficiency priority to support applied R&D and supply chain development for de-centralised, renewable and low carbon energy sources.
Spatial dimensions	Region wide

Table 3.8: Community Energy Solutions programme

<p>Objectives and key components</p>	<ul style="list-style-type: none"> • Deliver a pilot fuel poverty programme utilising Low Carbon Building Programme funding to stimulate commercial markets in Air Source Heat pumps. • Develop a Community Interest Company and support programme to address fuel poverty, working with regional partners. • Regional media campaign to encourage domestic consumption of renewable electricity, heat and transport fuels; 'green makeovers' • Deliver a retrofit programme for existing homes which could stimulate job creation from declining building and construction sectors. • Continue and enhance EEDA's Cut Your Carbon campaign to promote the carbon reduction opportunities within communities.
<p>Rationale for intervention</p>	<p>In May, the Government announced a new pilot project that will create a fuel poverty workstream within the Low Carbon Buildings Programme. £3 million will be made available in Wales and three English Regional Development Agencies (£1 million to the East of England), to fund the purchase of microgeneration technologies and their installation in households in deprived communities.</p> <p>The projects will be delivered between 2008 and 2010 by community interest companies reporting to the Regional Development Agencies. The projects involve not just the purchase and installation of technologies, but a whole community, whole house approach, in which individual households receive detailed energy efficiency and benefits assessments to ensure that their homes are properly insulated and that their income is maximised. As well as helping individual households, this activity will test the scope for a wider programme.</p> <p>In September 2008, the Government announced plans to launch a new £350 million Community Energy Saving Programme (CESP). This new programme would be targeted at low income communities in around 50 - 100 areas, offering free and discounted central heating, energy efficiency measures and small scale generation projects.</p> <p>Taking this into account and the current economic downturn with unemployment within the construction sector, particularly in domestic property, there is scope to develop a programme focussing on job creation for those with the necessary skills to support fuel poverty and energy savings interventions.</p>
<p>Stage of development and delivery timescale (including phasing)</p>	<p>Further detailed work needs to be carried out early in 2009 to fully develop the specific strands of this programme.</p>
<p>Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap</p>	<p>The total cost of this programme is indeterminable until further scoping has been undertaken, however significant public sector support both at regional and local level will be required. There is potential for additional funding from a levy on energy companies which could stimulate additional activity which needs to be explored.</p>
<p>Delivery processes and responsibilities</p>	<p>Delivery is anticipated to be via a Community Interest Company or similar body styled on a similar basis to the Community Energy Solutions model operating in the Yorkshire and North East regions. This would be primarily funded by EEDA with support from DECC and/or BERR under the Low Carbon Building Programme and emerging Community Energy Savings programme.</p>
<p>Key constraints and issues regarding delivery</p>	<p>Unknown at this stage of development</p>
<p>Expected outputs and outcomes</p>	<p>Any outputs would be related to job creation and also to lifting households/communities out of fuel poverty.</p>
<p>Link to high level RES/RSS outcomes</p>	<p>No direct link to targets, but supportive of various regional priorities, including</p> <ul style="list-style-type: none"> • Leading the UK in sustainable energy production and the widespread deployment of renewable and low-carbon energy technologies (RES) • Local authorities should encourage the supply of energy from decentralised, renewable and low carbon energy sources (RSS) <p>The programme will also support growth of employment in excluded communities and should therefore help address earnings inequalities</p>
<p>Spatial dimensions</p>	<p>n/a – region wide.</p>

Table 3.9: Regional Resource Efficiency Programme

<p>Objectives and key components</p>	<ul style="list-style-type: none"> • Progress towards a resource efficient economy by actively promoting and supporting sustainable consumption and production • Continued awareness raising of the economic opportunities of Resource Efficiency and the positive impacts on environment • Delivery of direct business Resource Efficiency support where market failures
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	<p>exist, particularly supporting SMEs.</p> <ul style="list-style-type: none"> Stimulate the resource efficiency goods and services market
Rationale for intervention	<p>Improving resource efficiency is becoming a priority for more and more businesses. The scope for further improvement is large and many organisations are still not taking advantage of the savings available.</p> <p>A recent Defra study, Quantification of the business benefits of resource efficiency, October, 2007, estimated the total value of low-cost / no-cost resource efficiency savings in the region at a total of £615mn annual savings opportunity. In detail the savings come from: Waste £247mn, energy £334mn, and water £34mn. This is a significant unnecessary cost to the economy and impacts on our competitiveness. A reduction of resource use of this scale would also have a significant positive effect on our environment.</p> <p>Recent energy price fluctuations have focussed many businesses on the need to improve their energy efficiency. The Government has introduced measures to help provide information and advice to business on resource efficiency. The combination of these has led to significant improvements in the business sector, but more can be done. There still remains a need to engage more fully SMEs in this resource efficiency agenda and better communicate the business, as well as environmental, benefits and opportunities that resource efficiency measures offer to businesses in this region.</p> <p>A Pilot of Information Diagnostic and Brokerage on resource efficiency by Business Link has proved successful and so continued enhancement of this, in alignment with national agendas, will be a key route to business.</p> <p>The advice and support available following the IDB model is also critical to ensuring that engagement translates to action on resource efficiency. Coordinated support offerings are essential to engage action from business on this agenda.</p>
Stage of development and delivery timescale (including phasing)	<p>Government is undertaking a delivery Landscape Review of Resource Efficiency Bodies. Following the publication of the findings of this review (expected early 2009), further detailed work will be carried out to review the delivery landscape within the region in light of the national decisions. EEDA are working closely with government on this review. Regional delivery of resource efficiency advice and support will be complementary to national provision and address areas of market failure.</p>
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	<p>A significant regional investment has already been committed by EEDA for a regional resource efficiency programme. Funding for any additional activities will be reviewed on announcement of the governments Delivery Landscape Review and kept under continual review thereafter.</p>
Delivery processes and responsibilities	<p>Delivery is anticipated to be primarily funded by EEDA, possibly with national support provided by Defra, DECC and BERR for national programmes and/or regional delivery.</p>
Key constraints and issues regarding delivery	<p>All Business Resource Efficiency support must be compliant with the governments Business Support Simplification Programme and accessed through Business Link.</p>
Expected outputs and outcomes	<p>Further action will help stimulate further improvements in business resource efficiency and put the East of England on a stronger footing to meet future economic and environmental challenges.</p> <p>Outcomes would include</p> <ul style="list-style-type: none"> increased GVA reduced CO2 emissions reduced landfill Reduced water consumption Reduced material use
Link to high level RES/RSS outcomes	<p>This programme is relevant to all resource efficiency aspirations in the RES and RSS.</p>
Spatial dimensions	<p>n/a – region wide</p>

Table 3.10: Regional Energy Leadership Council

Objectives and key components	<p>Establish a Regional Energy Leadership Council which would provide strategic guidance and advice on the development and alignment of national and regional strategies, programmes and projects relating to the growth and development of the region's energy sectors.</p>
Rationale for intervention	<p>At present there is no regional partnership or forum that brings together all key stakeholders and key delivery agencies together on issues around national and regional energy policy and delivery. This is seen by all stakeholders engaged through the Implementation Plan consultation process as a key action for the region to address</p>

	<p>for such a vital industry sector.</p> <p>The proposed Energy Leadership Council would provide strategic guidance and advice on energy related policy and strategy whilst providing a high-level industry led forum to champion energy related programmes/projects of national and international significance that bring together the region's universities, research centres, business and public sector bodies.</p> <p>The Council will provide expert and considered advice as well as resources to deliver the identified Regional Energy Priorities. Whilst the Council would not have its own specific budget or resources it can through its membership and representation ensure that the Region's energy related activities and resources are focussed and aligned to the programmes outlined through this implementation plan.</p>
Stage of development and delivery timescale (including phasing)	<p>The Council is at concept stage, with further details, draft membership and terms of engagement to be developed.</p> <p>Through consultation it was felt that this timescale for establishing proposed council should be early in 2009 with the first meeting no later than March 2009.</p>
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	<p>Resources have yet to be identified, however it is anticipated that the greatest resource use would be existing officer time from organisations represented on the proposed council.</p>
Delivery processes and responsibilities	n/a
Key constraints and issues regarding delivery	Changing and anticipated changes in Government policy around energy
Expected outputs and outcomes	A business-led council driving forward energy policy and programme delivery for a key sector of the region.
Link to high level RES/RSS outcomes	The Energy Leadership Council will link very closely to all targets and outcome in the RES and RSS relevant to energy, and offer guidance and advice on specific programme strategy and delivery.
Spatial dimensions	n/a – regional

4: ICT programmes

Ambitions set out in the RES/RSS

4.1 Table 4.1 shows the targets and priorities for ICT included in the RES and RSS.

Table 4-1 ICT outcome targets and priorities

Outcome targets

- A digital infrastructure which ranks highly among leading international regions
- Widespread access to the latest digital infrastructure for businesses and households
- A more efficient and innovative economy through maximum exploitation of ICT by businesses and households
- Increased share of businesses adopting smarter/flexible working practices
- Reduction in overall travel through use of ICT
- Businesses and individuals able to use ICT proficiently, with a reduction in IT skills gaps among the region's workforce

Priorities

- Higher speed broadband services
- Lobby, collaborate and plan for region wide availability of high speed broadband services comparable to competitor regions across the world
- Where necessary, stimulate demand for broadband services and promote their benefits
- Improving efficiency and innovation through the application of digital technologies
- Support growth of the digital technologies and software clusters in the region
- Enhance SMEs' productivity through advice and skills development
- People and businesses with the skills and capability to innovate through digital technologies
- Increase the quantity and quality of ICT skills provision to increase the rate of adoption of digital technologies

Source: summarised from RES

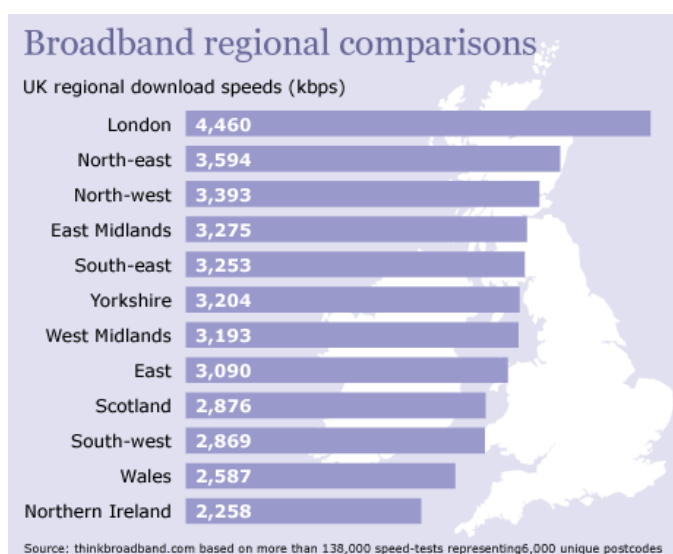
Regional context in relation to the targets

A leading digital infrastructure

4.2 Broadband coverage in the region is relatively good - 99.7% of the region's population can now get broadband, and the region is below the UK average for no-broadband "notspots". However, line speeds are relatively slow in many instances (see Fig. 4.1). Whilst national average line speeds doubled in the year to the end of 2006 (and further technological innovation may improve connection speeds over some longer connections which currently experience slow speeds) new applications are likely to need significant extra bandwidth. Industry groups suggest that by 2012 the most bandwidth intensive households will demand capacity that is beyond the capability of existing access infrastructures (downstream, 23 Mbit/s, upstream, 14 Mbit/s). Thus:

- 91% of businesses adopting ICT have broadband, with little variation across size and sector; which suggests that there is widespread access to this particular part of the ICT infrastructure.
- In terms of download speeds, the East of England is amongst the low-to-average performing regions and is therefore falling short of the aspiration to be amongst the leading regions.

Figure 4.1 (reproduced from BMG 2008)



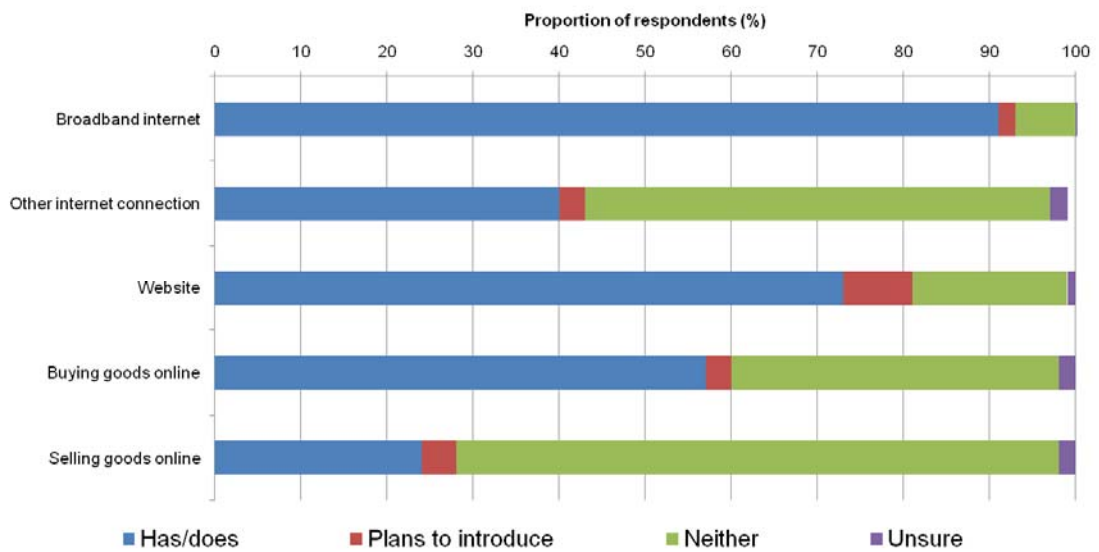
- 4.3 In many parts of the region, such speeds are likely to be beyond the incremental technological improvement which may be possible. The Digital State of the Region report found that while around 50% of the region will be able to purchase affordable services of 50Mbit/s or more, technical constraints mean that around 20% of the region will only have a choice of services below 5 Mbit/s. In this context, there is the prospect of a new, and more persistent, digital divide opening up in terms of access to next generation broadband (NGB) services. Rural areas are likely to be particularly affected (RES Evidence base).

Adoption of ICT

- 4.4 Business adoption of ICT in the region is broadly in line with the average for the UK. The Digital State of the Region report cited DTI data which suggested that in 2004, the proportion of businesses in the East of England with a website was the lowest of all the English regions. However, data released later by Ofcom indicated that by 2006, the region's SMEs had adopted computers, internet and broadband at levels somewhat higher than the UK average – though lagging the South East and London.
- 4.5 A survey of use of ICT technologies by companies (BMG, 2008) provides the following regional comparisons:
- Broadband: East 91%; South East 89%
 - Website: East 74%; South East 65%
 - Buys online: East 57%; South East 56%
 - Sells online: East 24%; South East 24%.
- 4.6 The survey results indicate that for just under half of regional businesses, ICT has enabled major changes to processes, procedures and customer relationships. This is more likely in larger and more progressive companies, begging the question of whether growth stimulated ICT adoption, or ICT adoption stimulated growth.

4.7 However, the survey also suggests that plans for ICT-based improvements are not so dynamic as might be imagined. Figure 4-2 reproduces survey figures showing the small proportion of businesses planning to introduce ICT technologies. In general, the focus for current and planned activity is website adoption or expansion, primarily for searching and communicating. A smaller number of companies using ICT for more direct business activities such as on-line sales. The suggestion is that most companies are not structured or strategic in their approach to ICT and don't have a good understanding of the costs and benefits (conclusions of BMG survey, 2008).

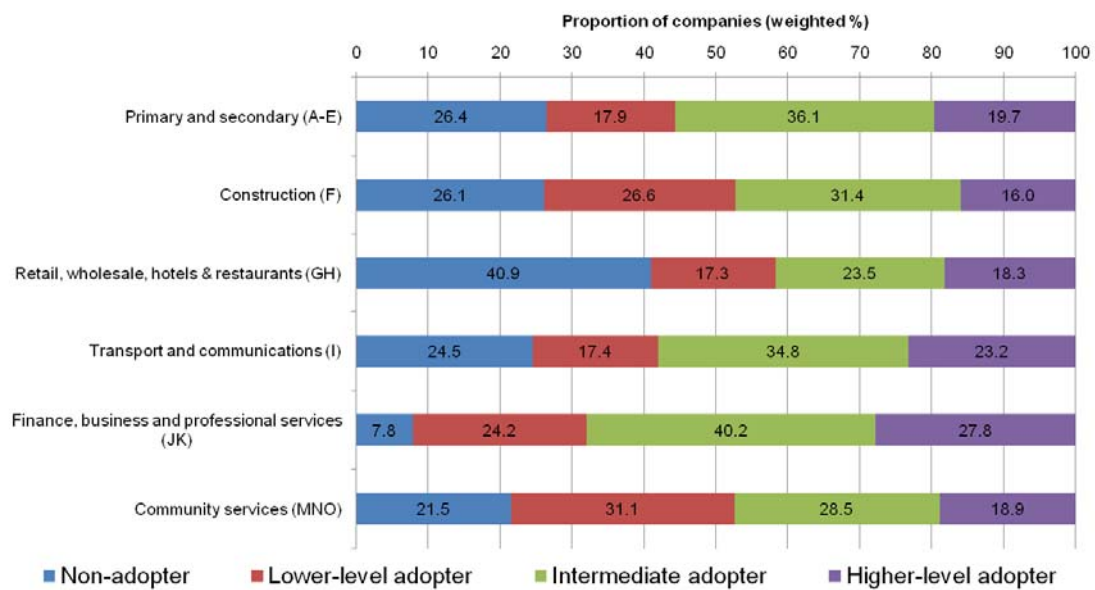
Figure 4-2 Adoption of ICT Technologies (Reproduced from BMG, 2008)



Source: BMG, 2008

4.8 Adoption rates also vary by sector, as Figure 4-3 illustrates:

Figure 4-3 Adoption of ICT technologies by sector



Source: BMG, 2008

More efficient & innovative economy through the maximum use of ICT

4.9 The EEDA RES Evidence Base cites research on the impact of ICT on productivity amongst UK Companies. This found that in manufacturing firms, in addition to the productivity impact of IT investment itself, the affects on business productivity were:

- use of computers by employees raises productivity by 2.2% for each additional 10% of employees IT enabled
- use of internet enabled computers improves productivity by 2.9%. In newer manufacturing firms the productivity impact of equipping employees is even greater
- In services, the productivity effect of IT enabled employees appears smaller, partly because the overall level of IT enablement in services starts from a higher base.
- Provision of computers raises productivity by 1.5% for each additional 10% of employees enabled; internet provision for employees has a similar impact.

4.10 A positive relationship between ICT and productivity is supported by the BMG survey of ICT adoption by companies in East of England - Turnover and profitability is found to be more likely amongst ICT adopters (BMG, 2008).

4.11 In terms of achieving the headline RES targets for GVA growth, this is a significant finding, and emphasises the important contribution that ICT can make.

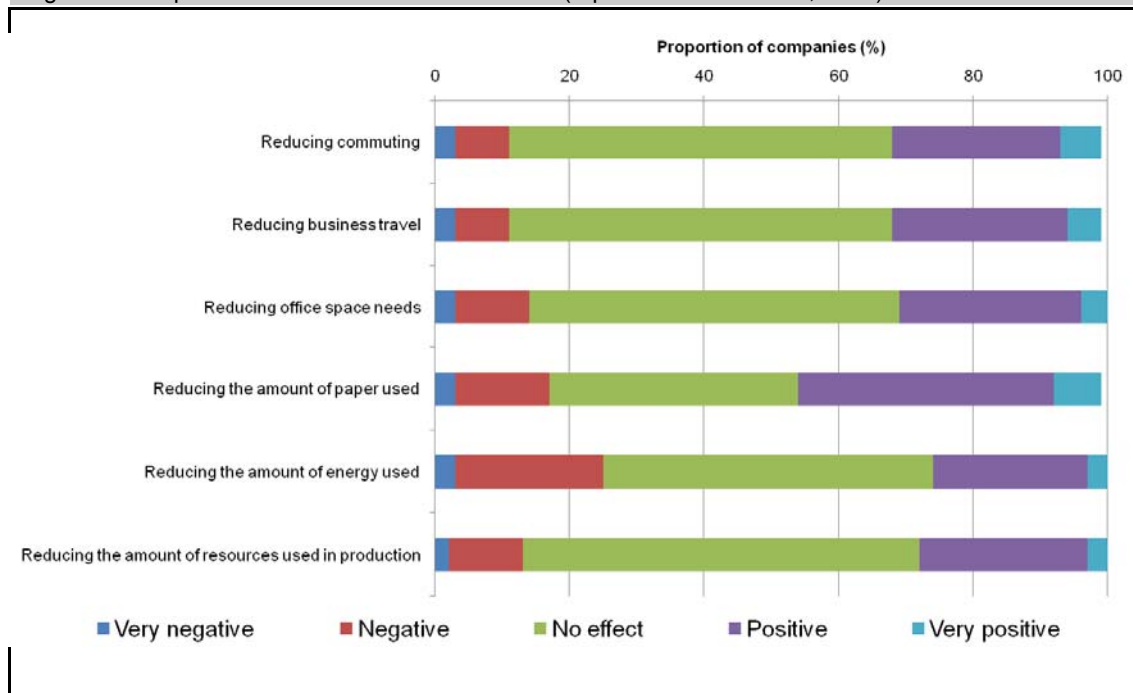
Adoption of flexible working practices

4.12 Relevant to the outcome targets of increasing flexible working and reducing the need to travel through the use of ICT, is the indication that just over 40% of companies in the region allow

flexible working locations for some or all workers (BMG, 2008). Provision for this is highest in the Community Services category of businesses. This flexibility of location is entirely dependent upon ICT (BMG, 2008)

- 4.13 Looking across various types of environmental impact, use of ICT broadly has a clearly positive impact, with the possible exception of energy use (see figure 4-4)

Figure 4-4 Impact of ICT on environmental issues (reproduced from BMG, 2008)



Source: BMG, 2008

ICT proficiency and skills

- 4.14 The DTI study (international benchmarking) found that the main barriers to adoption of ICT are overwhelmingly related to cost. In the East of England, the reasons given by businesses for not implementing ICT were set up costs (43%), lack of time and/or resources (26%), and running costs (25%). Lack of skills and lack of knowledge were not considered a barrier, with 10% and 7% of businesses respectively quoting this reason.
- 4.15 Research in the East of England found that a slightly lower than national average proportion of companies that employ IT professionals report that they have skills gaps (8% in the East compared to 9% in Britain), and the region also has a lower proportion of companies with IT vacancies than the national average (9% in the East of England compared to 17% in Britain). Across the East of England as a whole, the density of IT professionals is greater than the national average (EEDA RES Evidence base).
- 4.16 An alternative indicator of the outcome target of proficient use of ICT is the extent to which companies seek support and advice. 32% of surveyed companies who had adopted ICT had used external advice or support in the past 12 months to manage or develop their ICT. The main source of this was private ICT companies (70% were not aware of the IT support role of Business Link) (BMG, 2008)

- 4.17 Research found that the growing demand for ICT skills in the East of England across the economy translates into a growing demand for ICT literate workers. In respect of the current East of England workforce, there is a need for the upskilling of 700,000 people to address current gaps, and 600,000 to address the three year forecast. Of these around 60% of the upskilling is up to level 2 and 40% to level 3. The future skills required by IT professionals will focus on systems architecture. Solutions analysts and project managers who have a combination of business and IT understanding will also benefit (RES Evidence Base).

On-going activity

- 4.18 Table 4.2 summarises existing ICT programmes in the region. Annex A provides more detailed information for each of these programmes.

Table 4-2 Existing ICT programmes – objectives and expected outcomes

Programme	Objectives and key components	Expected outcomes
Digital content marketplace	DCM will become a platform for media based companies in the region to showcase and distribute their wares as well as allowing museums, archives and similar bodies to create digital archives of their material and to exploit new markets	Improved efficiency and innovation through the application of digital technologies
Regional ICT benchmarking survey	To achieve a timely and accurate understanding of: <ul style="list-style-type: none"> • levels of ICT adoption and exploitation relative to levels in other UK regions, EU countries and key competitor economies • the changes and trends in ICT adoption and exploitation in the East of England over time • variation in ICT adoption and exploitation across the East of England sub regions and across industrial sectors and firm sizes. • the impact of different ICTs on business activity and productivity • the barriers faced by businesses in optimising their use of different ICTs • current business intentions in relation to ICT 	A robust and up to date evidence base for the development of ICT support policy and delivery in the region
takeITon	takeITon offers a full range of both practical and financial support for businesses who want to find out how to exploit technology to grow their business. It's about making businesses aware of just what's out there – and giving them the confidence and skills to use it to the fullest extent. The ultimate objective is to maximise GVA increase through the effective exploitation of ICT.	<ul style="list-style-type: none"> • Maximum exploitation of IT by the region's businesses • Businesses able to use ICT proficiently • Increased productivity and resulting increase in GVA.
Work Wise East	to encourage the widespread adoption of smarter working practices, such as flexible working, remote working and working from home and promoting a better work-life balance.	<ul style="list-style-type: none"> • Increased share of businesses adopting smarter/flexible working practices • Reduction in travel through use of ICT

Source: EEDA ICT Team

- 4.19 These programmes address some of the RES targets but not all, and are unlikely on their own to deliver the scale of impact expected by the RES, and in particular to ensure that ICT contributes as fully as possible to the headline target for increasing GVA.

New ICT programmes to address RES/RSS ambitions

4.20 Six ICT programmes are proposed to address the RES/RSS ambitions in the regional context described above. Tables 4.3 summarises the relationship between these programmes and the RES targets and the scale of investment required, and Tables 4.4 to 4.9 provide details of the proposed programmes.

Table 4-3: Summary of new ICT programmes and their relationship to RES/RSS targets

ICT programme	Relationship to RES/RSS targets	Scale of investment required
Broadband improvement	<ul style="list-style-type: none"> A digital infrastructure which ranks highly among leading international regions Widespread access to the latest digital infrastructure for businesses and households 	<ul style="list-style-type: none"> up to £2.2bn to deliver fibre to home across the region, mainly private sector investment £500k over 3 years for EREBUS
Use of ICT	<ul style="list-style-type: none"> A more efficient and innovative economy through maximum exploitation of ICT by businesses and households 	<ul style="list-style-type: none"> £89m for a 3 year programme to grant aid SMEs £700k, including INTERREG bid of £400k, to understand impact on region of new technologies
Use of ICT to support flexible working	<ul style="list-style-type: none"> CO2 emissions - end user attributed CO2 emissions 60% below 1990 baseline level by 2031 Increased share of businesses adopting smarter/flexible working practices Reduction in overall travel through use of ICT 	<ul style="list-style-type: none"> Pilot requires £125k Region wide roll out to be self financing
Real time information systems	<ul style="list-style-type: none"> CO2 emissions - end user attributed CO2 emissions 60% below 1990 baseline level by 2031 Improving efficiency and innovation through the application of digital technologies 	<ul style="list-style-type: none"> £100k for exploratory exercise
Intelligent transport systems	<ul style="list-style-type: none"> CO2 emissions - end user attributed CO2 emissions 60% below 1990 baseline level by 2031 Improving efficiency and innovation through the application of digital technologies 	<ul style="list-style-type: none"> £89.5m allocated from TIF to Highways Agency for A14 £120k to prepare case for roll out to rest of region
ICT skills	<ul style="list-style-type: none"> Businesses and individuals able to use ICT proficiently, with a reduction in IT skills gaps among the region's workforce Enhance SMEs' productivity through advice and skills development People and businesses with the skills and capability to innovate through digital technologies Increase the quantity and quality of ICT skills provision to increase the rate of adoption of digital technologies 	<ul style="list-style-type: none"> tbc

Source: SQW

Table 4.4: Broadband Improvement

<p>Objectives and key components</p>	<p>To ensure close to universal availability of high speed broadband services:</p> <p>Key components include:</p> <ol style="list-style-type: none"> 1. Creation and/or demonstration of demand 2. Mapping and publication of supply and demand 3. Aggregation of public sector demand 4. Promotion of schemes for excluded communities 5. Promotion of broadband provision through planning legislation
<p>Rationale for intervention</p>	<p>There is an emerging digital divide with perhaps 40-50% of the region's population unable to access next generation services. Broadband services have proven to be a great economic importance in the past and it is anticipated that next generation broadband will be even more important. Next Generation Access (NGA) to higher speed broadband is therefore essential for the region's competitiveness and to ensure e-inclusion.</p> <p>Currently, there seems to be little prospect for the widespread deployment of NGA networks in the UK, as commercial incentives are particularly weak. High costs, unproven business models and intense competition for revenues from value added services make it extremely difficult for UK operators to justify large scale investments in new access networks. This means that we cannot assume that the broadband value chain, as currently structured and regulated in the UK, will deliver the ever greater bandwidth that both upstream service providers and users increasingly expect.</p> <p>Unlike some other regions, there are no large sources of European funding (or, indeed, domestic funding) that the East of England can call on to subsidise infrastructure build. However due to the East of England's historically high take up rates for broadband, we are better placed than almost any other region to deliver customers in exchange for new investment. Whereas domestic demand was the key driver in the roll out of first generation services, it is likely that aggregated demand from the public sector will perform the same role in the delivery of next generation broadband access in our more sparsely populated regional importance of public sector need.</p>
<p>Stage of development and delivery timescale (including phasing)</p>	<p>A business plan is in development for an Eastern Region Broadband Uplift Scheme (EREBUS) to cover elements 1-3 above. The objection of EREBUS is to encourage commercial suppliers to invest in next generation broadband infrastructure in the East of England. It seeks to do this in a manner that does not favour any operator or competing technology. The overall aim of the project is to register as much demand for next generation broadband services as possible in an information resource. It will demonstrate that there is sufficient demand to make commercial investment worthwhile. This will involve building and maintaining a database that will map demand (and supply) down to post code level. It will be freely available to anybody who needs it to provide a service. EREBUS will become operational during 2009 and will be in place for at least 3 years. Beyond that it may be extended if the market situation warrants it.</p> <p>Dependent upon advances in the market (wimax/satellite) or community schemes based on fibre. Schemes for excluded communities should begin to emerge towards the end of 2009.</p> <p>A significant narrowing of the digital divide is not expected before 2015. However, there may be opportunities through the evolution of new planning legislation in the form of Community Infrastructure Levy to ensure that the requirement to provide NGA is embedded in planning consents for new development.</p>
<p>Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap</p>	<p>Research carried out for the Broadband Stakeholders Group by Analysys Mason indicate that up to £2.2bn to deliver fibre to the home (FTTH) across the region². In the main, the private sector will meet demand. However public sector investment may be required to bridge the gap or act as anchor tenants to new build. Existing public sector demand can be the basis for this network build.</p> <p>EEDA support of EREBUS is essential as is Local Authority engagement. Costs for EREBUS are estimated at £500k over 3 yrs.</p>
<p>Delivery processes and responsibilities</p>	<p>EEDA to specify and build EREBUS structure in order to monitor and stimulate demand.</p> <p>It is anticipated that the private sector will deliver where there is a strong business case.</p>
<p>Key constraints and issues regarding delivery</p>	<p>Buy in from all concerned – promotion of EREBUS a key component of the overall programme.</p>

² Based on 1/13th of £28.8 bn baseline cast for the costs of FTTH (Analysis Mason)

	Private sector investment in infrastructure is dependant on economic climate and projected regional growth.
Expected outputs and outcomes	Improved proliferation of NGA Potential reduction in public sector costs for broadband (through aggregation) Reduction in digital exclusion, Co2 emissions and compensate for lack of services in rural areas. Regional competitiveness
Link to high level RES/RSS outcomes	A digital infrastructure which ranks highly among leading international regions Widespread access to the latest digital infrastructure for businesses and households
Spatial dimensions	Without intervention, rural and more sparsely populated areas are unlikely to benefit from NGA. The likely focus of private sector investment will be areas of higher population density.

Table 4.5: Use of ICT

Objectives and key components	Increased effectiveness of ICT across the region's businesses Reduction in the number of digitally excluded Region well positioned to exploit emerging technologies
Rationale for intervention	<ol style="list-style-type: none"> 1. There is now substantial evidence of the economic impact of business ICT adoption. The potential GVA uplift to the region is estimated to be at least 3.6%. There is also substantial evidence that many businesses, particularly small businesses, will continue to and increasingly face difficulties when adopting and exploiting ICTs. This will slow and in some cases prevent adoption, resulting in lower productivity and competitiveness. Conversely there is now substantial evidence that well-founded ICT business support programmes are effective in helping businesses address these issues, resulting in more businesses adopting and exploiting more ICTs and sooner, generating significant net additional economic impact, at relatively low cost to the public sector. 2. Digital exclusion has a major impact on individuals and limits their potential contribution to the region's economy. areas of digital exclusion are likely to mirror those of social deprivation. There is increasing recognition that the digital divide is not just a factor of social exclusion but a cause of it. 3. The chief beneficiaries of the first wave of ICT have been American corporations - we need to grow regional companies to be their competitors in the next wave which will be based on NGA broadband We need to incubate immersing technologies in such a way as to ensure that the benefits of innovation adhere to our societies. We need also to identify and plan for the effects of disruptive technologies on our existing businesses.
Stage of development and delivery timescale (including phasing)	<ol style="list-style-type: none"> 1. EEDA's takeITon campaign will run to March 2010. Thereafter a replacement programme is dependent on the outcome of the current BSSP debate. An ICT product was not originally included within the BSSP product portfolio but a transformational ICT pilot programme is currently being considered. 2. Interventions to tackle digital exclusion will become clearer following the current consultation process and the publication of the Digital Britain report expected early 2009. 3. A programme to understand the impact on the region of emerging technologies is currently being considered and is the subject of an INTERREG bid.
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	<ol style="list-style-type: none"> 1. Research undertaken for EEDA in 2006 indicated that the total cost of a 3 yr programme to support SMEs implement ICT within their business was circa £89m. This is based on a 40% subsidy for initial consultancy to businesses likely to see the most financial gain from successful ICT adoption. 2. Awaiting Government lead 3. Still to be determined. A successful INTERREG bid would attract a funding stream of circa €600k over 42 months matched by an EEDA contribution of €230k

	euros.
Delivery processes and responsibilities	<ol style="list-style-type: none"> 1. EEDA/BL 2. Awaiting Government lead 3. EEDA
Key constraints and issues regarding delivery	<ol style="list-style-type: none"> 1. Outcome of BSSP may restrict possible RDA activity in this area. 2. Publication of Digital Inclusion Action Plan will guide future activity 3. Programme funding dependant upon successful INTERREG bid
Expected outputs and outcomes	<ol style="list-style-type: none"> 1. Uplift to GVA through productivity gains. Increased adoption of ICT by region's SMEs 2. Reduction in digitally excluded as % of population 3. Benefit of technology investment retained in region.
Link to high level RES/RSS outcomes	<ul style="list-style-type: none"> • A more efficient and innovative economy through maximum exploitation of ICT by businesses and households
Spatial dimensions	<ol style="list-style-type: none"> 1. Region wide programme but particular focus on areas where most need. 2. Deprived wards most likely to experience digital exclusion. 3. ICT cluster focus

Table 4.6: Use of ICT to support flexible working

Objectives and key components	Increased flexible working in the public, private and third sectors
Rationale for intervention	Economic, social and environmental benefits
Stage of development and delivery timescale (including phasing)	<p>EEDA is currently promoting a pilot project for the public sector in Cambridgeshire. Concept is to enable public sector office employees to use premises close to where they live. Hot desks would be made available in all the offices of participating organisations. An on-line booking service would then be established for employees of these participating organisations, providing information on desk space available and a booking service.</p> <p>If successful, scheme would be rolled out to public sector region-wide, and potentially to private sector.</p>
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	<p>Pilot requires up to £75,000 capital and £50,000 revenue expenditure.</p> <p>Region wide roll out should be self financing.</p>
Delivery processes and responsibilities	Regional initiatives endorsed by Work Wise East
Key constraints and issues regarding delivery	<p>Technology issues (ie software for on line booking and remote working) easily overcome</p> <p>Process issues – staff working remotely need different methods of support</p> <p>Needs cultural change to managing people by outputs/outcomes rather than by presence</p> <p>Personal choice issues – needs to avoid compulsion to work in a particular location</p>
Expected outputs and outcomes	Reduction in business mileage

	Carbon savings (NB BT has done research on mileage and carbon saved by BT by flexible working – Neil Mellor to send report) Efficiency gains Healthier workforce
Link to high level RES/RSS outcomes	<ul style="list-style-type: none"> • CO2 emissions - end user attributed CO2 emissions 60% below 1990 baseline level by 2031 • Increased share of businesses adopting smarter/flexible working practices • Reduction in overall travel through use of ICT
Spatial dimensions	Potential to ease congestion on difficult transport corridors.

Table 4.7: Real Time Information Systems

Objectives and key components	Reduce congestion and travel time by giving people access to real time information on public transport journeys (timetables and whether trains/buses etc are on time or delayed), road congestion, parking availability and costs, and on the most efficient means of making a particular point to point journey This would build on the web based platform Transport Direct and would primarily be focussed on ensuring a standardisation of information input from transport providers.
Rationale for intervention	The Transport Economic Evidence Study (TEES) found that the cost of congestion across the six counties of the East of England was £1 billion in 2003 and, unless radical joint action is taken by all partners in the region, that this could double to just over £2 billion by 2021. There is a lack of real time information, easily accessible to travellers, about the best way to get to a destination at any particular time, avoiding travel problems en route. Improved availability and integration of information will increase efficiency and reduce congestion.
Stage of development and delivery timescale (including phasing)	Various pilot projects underway elsewhere – eg 1. BT developing a real time travel portal for Manchester, to provide information on trains, buses, road congestion, airport, etc – objective is to reduce road congestion and increase use of city centre 2. Technology Strategy Board funding development of GPS units used to link cars on journeys to information on parking availability and costs (including park and ride and congestion information) Preliminary investigations show the need to encourage people to consider other means of transport other than private cars. Early consideration is being given to a project which would provide reliable, realtime information to help travellers plan their journey and also inform them of any changes that occur as they take that journey.
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	£100k for an exploratory exercise.
Delivery processes and responsibilities	EEDA to engage local transport providers to persuade them to participate in a pilot
Key constraints and issues regarding delivery	3. For East of England need to think about outcomes sought – metrics. Issues about availability of information 4. Need to establish standards up front – unless this happens, different pilots will use different technologies and roll out will not be transferable from place to place. Transport Direct should publish standards for exchange of information (and for road pricing)
Expected outputs and outcomes	Improved travel information. Increased take-up of public transport due to reliable information and on line journey planning.
Link to high level RES/RSS outcomes	<ul style="list-style-type: none"> • CO2 emissions - end user attributed CO2 emissions 60% below 1990 baseline level by 2031

	<ul style="list-style-type: none"> Improving efficiency and innovation through the application of digital technologies
Spatial dimensions	Stretches beyond the region. Most effective in travel 'trouble' spots and/or complex journeys.

Table 4.8: Intelligent Transport Systems (ITS)

Objectives and key components	Reduce congestion and travel time maintain fluid movements through use of ITS to advise on incidents up ahead and on alternative routes and speed regulation. Potentially, locate ITS on all major trunk roads in and beyond region.
Rationale for intervention	<p>There is a lack of real time information, easily accessible to travellers, about the best way to get to a destination at any particular time, avoiding travel problems en route. Improved availability and integration of information will increase efficiency and reduce congestion. A pilot study undertaken on the M42 by the Highways Agency has shown that through the use of such measures congestion can be significantly reduced and certainty of travel time improved.</p> <p>This approach is directly in line with Eddington principles for making the most of current transport infrastructure and is supported by the work in the East of England around the economic benefits of transport investments.</p>
Stage of development and delivery timescale (including phasing)	<p>£89.5m has been allocated from TIF to the Highways Agency to implement ITS measures on the A14 between Felixstowe and M1. In addition there is the potential for a further £60 million for similar measures on the A12. The DfT are potentially interested in a roll out of this programme to other trunk roads in East of England. In addition, the DfT and Highways Agency are currently undertaking some work around the use of similar systems on the Motorway Networks including the M11 and M1 due to report at the end of 2008.</p> <p>Subject to the outcomes of this and other work around viability, a prioritised programme of ITM interventions on key routes in the East of England could be made incorporating active traffic management, ramp metering, variable speed limits and queue detection systems. Critically, in the East of England such as programme would need to be developed in close consultation with Local Highway Authorities to ensure that any ITS measures are effectively linked in to local traffic management and information systems.</p>
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	<p>£89.5m has been allocated from TIF to the Highways Agency to implement ITS measures on the A14 between Felixstowe and M1. Further work would be required to assess the focus and viability of any roll out programme. Ultimately, success will depend upon making a coherent and convincing case to the Highways Agency and DfT.</p> <p>£120,000 estimate to put together a coherent case</p>
Delivery processes and responsibilities	Delivery of the programme would be through the Highways Agency funding by DfT. However, this would need to include the cooperation of the local highway authorities to ensure the maximum benefits are felt.
Key constraints and issues regarding delivery	<p>Funding availability</p> <p>Need for cooperation of adjoining regions</p> <p>Technology at Local Highway Authority level</p>
Expected outputs and outcomes	Significantly reduced congestion costs to the regional economy on the strategic road network
Link to high level RES/RSS outcomes	<ul style="list-style-type: none"> CO2 emissions - end user attributed CO2 emissions 60% below 1990 baseline level by 2031 Improving efficiency and innovation through the application of digital technologies
Spatial dimensions	Current focus on A14, roll out programme would focus on other trunk roads in the region subject to viability / business case.

Table 4.9: ICT Skills

Objectives and key components	To ensure that the region is effectively skilled to take advantage of ICT and future developments as identified through other programmes.
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	<p>1. Key components include a training and skills programme, drawing on the sector skills agreement, and targeted at four related communities:</p> <ul style="list-style-type: none"> • The IT Workforce <ul style="list-style-type: none"> ○ The IT Industry ○ IT professionals in other sectors • Business Managers • IT Users <p>2. Development of a Centre Of Excellence in the Region</p>
Rationale for intervention	<p>1. IT skills are very important to the regional economy. E-skills estimated in their Regional Skills Gap Analysis (2005) that 73% of the region's 2.6 million workforce use IT in their day to day work. That analysis also predicted that the number of jobs requiring ICT skills is set to increase as the number requiring no ICT skills declines.</p> <p>2. Around a quarter of businesses in the East of England are of the view that the ICT skills of their workforce are inadequate. The numbers of pupils passing IT-related GCSEs and A Levels is lower than many other regions while the percentage of people enrolling on IT-related further education courses is lower than expected given the size of the region's IT workforce.</p> <p>3. A further challenge for the region is to properly equip its business managers to interpret and exploit the opportunities available from ICT.</p>
Stage of development and delivery timescale (including phasing)	<p>EEDA's takeITon campaign is currently supporting SME owners/managers to utilise IT effectively in their business. Funding agreed to March 2010.</p> <p>Further work to be undertaken by EESCP to identify a suitable programme to support the development of appropriate IT skills for the region.</p> <p>There is a specific opportunity emerging through the Learning and Skills Council, in partnership with BT to develop a Centre of Excellence for IT skills in the East of England. Potentially located at Adastral Park, this would place the region at the forefront of the ICT skills agenda and could be linked to the development of regional programmes as developed with EESCP. This is at an early stage of development and further feasibility work and costings are being worked up.</p>
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	TBC
Delivery processes and responsibilities	EESCP, EEDA, BT in conjunction with the Learning and Skills Council
Key constraints and issues regarding delivery	takeITon only funded to March 2010.
Expected outputs and outcomes	Improved utilisation and exploitation of ICT in the region's businesses
Link to high level RES/RSS outcomes	<ul style="list-style-type: none"> • Businesses and individuals able to use ICT proficiently, with a reduction in IT skills gaps among the region's workforce • Enhance SMEs' productivity through advice and skills development • People and businesses with the skills and capability to innovate through digital technologies • Increase the quantity and quality of ICT skills provision to increase the rate of adoption of digital technologies
Spatial dimensions	Region Wide

5: Water programmes

Ambitions set out in the RES/RSS and regional context

5.1. The targets and priorities identified in the RES/RSS are summarised in Table 5.1.

Table 5.1 Water outcome targets and priorities

Outcome targets

- Reduce the average per capita consumption of water used in all homes to no more than 120 litres per head per day (RES)
- Per capita consumption in *new homes* to achieve 105 litres per head per day (Level 3 of the Code for Sustainable Homes) adding an allowance for external water, the total target for new build housing is 115 litres per head per day. (RES)
- Consumption will be monitored against a target for internal domestic consumption in new homes of 105 litres per head per day (Level 3 of the Government's Code for Sustainable Homes for new households).

These targets equate to savings in water use of at least 25% in new development and 8% in existing development, compared with 2006 levels. (RSS WAT1)

Priorities

Ensure that development in the spatial strategy is matched with improvements in water efficiency delivered through a progressive, year on year, reduction in per capita consumption rates (RSS WAT1)

Ensure timely provision of the appropriate additional infrastructure for water supply and waste water treatment to cater for the levels of development provided through this plan, whilst meeting surface and groundwater quality standards, and avoiding adverse impacts on sites of European or international importance for wildlife (RSS WAT2)

Develop a coordinated approach to plan making through a programme of water cycle and river cycle studies (RSS WAT2)

Incorporate high water efficient standards in new development, reduce leakage rates, increase the efficiency of existing buildings and support behavioural change in how water is used in homes (RES)

Raise standards for water efficiency in new build and support a major retrofit programme through a regional centre of excellence for water efficiency (RES)

Locate new development to maximise the potential of existing water supply and waste water treatment infrastructure and minimise the need for new /improved infrastructure (RSS WAT2)

Ensure spatial plans and policies take account of the environmental consequences of river basin management plans, catchment abstraction management strategies, groundwater vulnerability and source protection zone maps, and proposals for water abstraction and storage (RSS WAT3)

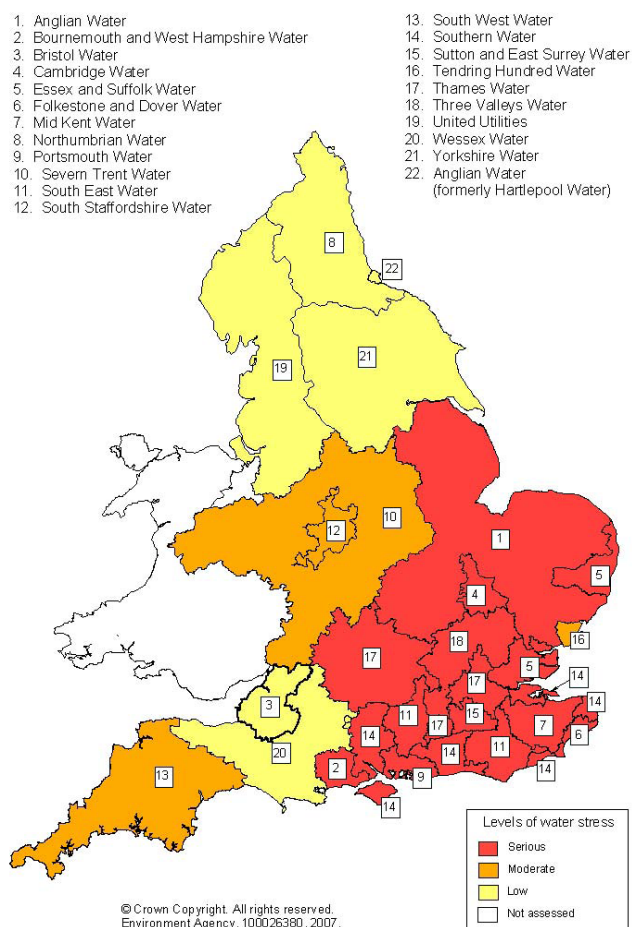
Encourage more sustainable use of water resources through winter storage schemes and new wetland creation (RSS ENV4)

Source: RES/RSS. Note that RSS Policy WAT4 (Defend existing properties from flooding and locate new development where there is little or no risk of flooding) is covered in the green Infrastructure theme

5.2. The East of England is the driest region in England, with an average rainfall of 595mm compared with the national average of 897mm (Environment Agency, 2004). It also has comparatively high per capita consumption of water and there are areas where water abstraction is above its sustainable level. Combined with projections for rainfall and demand, this has led to the classification of all areas³ in the East of England as seriously water stressed (Environment Agency, 2007).

³ All water company water resource zones have been classified as an area of serious water stress in the East of England area with the exception of Tendring Hundred Water's supply area which is classified area of moderate water stress.

Figure 5.1: Levels of water stress nationally



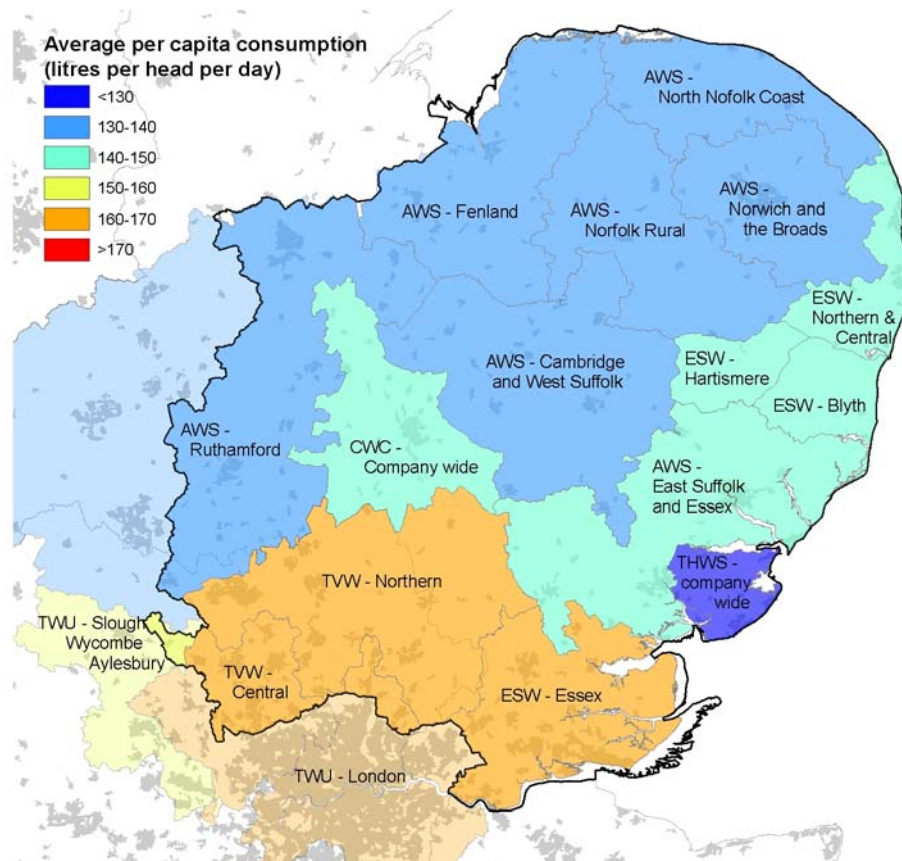
Source: Environment Agency (2007); Areas of Water Stress: Final Classification.

- 5.3. Unless we change our current water management and behaviour, and strive for lower levels of water consumption, we will face serious threats both to the security of our water supplies and to the health of our water environments and nature conservation sites.
- 5.4. The desire to decrease per capita consumption is being championed at a national and local level, which is why several targets are outlined here. The average per capital consumption across the East of England area is around 154 l/h/d⁴. The RES has set a target of 120 litres per head per day (l/h/d) by 2030, which would require consumption to reduce in all water company areas in the East of England. The government has also recently set out its strategy for water in England in Future Water (Defra, 2008). Future Water includes the ambition to reduce average per capita consumption in England from its current level of around 150 l/h/d to 130 l/h/d by 2030, or possibly even 120 litres per person per day depending on new technological developments and innovation.

⁴ Based on *normal* year consumption for 2006/07 derived from Table 9 data in water company draft water resource management plans.

- 5.5. The RES and RSS include an ambitious target of 105 l/h/d (115 l/h/d including an allowance for external water use) for all new build properties. This is based on new build properties reaching Code level 3 of the Code for Sustainable Homes. Currently all social housing funded through the Housing Corporation has to be built to Code level 3. The Government is committed to changing the Building Regulations to set stricter minimum standard for water use in all new homes over time. Code level 3 is proposed to become mandatory for all new homes by 2010, and Code level 6 (including a target of 80 l/h/d for indoor water use) by 2016⁵.

Figure 5.2: Average normal year per capita consumption in the East of England area for 2006/07



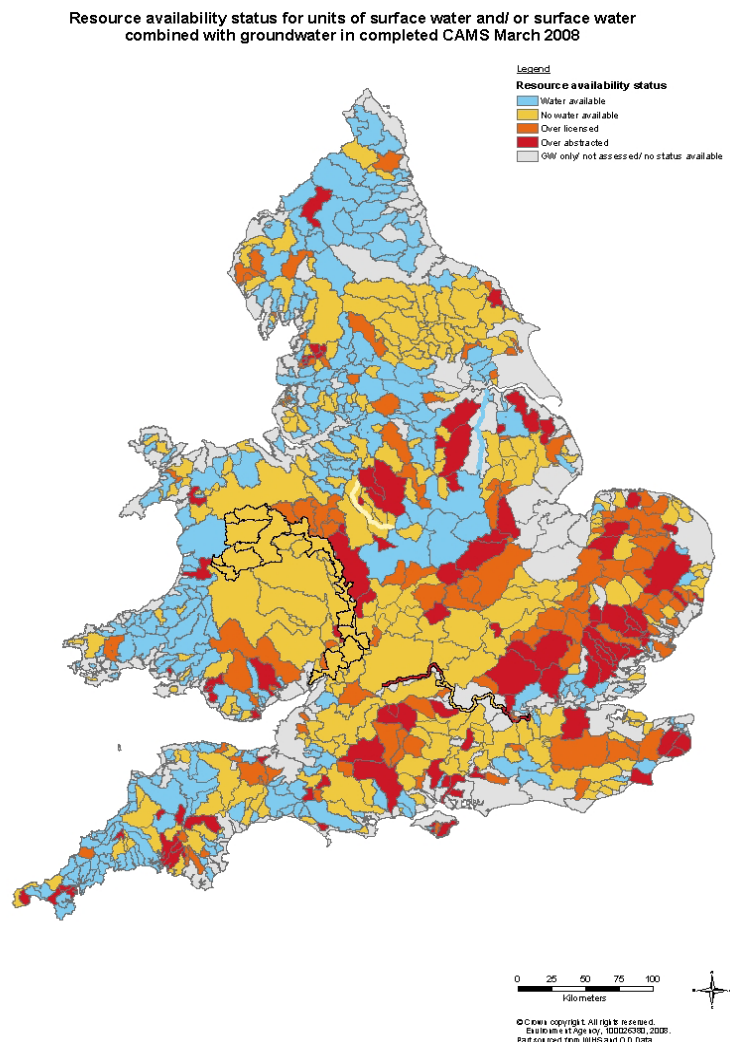
Source Environment Agency (2008); data from water company draft water resource management plans

- 5.6. Water is vital not only for domestic supply but also for agriculture and other industries. In the East of England agriculture utilises around 5% of all water abstracted (East of England Rural Forum, 2007). This is considerably higher than the average across England and Wales of only 1%. Due to the high proportion of spray irrigation abstraction in the region, it also tends to coincide with the driest periods when overall demand from all users is at its highest.
- 5.7. Water is also essential for the environment and for a range of recreational purposes and tourism. Much of the East of England's water resources are now fully committed, and in some cases over-committed, posing a threat to the integrity of the region's rivers and

⁵ Code for Sustainable Homes: Technical Guide – Department for Communities and Local government, October 2008

wetlands. The Environment Agency’s Restoring Sustainable Abstraction programme is intended to deal with such impacts at Natura 2000 sites and Sites of Special Scientific Interest in particular.

Figure 5.3: Water resource availability status in completed Catchment abstraction Management Strategies



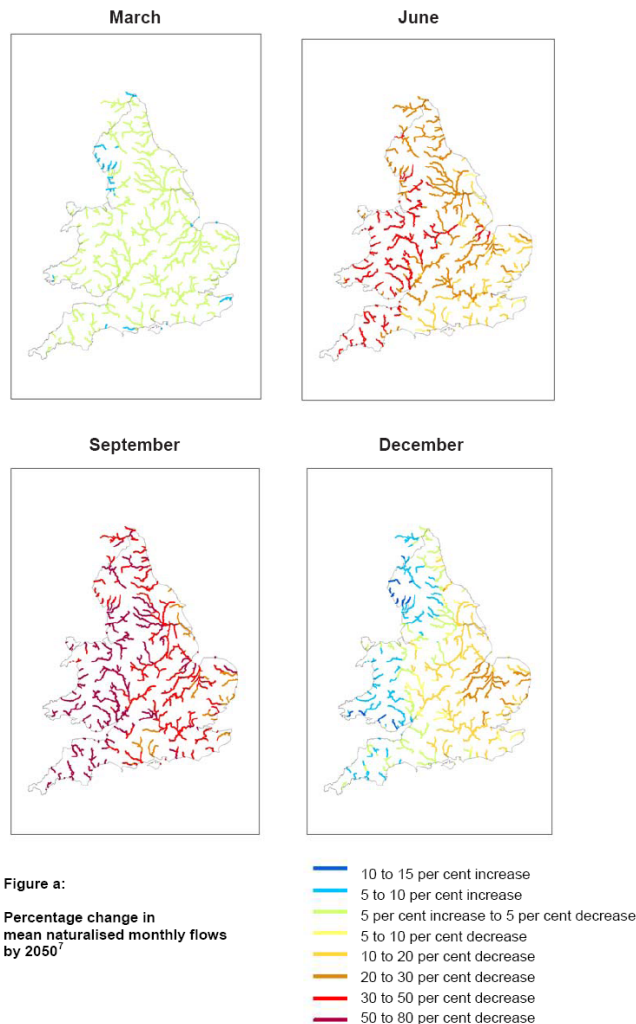
Source: Environment Agency (2008); *Managing Water Abstraction – Interim update*

- 5.8. The greatest pressure on the availability of future water resources within the region is likely to come from two sources: population growth and climate change. Total demand for water in the East of England as measured by water company distribution input was just over 1500 million litres per day (Ml/d) in 2006/07. By 2035 this is forecast to rise by around an additional 70 Ml/d, most of which is due to a forecast rise in domestic (household) consumption and driven by a growing population⁶.
- 5.9. Changes in climate will also affect groundwater and river flow regimes. Recent work undertaken by the Environment Agency has found that total annual river flow could drop by as much as 10–15 per cent by the 2050s and some river flows may be reduced by as much as 50-80% from current levels (Environment Agency, 2008). At the same time, agricultural

⁶ Data derived from water company draft water resource management plans published in Spring 2008.

irrigation could increase by about 20% by 2020, and 30% by 2050 (King et al in Defra, 2008). Demand for irrigation is concentrated particularly on lighter soils, sands and sandy loams, including in Eastern England. This means there will be increasing pressure on our water resources in the future and we face the prospect of meeting increasing demand with less resources.

Figure 5.4: Percentage change in river flows in 2050

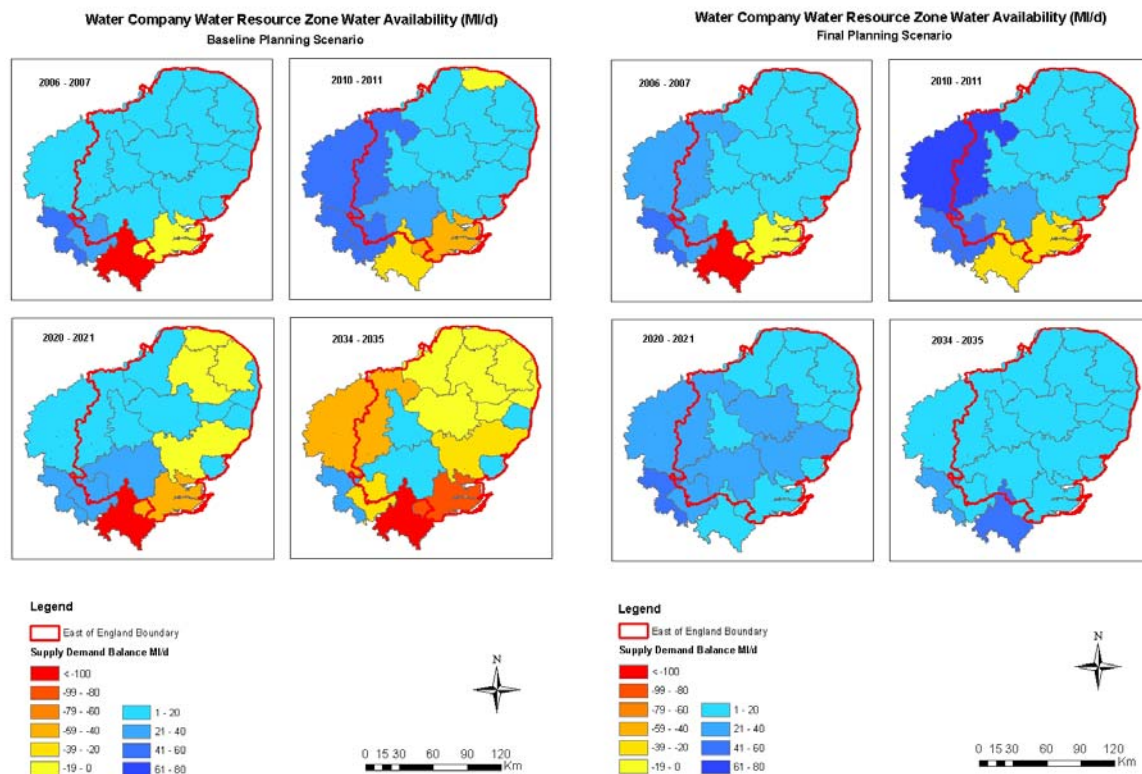


Source: Environment Agency (2008); *Climate change and river flows in the 2050s Science Summary SC070079/SS1*

- 5.10. The Environment Agency’s Water Resources Strategy for the East of England (Environment Agency, 2001) seeks a ‘twin track’ approach to meet the increasing demand for water in the region, whereby resource development (increased supply) must go hand in hand with demand management (water efficiency). Responsibility for planning and managing water supply rests with the water companies. Their water resources management plans show how they intend to manage water supply and demand for the following 25 years. The Government expects the water companies to follow the twin track approach in developing their water resource management plans.
- 5.11. Water companies in England published their draft water resource management plans for the period 2010-2035 in spring 2008. The plans show that without investment in new sources of

supply, or measures to reduce demand, large parts of the East of England could potentially have a supply-demand deficit by 2035. The draft plans include a number of schemes to expand supply through existing networks by increasing storage and by increasing treatment capacity. However, this must be done within the environmental constraints of sources and take account of the fact that water supply to parts of the East of England involves transfers from other regions and may require infrastructure improvements.

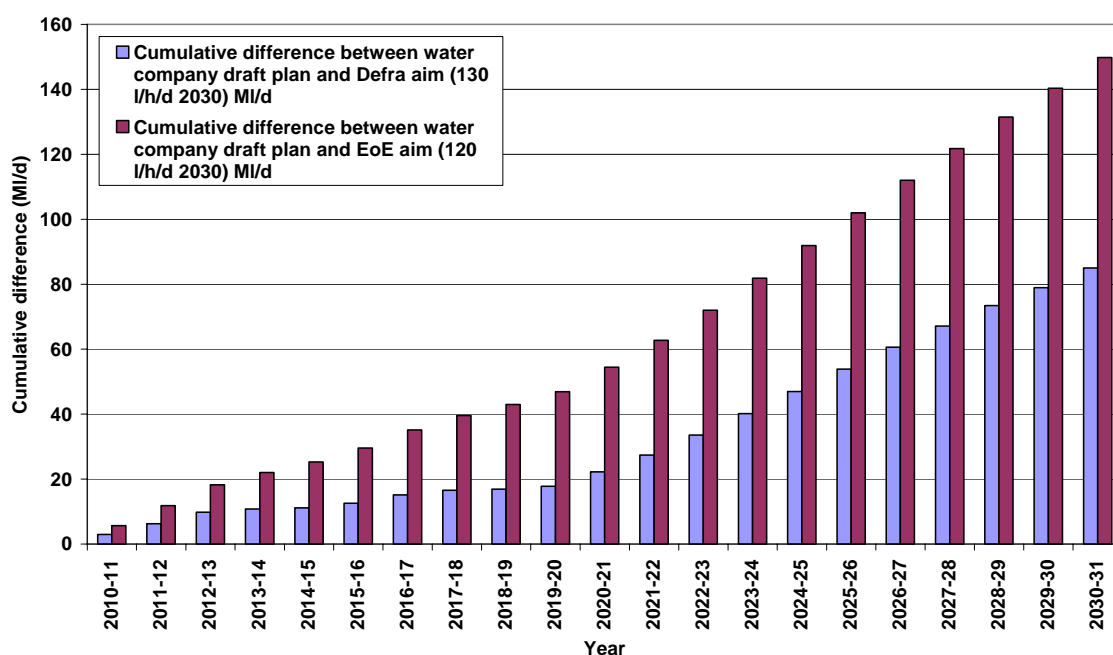
Figure 5.5 Water company water resource management plan baseline and final planning supply-demand balance forecasts



Source: Environment Agency (2008); data devised from water company draft water resource management plans published in spring 2008

- 5.12. The water companies draft plans currently forecast average per capita consumption in the East of England area will be 143 l/h/d in 2030. Although this is less than its current level, it is significantly higher than the RES target of 120 l/h/d. The Environment Agency has challenged all the water companies in the East of England to do more to reduce their customer's demand for water and to set out how they could work towards achieving the Government's ambition for domestic consumption of 130 l/h/d by 2030.

Figure 5.6 Cumulative difference between water company average year per capita consumption and RES target of 120 l/h/d and Defra's ambition of 130 l/h/d



Source: Environment Agency (2008); data derived from Table 9 of water company draft water resource management plans published 2008

- 5.13. Water companies are due to publish their final water resource management plans in 2009. The final plans will include updated supply and demand forecasts in response to comments received to consultation on the draft plans. It is anticipated forecast per capita consumption in the final plans could be closer to the East of England target of 120 l/h/d/ by 2030 and Defra's ambition of 130 l/h/d by 2030 due in part to the inclusion of new water efficiency targets that have been introduced by Ofwat. An update will be provided once the final plans have been published.

Spatial dimensions

- 5.14. Spatial dimensions include:

- the greatest water supply deficits are expected to be within the main housing growth areas, but these deficits can be addressed by transferring water from elsewhere within and outside the region. Solutions to supply deficits are not, therefore, specific to the localities in which they occur
- the south of the region has higher water consumption per capita and lower penetration of water meters than the north (e.g. in Hertfordshire fewer than 35% of households have water meters, compared with over 55% in Cambridgeshire, Bedfordshire and Suffolk and 46% in Norfolk)

- growth is planned in some areas with limited scope for additional consents for waste water (e.g. in the Bedford/Milton Keynes area).
- 5.15. In parts of the East of England, existing waste water treatment infrastructure (sewage treatment works and the associated pipe network) operate at the limits of their current discharge capacity. Where capacity limits have been identified and additional infrastructure is required, development may need to be phased to ensure that it does not exceed the capacity and/or environmental limits of the infrastructure. The scale of investment required suggests that this will be a critical issue in terms of delivering future growth within the region (GOEast, 2008).
- 5.16. In general, the sewerage networks within the East of England are considered to operate at, or close to, capacity levels. Extensive improvements will be required to the sewerage network to accommodate growth, although this is unlikely to pose any limits to the strategic development planned within the region (Halcrow Group Ltd, 2006). Based on the forecasts in the East of England Plan, of particular priority is the expansion of sewage treatment capacity for the Rye Meads catchment area, which includes Stevenage, Harlow and Welwyn. The key issue is to overcome restrictions in current capacity at Rye Meads without harm to the adjacent Lee Valley Special Protection Area. Additional investigation of the river capacity is also required at a number of locations within the region, including the key centres of Basildon, Chelmsford and Luton Dunstable Houghton Regis, where capacity is identified as an issue.
- 5.17. Discharge limits will become more restrictive under the European Water Framework Directive, which introduces a more integrated system of water management based on river basin districts, with a view to reducing water pollution, reducing the effects of floods and droughts, and ensuring that most inland and coastal waters attain ‘good ecological status’ by 2015. The Anglian and Thames River Basin Management Plans will identify the standards in the East of England. The Water Framework Directive requires ‘no deterioration’ from current water status and local authorities will need to take this into account in their water cycle strategies. Further guidance on the implications of the Water Framework Directive will emerge as it becomes operational.

On-going activity

5.18. Table 5.2 summarises existing and committed water programmes and their expected outcomes. More details for all of these programmes is included in Annex B. These programmes can be grouped into four main categories:

- Plans, strategies and studies – water company water resource management plans, EA water resources strategy and CAMS, water cycles studies
- Water efficiency initiatives – demand management/water efficiency projects, Anglian Water Efficiency Group, guides and events – Waterwise EAST design guides, rainwater harvesting booklet, and water efficiency events for the agricultural community
- Water supply and water quality infrastructure initiatives - Delivery of water supply and wastewater investment programme
- Influencing initiatives and joint working.

5.19. The strategies, plans and studies will lead in due course to the identification of specific programmes and projects.

Table 5-2: Existing water programmes, objectives and expected outcomes

Programme	Objectives and key components	Expected outcomes
Water company plans and demand management/water efficiency projects	To plan for the long-term water use in each water companies' supply area and achieve a sustainable supply-demand balance. Demand management plays a key role in achieving this balance. Water companies have a number of on-going activities to promote the efficient use of water including: targeted leakage control, metering programmes and initiatives, pressure reduction schemes, the installation of water efficiency devices, water audits and education programmes. This includes non-household and well as household	Water company water resource management plans, which identify measures needed to secure long-term supply-demand balance over the next 25 years. A decline/levelling of customer demand from measured and unmeasured customers. A reduction in overall water demand in order to meet Ofwat's water efficiency targets
Environment Agency Regional water resources strategy	To identify and manage the water resources to ensure there is enough for people and the environment. Forecasting ahead to help mitigate and adapt to issues such as climate change. To look and assess various water resource options that could be used in the future and also to promote water efficiency and demand management options – backed up by research undertaken for the Environment Agency and others.	A regional action plan with further projects to be undertaken to promote water efficiency and other aspects of water management.
CAMS – local catchment water management strategies	To provide a detailed local level assessment of water resources availability for abstraction licensing purposes. Provides a licensing strategy for use by Environment Agency officers and potential abstractors. Currently beginning a review	An up to date licensing strategy for use by Environment Agency staff and customers. A clear picture of where water is available for abstraction and where activities need to be targeted to reduce abstraction in over committed catchments.

Programme	Objectives and key components	Expected outcomes
	as initial documents all produced.	
Water Cycle Studies	To look at the water constraints, both in PWS, waste water, flooding and surface water drainage on various developments in the region. To identify the risks and draw up solutions.	Delivery of programme of water cycle studies to inform and support the formation of Local Development Frameworks across the region. Help all parties to plan more effectively for development in the coming years and which outlines the constraints and possible solutions to those constraints.
Regional water efficiency activities	To promote water efficiency, share ideas and information, develop joint policies and guidance and deliver practical advice on water efficiency for developers, planners, agriculture and other water users. Includes the work of: Waterwise EAST, including production of design guides to help planners and developers; Agricultural water efficiency programmes and Anglian Water Efficiency Group;	Production of guidance to pro-actively help, developers, planners and other water users to incorporate water efficiency in developments and use more efficiently reduce water use. More work in partnership to deliver effective planning for water infrastructure provision in new development. Achieve greater awareness of water resources and water efficiency issues and reduce overall water use.
Delivery of water and wastewater investment programme (AMP4 programme – 2005 to 2010)	Improvements to water company assets. Protecting and improving rivers, lakes estuaries, coastal waters and groundwater Delivery of water supply and demand management activities, including water metering programmes	100 schemes to improve water quality Approximately 200km river improved or protected. Greater meter penetration. Slowing or reduced customer demand for water. Improvement of supply-demand balance where schemes have been approved to overcome a resource zone deficit.

Source: Environment Agency

New Water programmes to address RES/RSS ambitions

- 5.20. Four new water programmes have been identified which aim to achieve the targets that are set out in the RES/RSS. These are summarised below, and described in more detail in Tables 5.4 to 5.8. Table 5.3 summarises the interrelationship between these new programmes and the RES/RSS targets and priorities shown in Table 5.1.

Table 5.3 Relationship between water programmes and RES/RSS targets, priorities and policies

Water programme	Relevant RES/RSS targets/priorities/policies
Domestic water efficiency	Per capita consumption in existing houses to fall steadily from 150l/h/d to around 120 l/h/d by 2030 (RES) Incorporate high water efficient standards in new development, reduce leakage rates, increase the efficiency of existing buildings and support behavioural change in how water is used in homes (RES) Raise standards for water efficiency in new build and support a major retrofit programme through a regional centre of excellence for water efficiency (RES) Achieve domestic internal consumption of 105 l/h/d, in new homes (RSS WAT1) Ensure development in the spatial strategy is matched with improvements in water efficiency delivered through a progressive, year on year, reduction in per capita consumption rate (RSS WAT1)
Water efficiency in non-households, including agriculture	Ensure development in the spatial strategy is matched with improvements in water efficiency delivered through a progressive, year on year, reduction in per capita consumption rate (RSS WAT1) Encourage more sustainable use of water resources through winter storage schemes and new wetland creation. (RSS ENV4)

Water programme	Relevant RES/RSS targets/priorities/policies
Long-term water resources and water quality planning and investment	<p>Ensure timely provision of the appropriate additional infrastructure for water supply and waste water treatment to cater for the levels of development provided through this plan, whilst meeting surface and groundwater quality standards, and avoiding adverse impacts on sites of European or international importance for wildlife (RSS WAT2)</p> <p>Ensure spatial plans and policies take account of the environmental consequences of river basin management plans, catchment abstraction management strategies, groundwater vulnerability and source protection zone maps, and proposals for water abstraction and storage (RSS WAT3)</p> <p>Develop a coordinated approach to plan making through a programme of water cycle and river cycle studies. (RSS WAT2)</p> <p>Locate new development to maximise the potential of existing water supply and waste water treatment infrastructure and minimise the need for new/improved infrastructure. (RSS WAT2)</p>
Regional water monitoring programme	<p>Per capita consumption in existing houses to fall steadily from around 150l/h/d to around 130 l/h/d by 2030 (RES)</p> <p>Ensure development in the spatial strategy is matched with improvements in water efficiency delivered through a progressive, year on year, reduction in per capita consumption rate (RSS WAT1)</p>

Domestic water efficiency

- 5.21. Measures to improve water efficiency in existing and new homes include water company metering programmes for 2010-2015, water efficiency programmes funded through PR09 for the water companies, the Waterwise East programme of engagement with builders/ developers/fitters etc, and implementation of ‘Attitudes’ research by Waterwise East. The aim of these programmes is to help reduce domestic per capita consumption down towards 130l/h/d by 2030 and promote water efficiency in businesses.
- 5.22. Each water company in the East of England has planned for a metering programme during the next five year planning cycle. These involve in different ways the companies increasing metering towards universal metering (c.90%). Most of the water companies in the East of England aim to achieve universal metering by 2020. This is funded by the water companies themselves through the periodic review process and customer charges. Each company will have a slightly different programme.
- 5.23. Each water company also has a water efficiency programme planned within its water resources management plan. These are likely to involve many different programmes but usually centre around providing advice on water efficiency with bills, education events at schools etc, working with the Environment Agency and other partners on developing projects and research in to retro-fitting. They may also provide easy to fit devices for customers to use, free of charge e.g. hippos for toilet cisterns, low flow shower heads etc.
- 5.24. Most companies in the region are already undertaking these programmes. These will continue in the future depending on the funding they receive from Ofwat in November 2009. The aims of these projects are to reduce consumption and to encourage behavioural change in the homes of their customers.
- 5.25. Waterwise East is funded by various partners EEDA, EERA, Defra and the Environment Agency. It has had a programme of producing planning and developer guides on water

efficiency. The planning guide is due to be launched in February 2009 but the design guide has been delayed in to the coming financial year.

- 5.26. One of the main aims of Waterwise East is to act as a centre of excellence on matters of water efficiency and to engage fully with developers etc. to encourage them to build in to new development more water efficient devices and to give them the good reasons for doing so. This programme will be continued next year to try and meet the target of 105l/h/d set by Code level 3 of the Code for Sustainable Housing for new builds.
- 5.27. Waterwise East have commissioned consultants to undertake some attitudes research. This involves finding out what householders attitudes are to having water saving devices fitted in their houses etc. The implementation of this work will take place in the coming year – the plan being to influence developers etc. so that they don't use the excuse of 'people don't want this..' for not putting water saving devices in their houses. This work is funded by Waterwise East.

Water efficiency in non-households, including agriculture

- 5.28. This programme includes funding for winter storage reservoirs and promotion of a rainwater harvesting booklet and other information to help farmers improve their use of water.
- 5.29. There is a programme set up which enables farmers to apply for funding from the Regional Development Authority to build winter storage reservoirs. This programme is to continue next year and the funding is available. There is a need to continue to advertise the availability of this funding to farmers so that there is greater uptake. Both the Environment Agency and the NFU are doing this. The aim is to decrease the amount of summer water that is needed by the agricultural community, especially as direct abstraction, from rivers and groundwater in order to protect the environment.
- 5.30. A rainwater harvesting booklet has been produced in co-operation with Cranfield University. There is now a programme for next year to promote this booklet to farmers to encourage them to use this method of water saving. This work will be undertaken through various farming events in the coming year. This initiative and the programme for funding winter storage reservoirs is part of a broader programme with farmers and growers to encourage them to use water more wisely.
- 5.31. Water companies in the region also undertake programmes to promote the efficient use of water by non-household customers. This can include audits, use of intelligent meters and provision of advice. This will continue in the future. The aims of these projects are to limit or help to reduce consumption by non-household customers, this includes in schools and hospitals.

Long term water resources and water quality planning and investment

- 5.32. This programme includes various components, including completion and implementation of Water Cycle Studies, water company water resources management plans, the Framework Directive (River Basin Planning) and the Periodic Review 2009.

- 5.33. Water cycle studies have been started in most of the development areas in the East of England. Once the scoping reports are completed there is a programme to produce firstly an outline strategy and then a full strategy in the coming two years for each development area. These strategies will show how the various aspects of water, including waste water, surface water drainage, flooding and water supply will be delivered in the various areas. They will also show how any risks to the development occurring will be addressed so that any new development is located where it can maximise the existing infrastructure. Responsibility for the production of these WCS lies with the local development authority.
- 5.34. The water company water resources management plans are currently being produced. These plans outline the work needed to be done by each water company over 25 years beginning in 2010. Within the plans the companies have forecast how demand and supply will change and what methods are needed to meet the demands of the future.
- 5.35. Options which will be implemented include demand options such as metering, water efficiency, leakage reduction etc. and also supply options such as infrastructure improvements, new resource developments etc. This will enable the companies to meet the demands from new levels of development predicted in the RSS, whilst also planning for and mitigating against any impact on the environment. Each company will have a slightly different programme of work depending on their resource availability and demands in their company's area.
- 5.36. The Periodic Review 2009 (PR09) is the process by which Ofwat will set the prices water companies charge their customers from 2010 to 2015. The review will complete in November 2009, when Ofwat set prices for the following five years. Water companies are required to publish investment proposals detailing how they intend to maintain and improve assets, for example to:
- Improve water quality in rivers, lakes estuaries, coastal waters and groundwater
 - Achieve compliance with water quality objectives
 - Deliver improvements to infrastructure to accommodate growth without causing a deterioration in water quality
 - Ensure abstractions do not have an adverse impact on the water environment.
- 5.37. The objective of the Water Framework Directive is to achieve good ecological status or good ecological potential in designated water bodies through the river basin planning process. Draft River Basin Plans will be published in December 2008. The relevant plan for the East of England is for the Anglian River Basin District. The Environment Agency coordinates the development of the river basin plan but Programmes of Measures have to be delivered by a range of organisations and stakeholders.

Regional water monitoring programme

- 5.38. This programme is intended to fill a gap in information needed to meet the targets in the RSS. It will enable the per capita consumption of both existing and new build houses to be

monitored over the years. This will allow readers to assess whether the targets for per capita consumption and water efficiency are being met in the East of England.

- 5.39. Overall per capita consumption is monitored and reported on each year by the water companies in their June Returns to Ofwat, so this information will be quite easy to obtain. However, per capita consumption of new build houses is not something that is available at this time. Information on the standards will need to be obtained from local planning authorities, so that the future new build consumption can be assessed against the RES target of 115 l/h/d by 2030.
- 5.40. This work would need to be funded in partnership with the Environment Agency, water companies, local authorities and perhaps others.

Table 5.4: Domestic water efficiency	
Objectives and key components	<p>To maintain demand at current levels or reduce it by promoting the efficient use of water through demand management proposals – these include targeted leakage control, enhanced metering, pressure reduction schemes, the installation of water efficiency devices and water audits.</p> <p>To increase water efficiency of new developments by provision of design and planning guidance on water efficiency for developers and planners by Waterwise East.</p>
Rationale for intervention	<p>The East of England is the driest region in England and water resources are already seriously stressed.</p> <p>Developers and planners need to understand the issues associated with water resources, water efficiency and water treatment - that it is desired by their customers and can be achieved at minimal cost without reducing quality of life etc.</p>
Stage of development and delivery timescale (including phasing)	<p>Projects are ongoing on the whole and planned to be continued over coming 5 years (if funded) and beyond.</p> <p>Design guides were launched in July 08 through a regional event and national promotional initiative. The uptake of guide is now being monitored and they are being updated in line with regulatory changes.</p>
Resource requirements, including total cost,. Public sector funding secured, public sector funding required, and gap	<p>Unknown – Water company can provide this information. No public funding is likely as funded through water charges.</p>
Delivery processes and responsibilities	<p>Efficiency measures to be delivered through water resource planning process. Annual reviews are provided each year which should show the progress of these projects.</p> <p>Responsibility for delivery of design guidance lies with Waterwise EAST which is itself a one person entity funded jointly by EEDA, EERA, Defra (SDRT) and the EA. – each who have reps on the steering group.</p>
Key constraints and issues regarding delivery	<p>Water companies fail to deliver expected savings due to poor customer uptake or unwillingness to change behaviour. Rolling out of large domestic water efficiency programmes is still largely untested, lack of knowledge and skills to deliver programmes e.g. plumbers not aware of how to fit devices properly. Risk that changes, e.g. retrofitting may not maintain savings if customers remove products and replace with less efficient devices. Planners fail to require high level of water efficiency on new builds.</p>
Expected outputs and outcomes	<p>A decline/levelling of demand from measured and unmeasured customers. Possible future reduction in measured PCC amounts. Overall demand to remain the same and not increase.</p> <p>Guidance leads to increased water efficiency on new developments.</p>
Link to high level RES/RSS outcomes	<p>Water consumption target. Several of the water related priorities to do with development and high water efficient standards etc.</p>

Table 5.5: Water efficiency non-household, including agriculture	
Programme name	<p>To promote water efficiency amongst the agricultural community. Try to 'reduce' the amount of water farmers use or at least get more productivity from their current usage.</p> <p>To promote the use of rainwater harvesting to the agricultural community. To give information and practical advice.</p> <p>To promote water efficiency by water company non-household customers and other direct industrial abstractors.</p>
Objectives and key components	<p>To encourage water efficiency across all sectors within the region</p> <p>Agricultural initiatives form the next step on from the winter reservoir booklet that was produced and has been promoted in the region this year.</p> <p>Help water companies to achieve their targets to reduce consumption</p>
Rationale for intervention	<p>The East of England is the driest region in England and water resources are already seriously stressed.</p> <p>Water companies required to promote efficient use of water by all customers. Environment</p>

	Agency water resource planning guideline requires water companies to look at both demand management and resource management options in their long term planning.
Stage of development and delivery timescale (including phasing)	Next step of agricultural water efficiency in scoping phase Water company non-household water efficiency programmes are ongoing on the whole and planned to be continued over coming 5 years and beyond.
Resource requirements, including total cost,. Public sector funding secured, public sector funding required, and gap	Agriculture programmes - C£60K - £15K funded from Environment Agency. Other partners are Cranfield, Defra and Warwick University. £25K - joint project with Midlands region. Water company programmes funded by water company through water charges. No public funding is likely.
Delivery processes and responsibilities	Agricultural water efficiency programmes can be delivered at various events. A HGCA (Home Grown Cereals Association) water efficiency event was held at the end of October. There is a CLA event at the end of November again concentrating on water efficiency. Therefore costs are shared. Environment Agency responsible for delivery and funding but in partnership with NFU, CLA and Natural England. Efficiency measures to be delivered through water resource planning process. Annual reviews are provided each year which should show the progress of these projects.
Key constraints and issues regarding delivery	
Expected outputs and outcomes	Greater awareness of water efficiency issues.
Link to high level RES/RSS outcomes	Water consumption target.

Table 5.6a: Long term planning and investment

Objectives and key components	Water Resource Management Plans - to plan for the long term 25 the use of water resources by each of the water companies in the Anglian region. To show – supply/demand balance and how it will change; resource and demand options that are needed over the coming years to meet demand. Water Cycle studies - to look at the water constraints, both in PWS, waste water, flooding and surface water drainage on various developments in the region. To identify the risks and draw up solutions.
Rationale for intervention	Statutory requirement from Defra that the Water Cos produce Water Resource Management Plans. It also informs their 5 yearly Business Plan submission to Ofwat. Water Cycle studies produced as part of the Sustainable communities programme.
Stage of development and delivery timescale (including phasing)	Water Resource Management Plans - Consultation has taken place on Draft Plan and the Environment Agency is awaiting Statements of response to review how and whether companies are changing plan. Final submission due in April 2009. Water Cycle studies - various stages from initial scoping to phase 1 reports being produced.
Resource requirements, including total cost,. Public sector funding secured, public sector funding required, and gap	Water Resource Management Plans - funding by water companies with FTEs heavily involved in audit from Environment Agency. Water Cycle studies - various
Delivery processes and responsibilities	Water Resource Management Plans - water companies ultimately responsible for delivery, with timescales determined by Defra. Environment Agency has an auditing role in process so can ask for further information etc. which can lead to delays. But April 2009 is an immovable date. Water Cycle studies delivered by the Local Development Vehicles
Key constraints and issues regarding delivery	Water Resource Management Plans - Defra have just increased timescale for production of Statement of responses from W Cos to end of year – implications concerning what exactly is needed now ie. Draft Final doc and resources required to both produce and audit it. Water Cycle studies - costs and timescales could be constraints
Expected outputs and outcomes	25 year water company water resource management plans which identify further research and projects to be undertaken to investigate future resources and also to promote water efficiency

	<i>(further info in other forms on these)</i> Water Cycle strategy which helps all parties to plan more effectively for development in the coming years and which outlines the constraints and possible solutions to those constraints.
Link to high level RES/RSS outcomes	Link to Water consumption target and CO2 target (water companies have identified how they plan to reduced CO2 emissions over coming years in plans too) Various water priorities, specifically 'Develop a coordinated approach to plan making through a programme of water cycle and river cycle studies'

Table 5.6b: Long-term planning in water quality	
Objectives and key components	The Water Framework Directive – River Basin Planning will achieve good ecological status or good ecological potential in designated water bodies through the River Basin Planning Process Periodic Review 2009 (PR09) will achieve Improvements to Anglian Water and Thames Water assets (Sewage Treatment Works and Storm Overflows) to: <ul style="list-style-type: none"> • improve water quality in rivers, lakes, estuaries, coastal waters and groundwater. • achieve compliance with water quality objectives • deliver improvements to infrastructure to accommodate growth without causing a deterioration in water quality
Rationale for intervention	Meeting legal requirements of EU Water Framework Directive Protecting and improving rivers, lakes, estuaries, coastal waters and groundwater Statutory Obligations
Stage of development and delivery timescale (including phasing)	Draft River Basin Plans to be published in Dec 08. Process runs in 6 year cycles. First one runs from 2009-2015 PR09 - Investment proposals submitted by Water Companies in Aug 2008. Final determination by Ofwat in 2009. Proposals will relate to period 2010-2015
Resource requirements, including total cost,. Public sector funding secured, public sector funding required, and gap	Depends on the Scenario: A- What is already happening and what will definitely happen B - Additional actions that will happen if the River Basin Plan is approved C - Additional actions that could happen if we had more certainty Funding may not be available to implement all Programmes of Measures. Delivery of some of the Programmes of Measures may not achieve environmental outcomes alone. Delivery of some of the Programmes of Measures may not achieve environmental outcomes in the short-term. PR09 - Investment proposals submitted by Water Companies in Aug 2008. No funding yet secured.
Delivery processes and responsibilities	The EA co-ordinates the development of the River Basin Plan, but the Programmes of Measures have to be delivered by a range of organisations and stakeholders. PR09 - Schemes to improve environment and meet statutory objectives are proposed by Environment Agency. Discussions are held between Ofwat, Water Company, EA and Government to determine final programme of improvements. Schemes to accommodate growth are proposed by Water Company. Discussions are held between Ofwat, Water Company, EA and Government to determine final programme of improvements.
Key constraints and issues regarding delivery	River Basin Plan is yet to be agreed and published. PR09 - Final determination is not due until end of 2009 Political and economic constraints are likely to be a key factor in determining the scale of the programme
Expected outputs and outcomes	A route map to achieve good ecological status No deterioration to water quality caused by AW assets as a result of growth between 2010-2015 100 improvement schemes or investigations proposed

	Approximately 200km river protected or improved
Link to high level RES/RSS outcomes	Ensure timely provision of the appropriate additional infrastructure for water supply and waste water treatment to cater for the levels of development provided through this plan, whilst meeting surface and groundwater quality standards, and avoiding adverse impacts on sites of European or international importance for wildlife

Table 5.7: Regional water monitoring programme

Objectives and key components	Enable accurate recording of water use in the East of England to monitor progress against the targets for per capita consumption and water efficiency. This programme is intended to fill a gap in information needed to meet the targets in the RSS, RES and Defra. It will enable overall water company water use to be monitored and domestic per capita consumption of both existing and new build houses to be monitored on an annual basis.
Rationale for intervention	Data on water company water use and overall domestic consumption is already reported each year by the water companies in their June Returns to Ofwat. However, this has not been monitored against EoE targets and there is no data currently reported on the standard of water efficiency of new build properties.
Stage of development and delivery timescale (including phasing)	A monitoring framework has been proposed by the Environment Agency using water company June Return data.
Resource requirements, including total cost, Public sector funding secured, public sector funding required, and gap	<p>The Environment Agency already reports annual water use trends in the East of England area as part of the RSS annual monitoring review. It is anticipated this additional monitoring can be incorporated into this process. Overall water use and per capita consumption is monitored and reported on each year by the water companies in their June Returns to Ofwat, so this information will be quite easy to obtain.</p> <p>However, per capita consumption of new build houses is not something that is available at this time. Information on the standards will need to be obtained from local planning authorities and/or developers. A reporting mechanism will need to be established and the relevant data collected.</p>
Delivery processes and responsibilities	<p>Water companies collect overall water use data as part of June Return to Ofwat. Water companies also produce revised forecasts every 5 years as part of the water resource planning process. The Environment Agency can use public domain versions of these data to monitor overall water use and domestic consumption and can report this on an annual basis for EoE. EoE need to decide where best to report this data either as part of RSS monitoring or JiP.</p> <p>Local authorities need to provide data on completed new build properties in their area and the standard of water efficiency built into these homes.</p>
Key constraints and issues regarding delivery	Data on new build properties is not collected or reported at present. This data is needed if EoE is going to monitor against its 115 l/h/d/ target. A mechanism will need to be established to gather this data and report it at a regional level.
Expected outputs and outcomes	Ability to monitor and report progress on water efficiency programmes against regional targets. Reduction of annual report of water use in EoE in existing properties and new builds.
Link to high level RES/RSS outcomes	Water consumption targets for overall per capita consumption and for new build properties.

6: Waste programmes

Ambitions set out in the RES/RSS and regional context

- 6.1 The targets and priorities identified in the RES/RSS are summarised in Table 6.1.

Table 6.1 Waste outcome targets and priorities

Outcome targets

Eliminate the landfilling of untreated municipal and commercial waste by 2021 and secure at least the following minimum levels of recovery: municipal waste – 50% by 2010 and 70% by 2017; commercial and industrial waste – recovery of 72% at 2010 and 75% at 2015 (RSS WM2)

By 2021, increase to 98% the proportion of waste arisings processed through an initial recycling or recovery stage, which is likely to mean the recycling or recovery of at least 4.1m tonnes of domestic waste, and 10.6m tonnes of commercial and industrial waste (RSS paragraph 11.6)

Reduce the annual tonnages of waste imported into the region from London from 1.6m tonnes in 2010/11 to 0.8m tonnes by 2015/16, after which provision should be restricted to the landfill of residual waste that has been subject to the maximum practical level of recovery and treatment (RSS WM3)

Waste arisings per £ million GVA in 2031 that are 37% (143 tonnes) below 2005 (RES)

Priorities

Identify sites and areas suitable to manage the quantity of waste which is forecast to be generated in the region over the plan period (RSS WM5)

Design and construct development, and adopt practices more generally, to minimise the creation of waste, and maximise recycling and recovery (RSS WM6 and WM8)

Provide for the management of hazardous waste RSS (WM7).

create a regional system that reduces waste arisings and manages waste effectively (RES)

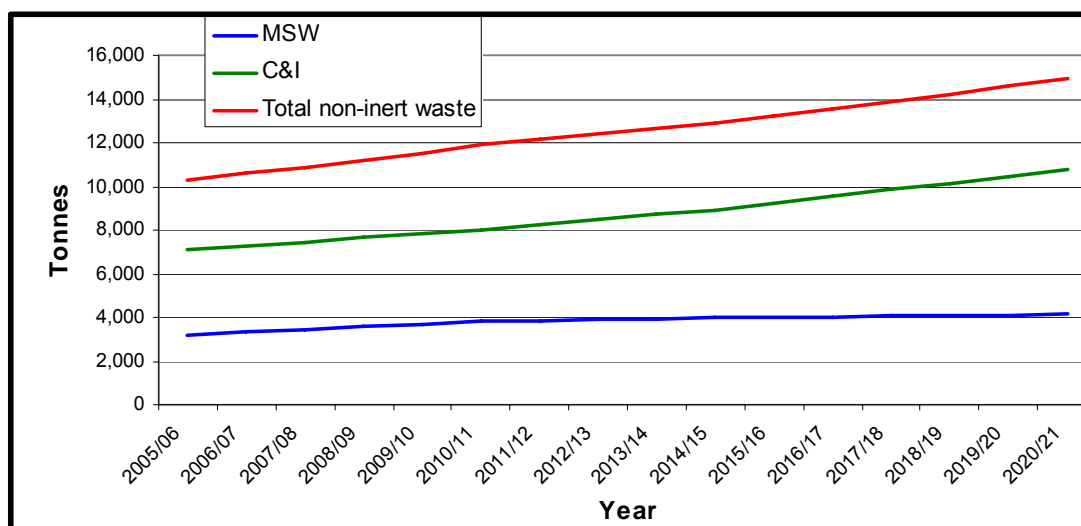
Source: Based on RES and RSS

- 6.2 In relation to waste, the region tends to generate more per capita than the national average, but it also achieves the highest rates of recycling (34%, compared with 27% nationally). Historically, the region has had plenty of landfill space and the bulk of waste was therefore deposited to landfill, including 53% of commercial and industrial waste and 81% of municipal waste. The region as a whole continues to have spare landfill capacity, with the exception of Bedfordshire which is currently at 97% landfill capacity.
- 6.3 Historically, the region has also imported a significant volume of waste from other regions, mainly London. The RSS proposes that this will fall to 760 tonnes by 2015, when it will represent 30% of its 2003/04 weight, and then remain at that level. There are significant variations across the region in the amount of London's waste which is managed, in addition to locally generated waste. In 2010/11, the RSS plans for amounts that vary between 340 tonnes per annum handled in Cambridgeshire and Peterborough to 110 tonnes in Norfolk (these amounts are expected to reduce to between 170 and 50 tonnes by 2015/16).
- 6.4 In response to the EU Landfill Directive, the Government has introduced national targets for the recovery of municipal solid waste and recycling and composting targets and composting targets which seek to reduce nationally the level of waste going to landfill from the current 1.4 million tonnes per annum to considerably less than half by 2020, notwithstanding the tendency for the amount of waste produced to increase year on year. The Regional Waste Management Strategy assumes a household waste growth of 3% per annum until 2010 and

thereafter that waste levels will remain stable (based on likely growth in the population and the number of households and the possible effects of waste minimisation initiatives).

- 6.5 Accordingly, there needs to be a substantial diversion of waste from landfill which will require significant changes in the way waste is managed. There are fewer targets for commercial and industrial waste, although the direction of policy is clear – to reduce the volume of waste requiring disposal and to redirect as much biodegradable waste away from landfill as possible. In relation to commercial waste, the Strategy assumes that current waste rates will remain at 2000 levels based on the stability experienced during the 1990s.
- 6.6 The main waste streams that can be monitored at the Municipal waste stream and the Commercial and Industrial waste stream. These wastes are biodegradable (non-inert) and can be major contributors to greenhouse gas emissions if they are not fully treated. Figure 6.1 shows the forecast quantities in the East of England for these waste streams.

Figure 6.1: Waste arisings in the East of England



- 6.7 The pressures to drive the management of waste up the waste management hierarchy include the Landfill Allowance scheme that demands a reduction of the amount of municipal waste that is sent to landfill, the Landfill Tax Escalator which has been increasing at a rate of £8 per tonne for non-inert waste and the reduction in the availability of suitable landfill sites. This latter factor is a particular pressure in the East of England because of two key factors:

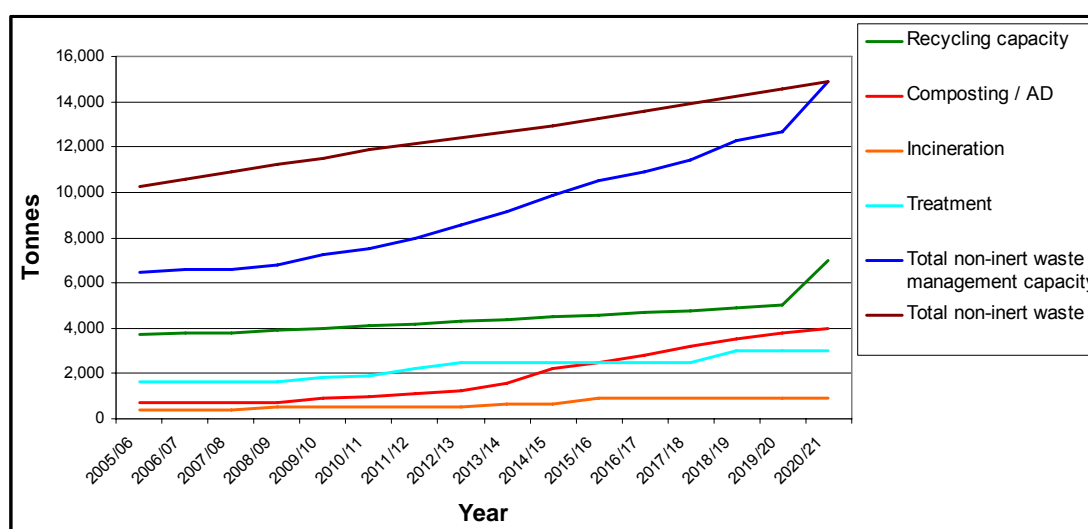
- An progressive restriction on the areas of land that are capable of being Permitted by the Environment Agency for non-inert landfill due to an increasingly strict regulatory regime and pressure to protect the quality of groundwater.
- A reduction in the available land for landfill because of competition for this land for development in the Growth Areas.

- 6.8 There is therefore an urgent need to reduce the amount of waste produced in the Region and also to develop the infrastructure necessary to manage and treat these wastes. The balance of facilities will be determined by a combination of market forces and Waste Disposal

Authorities through their Municipal Waste Management Strategies, but will include a mixture of recycling, composting and anaerobic digestion, treatment such as sorting and drying and thermal treatments referred to as incineration in the Environment Agencies data interrogator system. If a significant level of recycling is to be maintained, then intermediate infrastructure such as sorting, collection and transfer facilities will need to be retained and further developed. This is in addition to “hard infrastructure” such as treatment capacity.

6.9 Figures 6.2 shows the capacity of infrastructure that is required to meet the policy requirement of the East of England Plan and a possible mix of facilities that could supply this capacity.

Figure 6.2: Waste arisings against future potential waste management capacity in the East of England



On-going activity

6.10 In terms of **hard disposal infrastructure**, most facilities are being delivered through PFI credits which are channelled through Defra to Waste Disposal Authorities and partnerships. The current state of PFI can be summarised as follows, by county:

- Bedfordshire are submitting an Expression of Interest to Government
- Essex are seeking £170 million through Round 3
- Norfolk are seeking £73.5 million from Round 3 for a project that will total £145m
- Suffolk have gained approval for £102 million for a project with a total value of £612 million from Round 2
- Cambridgeshire are delivering new facilities through agreeing contracts that will fund merchant facilities, and this also looks to be the way forward for several others. The main contractor is a local firm which is constructing a Mechanical and Biological Treatment facility with a capacity of approximately 200,000 tonnes per annum at a

capital cost of £42million. This is being funded through a revenue contract with the county for a period of 28 years.

- 6.11 All of these initiatives are designed to meet the treatment needs of each Waste Disposal Authority for the purposes of the Landfill Allowance Trading Scheme (LATS). There is also likely to be some additional capacity through these programmes for some C&I waste in the initial years of operation of some of these facilities.
- 6.12 The total amount of waste that requires management over the Plan period is difficult to estimate and there is on-going work to obtain more robust data on this. However, in broad terms municipal arisings are approximately 3.2 million tonnes per annum and C&I arisings are approximately 7.1 million tonnes per annum giving a current total of 10.3 million tonnes pa.
- 6.13 The costs of waste management vary according to the systems and technologies employed. Estimates range from £110 per tonne to £170 per tonne which implies a capital requirement of between £1,133million and £1,751 million.
- 6.14 There is also a need for **intermediate infrastructure**, such as depots, transfer and sorting facilities, vehicles etc. The cost of specialist vehicles and bins to enable separate collections of materials from the kerbside is often a significant barrier to the development of new collection schemes. For example, rural areas can be appropriate for schemes that use a number of wheeled bins with conventionally-sized collection vehicles. Conversely, in dense urban areas a different approach is required using small and more flexible vehicles, possibly including pedestrian controlled vehicles with intermediate bulking stations.
- 6.15 In addition, bulking and sorting depots are needed in locations that are logistically convenient for each individual locality since the logistics of each system need to be carefully developed in order for each scheme to be as cost effective as possible. Baling and storage facilities also require capital investment to complete the picture.
- 6.16 The costs of these elements are usually partly recovered from the value of the materials that are sold. When a waste management system is designed, the costs are usually assessed as part of the above capital cost.
- 6.17 In addition, there is a clear **skills** gap in both planning for waste management and contract management. There is an on-going shortage of experienced waste managers who can develop and deliver bespoke waste management systems as described above both within the East of England and nationally.
- 6.18 Research by EU Sector Skills shows that between 1986 and 2005, total employment within the industry has increased substantially due to the changing nature of how waste is processed and finally disposed. This increase in workforce numbers has been most prominent within recycling, which has seen its workforce grow by almost 200% over this period, albeit from a very low base. Employment levels in waste collection, treatment and disposal have increased by almost 70%.

- 6.19 The occupations which have increased the most are elementary occupations and corporate managers; a reflection of the high number of new facilities coming on-line during this period. Science associate professionals (level 3) and professionals (level 4) have also increased by a substantial amount owing to the increased complexity and scientific approach to modern waste treatment and disposal methods.
- 6.20 The table below shows the distribution of the waste management workforce across the four devolved nations and nine English regions;

Devolved Nation & English Regions	Employees in the 'x' Sector (nearest 000's)
North West	17,500
North East	7,000
Yorkshire & Humberside	10,000
West Midlands	12,000
East Midlands	7,000
East of England	13,500
London	15,500
South East	17,500
South West	10,000
Scotland	17,000
Northern Ireland	4,000
Wales	10,000

It is estimated from EU Skills' Sector Skills Agreement study that the recruitment need of the waste management sector in order to ensure a sustainable workforce and efficient operation for the whole of England to 2015 is 10,000 people for the demand due to the expansion of the sector and 27,000 for replacement demand.

- 6.21 EU Skills is currently developing frameworks for Apprenticeships within the waste management industry. Consultation with employers suggests that there is a requirement for two different frameworks. One entitled Waste Management Apprenticeship which would focus on all aspects of waste collection/ disposal and recycling and another separate Waste Engineering Apprenticeship which would focus on waste to energy, new technologies for treating waste etc.
- 6.22 The shortage of qualified waste planners is also an issue that is commonly raised by both local authorities and private sector organisations including both the industry and planning consultancies. The nature of waste infrastructure is such that planning applications require a high level of professional input and the resources required to both produce and assess such applications is significant. In addition, the planning frameworks produced by waste planning authorities need to be in place if infrastructure is to be delivered within manageable timescales.
- 6.23 Under the current planning system, only four waste development frameworks have been adopted in the whole of England and none of these are in the East of England. The shortage of staff to devote to this work has been an issue in the majority of waste planning authorities.
- 6.24 The other main programme that is needed is a combination of **education and waste prevention**. The most successful waste reduction and recycling programmes require a significant level of public engagement. Examples of these are the distribution of leaflets to every household, advertising using a wide range of media such as local papers, buses, the web etc, projects with schools and youth groups and a presence at public events.

- 6.25 In addition, the most effective method of public engagement is the use of “doorsteppers”. These are teams of trained advisors who make personal visits to households and explain the waste management system and what is needed of the householder to make it work. Many local authorities have now used this technique and it is recognised as an important element in the delivery of high recycling rates. A county the size of Hertfordshire with a population of approximately 1 million people, for example, could easily keep a team of ten staff fully employed in this work at a cost of approximately £400,000 per annum. This would translate to a figure of £2.24 million per annum for this element of work alone. In localities where there is a high turnover of residents, an increased level of resource is required.
- 6.26 Estimates for a comprehensive Waste Prevention Programme for a county the size of Suffolk (population approximately 700,000) are in the region of £1 million. This would comprise work to build on one of the most successful recycling rates in the country and would imply that £8 million would be adequate for this level of work throughout the Region.
- 6.27 Funding for this type of work is usually built into the wider waste management budget but there are also external sources of funding that have been used to support this work such as from WRAP (the Waste and Resources Action Programme) and Defra’s Local Authority Support Unit.

New Waste programmes to address RES/RSS ambitions

Table 6.1 - Development of Waste Recovery and Disposal Infrastructure	
Objectives and key components	<p>To ensure that there are sufficient facilities for the treatment of waste throughout the Region to meet the targets in WM1, WM2, and WM4 of the East of England Plan and the Greenhouse Gases target of the RES.</p> <p>While regional policies are one important aspect driving this work, the main driver are the Landfill Allowances which are allocated to each Waste Disposal Authority. In addition, the increase in landfill costs due both to rising landfill tax and the growing shortage of landfill in the Region mean that other waste management routes are being sought.</p>
Rationale for intervention	<p>There are a range of drivers to develop new waste treatment infrastructure, including the need to reduce the emission of greenhouse gases from landfill, the reducing availability of landfill sites in the East of England, the need to meet Landfill Allowances by each Waste Disposal Authority (WDA) and the need to conserve resources rather than sending material to landfill.</p> <p>The requirement under the Landfill Directive to meet Landfill Allowances is the strongest driver and failure to meet LATS targets will result in WDAs receiving significant fines. The first target date for meeting LATS obligations is 2010</p> <p>The increasing scarcity of landfill in the Region combined with the landfill tax escalator will cause disposal costs to business to rise to potentially punitive rates.</p>
Stage of development and delivery timescale (including phasing)	<p>WDAs are all at different stages in their delivery with some facilities up and running, others under construction and others at the contract and planning stage.</p> <p>In addition, planned facilities are outlined below:</p> <p>Cambridgeshire Mechanical and Biological Treatment (MBT) facility at Waterbeach to manage 200,000 tonnes pa of MSW under construction with completion planned for mid-2010.</p> <p>Bedfordshire Plans are being developed for an energy-from-waste facility and funding sources are still being investigated.</p> <p>Essex Three sites are planned for the processing of waste with a combined capacity of 1.26million tonnes pa. Delivery of this infrastructure will take place over the next two to three years.</p> <p>Hertfordshire Plans are being developed for an energy-from-waste-facility and funding sources are still</p>

	<p>being investigated.</p> <p>Norfolk Planning permission has been granted for an MBT facility with a capacity of 150,000 tonnes pa which will be operational by 2011. Further capacity is planned for 2015.</p> <p>Suffolk A tender was issued in May 2008 a facility in Suffolk where the reference case is an energy from waste plant. There is a shortlist of four bidders and the facility is likely to be developed over the next five years.</p>
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	<p>Cambridgeshire Funding for the Cambridgeshire facility is through the revenue stream required for waste management. The value of the contract for the Waterbeach is £42 million and the contract with the WDA is for a period of 28 years.</p> <p>Bedfordshire Bedfordshire are likely to ??</p> <p>Essex .</p> <p>Hertfordshire</p> <p>Suffolk PFI credits of £102 million have been allocated for a facility with a total cost of approximately £612 million.</p>
Delivery processes and responsibilities	<p>Responsibility for the delivery of infrastructure for the management of the municipal waste stream lies with the Waste Disposal Authorities which are the county and unitary authorities. Funding for facilities is largely obtained through the Private Finance Initiative which is managed by DEFRA. Facilities tend to be partially funded using PFI credits with the remainder being made up of private sector investment. Alternative and supplementary funding is delivered through revenue contracts.</p> <p>The delivery of infrastructure for other waste streams (commercial and industrial (C&I) waste and waste from construction, demolition and excavation (C,D&E) activity) is carried out by the private sector. The public sector supports this through the planning process by allocating sites for such development.</p>
Key constraints and issues regarding delivery	<p>The key constraint is the political process involved in the delivery of waste management facilities. This is most usually manifested through the process of obtaining planning permission. Community acceptance of new facilities needs to be developed over time and requires communication of the issues around waste generation, management, locational criteria and an understanding of the technologies involved. This requires a significant investment in communication and consultation with the public and community leaders involved in the decision-making processes.</p> <p>The risks of this process not being managed successfully are significant delay, although the proposed Infrastructure and Planning Commission may provide methods of circumnavigating this.</p> <p>The existing skills gap in the areas of procurement, delivery and land use planning also represent constraints on delivery.</p>
Expected outputs and outcomes	<p>Waste management infrastructure is gradually being developed and the expected output is sufficient capacity to separate, process and treat waste materials as a material resource. There is expected to be sufficient capacity to manage MSW in accordance with LATS targets, if the current project plans of each county are successful. However, data is unavailable for the C&I stream and therefore it will be difficult to ascertain whether sufficient infrastructure is being developed to prevent C&I continuing to be disposed of by landfill and therefore costing business in the Region up to 4% of their turnover.</p>
Link to high level RES/RSS outcomes	<p>RES "Greenhouse Gases Reducing CO2 emission to 60% below 1990 levels by 2031 would put the region at the forefront of tackling climate change and in a prime position to exploit the global commercial opportunities of the \$547 billion environmental goods and services market."</p> <p>Reducing the amount of biodegradable waste going to landfill will reduce the production of greenhouse gases, although this is difficult to quantify.</p>

	Policies WM1, WM2 WM4 are all concerned with the delivery of this type of infrastructure.
Spatial Dimensions	

Table 6.2 - Delivery of Intermediate Infrastructure

Objectives and key components	<p>To ensure that there are sufficient facilities for the treatment of waste throughout the Region to meet the targets in WM1, WM2, and WM4 of the East of England Plan and the Greenhouse Gases target of the RES.</p> <p>The key components of this programme are the development of transfer stations, household waste recycling centres, sorting and bulking facilities and processing capacity for the manufacture of products from used material.</p>
Rationale for intervention	<p>There are a range of drivers to develop new waste treatment infrastructure, including the need to reduce the emission of greenhouse gases from landfill, the reducing availability of landfill sites in the East of England, the need to meet Landfill Allowances by each Waste Disposal Authority (WDA) and the need to conserve resources rather than sending material to landfill.</p> <p>The requirement under the Landfill Directive to meet Landfill Allowances is the strongest driver and failure to meet LATS targets will result in WDAs receiving significant fines. The first target date for meeting LATS obligations is 2010</p> <p>The increasing scarcity of landfill in the Region combined with the landfill tax escalator will cause disposal costs to business to rise to potentially punitive rates.</p>
Stage of development and delivery timescale (including phasing)	<p>An increased number of facilities within the entire region will be required to ensure that materials can be collected separately in clean conditions for re-manufacture. The absolute level of capacity is difficult to gauge and alters significantly over time as new processes are brought on stream and increased quantities are handled.</p> <p>A comprehensive network of intermediate facilities will be required to achieve the targets by 2021.</p>
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	<p>Very difficult to quantify. Much of the provision will be done privately, including requiring waste sites in new developments.</p>
Delivery processes and responsibilities	<p>The majority of this infrastructure will be developed by the private sector. The process of delivery is also lead by industry with support from Waste Planning Authorities in the grant of planning permission for such sites and Waste Disposal Authorities in the agreement of contracts for use of some of this infrastructure for municipal use.</p>
Key constraints and issues regarding delivery	<p>A key constraint is the availability of secure material streams upon which to develop a business plan for such facilities.</p> <p>A key risk is the current fall in prices for raw materials such a metals, plastics and glass will delay bringing forward this type of infrastructure in the short term.</p> <p>Increasing haulage costs also represent a potential risk.</p>
Expected outputs and outcomes	<p>The output should be a comprehensive network of collection, sorting and bulking facilities to handle all of the different waste streams and materials. The size and number of facilities will vary depending on the material handled and the economics of each type of plant and the technology employed.</p> <p>The outcome will be a system for the management of secondary materials throughout the region. The quantities of the materials are given in policy WM4 of the RSS.</p>
Link to high level RES/RSS outcomes	<p>RES "Greenhouse Gases Reducing CO2 emission to 60% below 1990 levels by 2031 would put the region at the forefront of tackling climate change and in a prime position to exploit the global commercial opportunities of the \$547 billion environmental goods and services market."</p> <p>Reducing the amount of biodegradable waste going to landfill will reduce the production of</p>

	greenhouse gases, although this is difficult to quantify. Policies WM1, WM2 WM4 are all concerned with the delivery of this type of infrastructure.
Spatial Dimensions	A comprehensive network of facilities will need to be developed at all the centres of population in the region, dependent on the factors listed above in terms of the economic size of each facilities and the capital investment required in each instance.

Table 6.3 - Skills in Waste Management and Planning

Objectives and key components	To ensure that there is sufficient capacity to plan for, specify and deliver the waste management systems and infrastructure required in the East of England Plan.
Rationale for intervention	<p>There is currently limited capacity in the waste management industry and in the public sector. This means that there is little competition when projects are put out for tender and that the process of tendering and assessment can be delayed.</p> <p>Because this is a relatively small niche of work both within planning and tendering, there is limited scope for large-scale training programmes. The pressure on waste planning capacity is also symptomatic of a wider shortage of planning skills in the UK.</p>
Stage of development and delivery timescale (including phasing)	<p>Waste Planning</p> <p>With regard to planning, short courses (usually 3 days) are being run by Anglia Ruskin University. These have been developed in conjunction with waste planning authorities to meet their specific needs. Three of these have been run during 2008 and more may be offered. The costs of these course have been met from waste planning authority budgets.</p> <p>There is a need for a greater depth of training in this area, particularly in the area of development control. Degree courses would be preferred which generally take three years full time or five years part-time. Delivery of sufficient numbers of graduates from degree-level courses or HNCs could be delivered over a period of ten years.</p> <p>Waste Management</p> <p>With regards to waste management, a wide range of skills is required to regenerate this sector, from degree-level and HNC courses, through to NVQs, VRCs (Vocationally Related Qualifications) and Certificates of Technical Competence.</p>
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	<p>Waste Planning</p> <p>It is estimated that £5,000 per student over three years could fill the gap identified.</p> <p>For an additional two members of staff for each of the ten waste planning authorities this would amount to a total of £100,000 over three years. This is an approximate estimate based on the current number of waste planning authorities, which is currently under review within the Region.</p> <p>Waste Management</p> <p>There are a range of organisations that have a role in the delivery of qualifications in the waste management field.</p> <p>[This needs to provide some sense of the overall cost of the programme over its lifetime. It should distinguish if possible between total costs, funding secured and funding required. In this manner, it ought to be possible to provide some sense of the overall scale of “the ask”]</p>
Delivery processes and responsibilities	A range of educational institutions are involved in the delivery of skills for wastes management and waste planning. These include Anglia Ruskin University, the Chartered Institute of Waste Management (CIWM), the Waste Management Industry Training and Advisory Board (WAMITAB) and the Energy and Utilities Sector Skills Council.
Key constraints and issues regarding delivery	<p>The geographical constraints on this work mean that waste planners are thinly spread throughout the country and therefore need to be geographically mobile. Anecdotally, the economic climate has released main-stream planners from work in both the public and private sectors, particularly in London. However, these applicants still require specialist training in waste planning.</p> <p>Suitably qualified applicants with the necessary commitment to the sector are required.</p>
Expected outputs and outcomes	<p>The outputs would be a pool of sufficiently qualified staff who could carry out the plan-making, application plan submission, development control, and operation of the waste management infrastructure required in the Region.</p> <p>The outcomes would be the necessary planning framework and decision-making processes. This would be followed by the development, funding and delivery of number and scale of</p>

	facilities identified.
Link to high level RES/RSS outcomes	As for the other Pro-formas
Spatial Dimensions	

7: Conclusions

- 7.1 The Utilities theme includes four sub themes, concerning energy, ICT, water and waste. There are three common issues across all utilities, and other conclusions relating specifically to each.
- 7.2 The three common issues are as follows:
- the regulatory constraints on the ability of private, but regulated utility companies to provide for growth in advance of expressed demand. There are both commercial and regulatory constraints on investment which could affect the scale and pace of development, particularly in areas where there are existing or impending limitations on supply unless substantial new investments are made
 - the need to change behaviour among the region's households and businesses, to increase the efficient use of resources and reduce waste. Despite the focus of the two regional strategies on growth, the great majority of the households, businesses and buildings which will be present in the region in 2031 are already here. To achieve regional targets regarding resource efficiency therefore requires a huge effort to change behaviour among the existing population and to improve the efficiency of existing buildings
 - the opportunity to use investment in utilities as a major economic driver: both direct, because of the scale of investment that is needed, for example in renewable energy, next generation broadband and water and waste infrastructure; and indirect, because investment in utilities will facilitate other economic and physical development, and in relation to ICT could also help reduce inequality.
- 7.3 Specifically in relation to energy, the key issue is how to achieve the regional and national targets for renewable energy supply. The East of England has a strong track record and the greatest potential for increasing the supply of renewable and low carbon energy from offshore and onshore sources, but there are significant constraints which will need to be overcome. The achievement of energy and resource efficiency targets and priorities – which in many respects are inter-related – also requires action across other Themes – for example, in relation to housing and transport.
- 7.4 In relation to ICT, the current issue is download speeds rather than access to broadband, which is relatively good. Longer term, there is a concern that the introduction of next generation broadband will result in a substantial and potentially persistent 'digital divide' between accessible (mainly urban) and remoter (mainly rural) parts of the region.
- 7.5 The regional ICT programmes could have major impacts on RES/RSS targets concerning GVA growth and CO2 emissions in particular. Although substantial investment has already been attracted into the region (eg £90m of TIF funding for intelligent transport systems on the A14), a great deal more will be needed if the full potential of ICT in achieving regional targets and priorities is to be realised.

- 7.6 The programmes relating to water as a utility are primarily concerned with maintaining and improving water quality, the efficiency of supply, and reducing per capita usage. This partly involves investment in the infrastructure, but a great deal of effort is needed to change behaviour among the existing and future residents and businesses in the region. National proposals to progressively tighten business regulations should have a major effect on the energy and water efficiency of new dwellings, which because of the scale of development proposed in the region could have a significant effect on overall energy and water consumption in the region by 2031. However, even by 2031 the great majority of buildings in the region are already built now: therefore there is a need for a massive retrofit programme to improve the efficiency of existing buildings, together with a big education programme to persuade people to improve efficiency and reduce waste.
- 7.7 Waste programmes are concerned mainly with reducing the amount generated redirecting as much biodegradable waste away from landfill as possible.

Annex A: Ongoing and committed ICT programmes

Table A.1: DCM – Digital Content Marketplace

Objectives and key components	The Digital Content Marketplace (DCM) will become a platform for media based companies in the region to showcase and distribute their wares as well as allowing museums, archives and similar bodies to create digital archives of their material and to exploit new markets.
Rationale for intervention	The DCM is a direct response to an unmet need among stakeholder groups for a platform for the commercial exploitation of their assets. This need was identified after a prolonged period of consultation with content providers and asset holders.
Stage of development and delivery timescale (including phasing)	A partnership has been established, the hardware and software needed has been put into place and digital content is currently being loaded prior to live running in the second quarter of 2009.
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	EEEDA have contributed £310K capital and £140K revenue. The value of Inkind contributions from partners so far considerably exceeds this amount. Beyond this initial phase, the project is expected to be self financing.
Delivery processes and responsibilities	The delivery vehicle is via a company established for this purpose overseen by a project board. The project board currently comprises representatives from EEDA; EMMA (East of England Multimedia Alliance); EPIC studios in Norwich; Screen East; Cambridge Imaging and Norfolk County Council (as the regional Advanced Content Centre of Excellence). Participants in the project include the East Anglian Film Archive (at the UEA), a number of private companies and two universities.
Key constraints and issues regarding delivery	The need to capture sufficient content on the site before going live is now the paramount constraint. The success of the project is also dependent on the amount of publicity which we can generate for the site.
Link to high level RES/RSS outcomes	<ul style="list-style-type: none"> • A digital infrastructure which ranks highly among leading international regions • Widespread access to the latest digital infrastructure for businesses and households • A more efficient and innovative economy through maximum exploitation of ICT by businesses and households • Where necessary, stimulate demand for broadband services and promote their benefits • Improving efficiency and innovation through the application of digital technologies • Support growth of the digital technologies and software clusters in the region
Spatial dimensions	Region wide

Table A.2: Regional ICT Benchmarking Survey

<p>Objectives and key components</p>	<p>The aim of this research is to support the Agency and partner organisations in their role as leaders and facilitators of ICT development in the region through achieving a timely and accurate understanding of:</p> <ul style="list-style-type: none"> • levels of ICT adoption and exploitation relative to levels in other UK regions, EU countries and key competitor economies • the changes and trends in ICT adoption and exploitation in the East of England over time • variation in ICT adoption and exploitation across the East of England sub regions and across industrial sectors and firm sizes. • the impact of different ICTs on business activity and productivity • the barriers faced by businesses in optimising their use of different ICTs • current business intentions in relation to ICT
<p>Rationale for intervention</p>	<p>It is essential to have up to date information on ICT in the region so as to decide where intervention may be necessary and to determine the high level effects of intervention on the regional economy.</p> <p>There are currently no other surveys that do this.</p>
<p>Stage of development and delivery timescale (including phasing)</p>	<p>This is an annual project and, although each RDA carries out it's own survey, there is considerable co operation between agencies in framing the questions so as to make the results comparable.</p>
<p>Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap</p>	<p>A budget of around £80K is allocated from EEDA's funds which covers the total cost of the research.</p> <p>The only other cost is that of any events held solely to publicise the findings.</p>
<p>Delivery processes and responsibilities</p>	<p>EEDA contracts with a commercial partner (determined by open tender) who will deliver the survey.</p>
<p>Key constraints and issues regarding delivery</p>	<p>Although the survey has a very large sample size compared to others of its type, nevertheless budget is a constraint on the number of interviews that can be conducted.</p>
<p>Expected outputs and outcomes</p>	<p>A robust and up to date evidence base for the development of ICT support policy and delivery in the region.</p>
<p>Link to high level RES/RSS outcomes</p>	<p>This survey is the primary method by which the regions progress (or otherwise) towards high level RES/RSS targets is measured.</p>
<p>Spatial dimensions</p>	<p>This survey identifies the specific characteristics of ICT adoption in geographical areas allowing interventions to be better planned.</p>

takeITon

Context and rationale for intervention

There is nothing else on the agenda that comes near the potential impact that ICT has had and will almost certainly continue to have on the regional economy. Effective use of ICT can boost productivity by up to 10% and uplift GVA by 3-4%. In the case of the EoE economy this equates to £3.6bn. Moreover, research suggests that this is set to continue, and because of the recent virtually ubiquitous availability of broadband, that the impact could be even greater. This £3.6bn impact is only for existing firms. It does not include the potential impact of ICT on increasing entrepreneurship and enabling new businesses to start up and thrive.

The primary impact of ICT is an economic one, through increasing the productivity, innovation, market reach, turnover and value added of firms. ICT impacts more than the economy. It contributes (sometimes significantly) to most other policy areas. In particular, ICT will help reduce carbon emissions, through increased home working and flexible working, cutting down commuting.

Some firms will take up and optimise ICTs on their own, without help – but the evidence suggests that many will need help to maximise the return on ICT. The most critical challenge is the need to encourage higher levels of IT adoption so that businesses can truly improve efficiency and productivity and stimulate innovation.

Programme-level objectives

takeITon offers a full range of both practical and financial support for businesses who want to find out how to exploit technology to grow their business. It's about making businesses aware of just what's out there – and giving them the confidence and skills to use it to the fullest extent.

The ultimate objective is to maximise GVA increase through the effective exploitation of ICT.

Broad scale of resources devoted to the programme, their source, and the duration of commitment

The 2½ yr programme was launched in Nov 07 and is due to run until March 09. The campaign is led by EEDA who have made £2.5m available for the lifetime of the project, of which £1.5m has been allocated for grant funding.

Delivery processes

The takeITon programme is delivered by EEDA in collaboration with Business Link and e-Skills UK. It has three elements – awareness raising, diagnostics and intensive support.

A publicity campaign and associated website offers a range of practical resources and signposts both to the eSkills Business IT guide and to Business Link. Business Link offer a free IT healthcheck and for eligible companies a small grant may be available towards the costs of IT implementation.

Anticipated outcomes

Maximum exploitation of IT by the region's businesses
Businesses able to use ICT proficiently

Increased productivity and resulting increase in GVA.

Work Wise East

Context and rationale for intervention

The economic, environmental and social impacts of flexible working are well documented.

Improving the performance of the region's businesses and encouraging enterprise is important both for job creation and productivity growth. The effective use of ICT together with the adoption of smarter working best practices can have huge benefits not only on the region's economic performance but on the lives of individuals through improved work-life balance. For business well managed flexible working schemes result in improved work performance and productivity, less absenteeism, and improved recruitment and retention

East of England is the region likely to be most affected by climate change. The region is 34% drier, 6% hotter and 6% sunnier than England and Wales as a whole.

Air quality is reasonably good but deteriorating due to increase in traffic. People in the East of England travel the furthest each year – an average of 8,280 miles each per year. Flexible working is highly effective in reducing congestion – for example, by cutting commuter traffic through teleworking and car-sharing schemes, by the use of video and audio conferencing to cut business travel etc – and will help reduce the region's carbon footprint.

We need to harness the best talents within the region and take into account the differing needs of people who cannot necessarily work “conventional” hours. We have the fastest growing ageing population - by 2021, 50% of the population in East of England will be over 50; unemployment amongst disabled people are more than two times the regional average; the female full-time wage is 18% below men in the East of England, primarily due to women taking on caring responsibilities for children or other dependants. The introduction of flexible working can dramatically assist all these people, creating new opportunities for employment.

Programme-level objectives

Work Wise East is a regional consortium supporting the national Work Wise UK campaign, providing an information source on the benefits of smarter working practices. The objectives of the programme are to encourage the widespread adoption of smarter working practices, such as flexible working, remote working and working from home and promoting a better work-life balance.

Broad scale of resources devoted to the programme, their source, and the duration of commitment

The consortium which includes EEDA, Business Link, BT, flexibility.co.uk and Dell supports a series of events and workshops promoting the benefits of flexible working and giving practical advice to organisations wishing to adopt smarter working practices.

Anticipated outcomes

Increased share of businesses adopting smarter/flexible working practices
Reduction in overall travel through use of ICT

Annex B: On-going and committed water programmes

Objectives and key components	To plan for the long term 25 the use of water resources by each of the water companies in the Anglian region. To show – supply/demand balance and how it will change; resource and demand options that are needed over the coming years to meet demand.
Rationale for intervention	Statutory requirement from Defra that the Water Cos produce this. It also informs their 5 yearly Business Plan submission to Ofwat.
Stage of development and delivery timescale (including phasing)	Consultation has taken place of Draft Plan and the Environment Agency is awaiting Statements of response to review how and whether companies are changing plan. Final submission due in April 2009.
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	Funding by water companies with FTEs heavily involved in audit from Environment Agency. <i>(If more detail required consultants will need to contact water companies for cost of production etc.)</i>
Delivery processes and responsibilities	Water companies ultimately responsible for delivery, with timescales determined by Defra. Environment Agency has an auditing role in process so can ask for further information etc. which can lead to delays. But April 2009 is an immovable date.
Key constraints and issues regarding delivery	Defra have just increased timescale for production of Statement of responses from W Cos to end of year – implications concerning what exactly is needed now ie. Draft Final doc and resources required to both produce and audit it.
Expected outputs and outcomes	25 year water company water resource management plans which identify further research and projects to be undertaken to investigate future resources and also to promote water efficiency <i>(further info in other forms on these)</i>
Link to high level RES/RSS outcomes	Link to Water consumption target and CO2 target (water companies have identified how they plan to reduced CO2 emissions over coming years in plans too)

Objectives and key components	To promote the efficient use of water through demand management proposals – these include targeted leakage control, enhanced metering, pressure reduction schemes, the installation of water efficiency devices, water audits and education.
Rationale for intervention	Required by Environment Agency guidelines to look at both demand management and resource management options in their long term planning.
Stage of development and delivery timescale (including phasing)	Projects are ongoing on the whole and planned to be continued over coming 5 years (if funded) and beyond.
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	Unknown – Water company can provide this information. No public funding is likely as funded through water charges.
Delivery processes and responsibilities	To be delivered by water companies through their water resource planning process. Annual reviews are provided each year which should show the progress of these projects.
Key constraints and issues regarding delivery	Main constraint will occur if they are not funded by Ofwat for these projects
Expected outputs and outcomes	Decreased PCC in measured households. Overall demand to remain the same and not increase.
Link to high level RES/RSS outcomes	Water consumption target.

Table B.3: Existing on-going or committed water programmes

Programme name	Environment Agency Water resources strategy
Objectives and key components	To identify and manage the water resources of the nation to ensure there is enough for people and the environment. Forecasting ahead 25 years and also further for such issues as Climate change. To look and assess various water resource options that could be used in the future and also to promote water efficiency and demand management options – backed up by research undertaken for the Environment Agency and others.
Rationale for intervention	To update previous water resources strategy produced in 2000.
Stage of development and delivery timescale (including phasing)	Currently being produced nationally. Due to be launched for consultation in Spring 2009. Following this a Regional Action plan will be produced in 2009.
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	No public sector funding. Funded by the Environment Agency.
Delivery processes and responsibilities	Delivered by Head Office water resources team – with input from Regional environmental planning teams who will then be responsible for producing Regional Action plans and then implementing them in partnership with other orgs.
Key constraints and issues regarding delivery	Staff resources within the Environment Agency may be a constraint to the timescale of the project. Delivery of action plan will most likely be dependant on external relation links with other organisations.
Expected outputs and outcomes	A regional action plan with further projects to be undertaken to promote water efficiency and other aspects of water management.
Link to high level RES/RSS outcomes	Water Consumption target;

Table B.4: CAMS – Various East of England ones

Objectives and key components	To provide a detailed local level assessment of water resources availability for licensing purposes. Provides a licensing strategy for use by Environment Agency officers and potential licencees. Currently beginning a review as initial documents all produced.
Rationale for intervention	To provide updated information and use updated technical tools to assess the catchments. Also to ensure that the information can be inputted and used for the WFD River Basin Management Plan.
Stage of development and delivery timescale (including phasing)	Resource Assessment being undertaken for all catchments by 2011. Licensing strategy produced by 2012 and Measures appraisal undertaken by 2014 to feed in to WFD.
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	Total cost – not including FTEs is estimated at c.£1k per CAMS.
Delivery processes and responsibilities	Delivered in most part by Area environmental Planning teams with input from local 'experts'. Regional Environmental Planning teams also sit on project groups and are likely to be responsible for measures appraisal process.
Key constraints and issues regarding delivery	Staff changes may be a constraint on delivery and other priorities for project team members.
Expected outputs and outcomes	A more up to date licensing strategy for use by Environment Agency staff and customers.
Link to high level RES/RSS outcomes	Water consumption target and encouragement of more sustainable use of water resources through winter storage schemes.

Table B.5 Waterwise EAST – design guides.

Objectives and key components	Development of design and planning guidance on water efficiency for developers and planners. Production of two documents one a design guide for developers and secondly planning guidance for planning professionals.
Rationale for intervention	Developers and planners need to understand the issues associated with water resources, water efficiency and water treatment. That it is desired by their customers and can be achieved at minimal cost without reducing quality of life etc.
Stage of development and delivery timescale (including phasing)	The guides were launched in July 08 through a regional event and national promotional initiative. The uptake of guide is now being monitored and they are being updated in line with regulatory changes.
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	Total budget £30k; £15K provide by EA and £15K another source (<i>did Cambridge Water pay this or was it some other source??</i>)
Delivery processes and responsibilities	Responsibility for delivery lies with Waterwise EAST which is itself a one person entity funded jointly by EEDA, EERA, Defra (SDRT) and the EA. – each who have reps on the steering group.
Key constraints and issues regarding delivery	??
Expected outputs and outcomes	Guides to be used pro-actively by developers and planners – lead to an increase in their desire for water efficient developments.
Link to high level RES/RSS outcomes	Water Consumption target. Several of the water related priorities to do with development and high water efficient standards etc.

Table B.6: Water Cycle Studies – Various

Objectives and key components	To look at the water constraints, both in PWS, waste water, flooding and surface water drainage on various developments in the region. To identify the risks and draw up solutions.
Rationale for intervention	Produced as part of the Sustainable communities programme.
Stage of development and delivery timescale (including phasing)	Various stages from initial scoping to phase 1 reports being produced.
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	Various
Delivery processes and responsibilities	Delivered by the Local Development Vehicles
Key constraints and issues regarding delivery	Costs and timescales could perhaps be constraints – may need to talk to the LDVs themselves for more info on these projects.
Expected outputs and outcomes	Water Cycle strategy which helps all parties to plan more effectively for development in the coming years and which outlines the constraints and possible solutions to those constraints.
Link to high level RES/RSS outcomes	Water Consumption target. Various water priorities specifically 'Develop a coordinated approach to plan making through a programme of water cycle and river cycle studies'

Table B.7: Anglian Water efficiency Group – various projects

Objectives and key components	Group is composed of members of all Anglian Water companies and the Environment Agency. The objective to promote water efficiency and share ideas and information. <i>I can provide a more detailed list of the actual projects being undertaken by each company as part of this group.</i>
Rationale for intervention	To encourage water efficiency within the region.

Stage of development and delivery timescale (including phasing)	Various
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	Unknown – may need to speak to Water Cos concerning this.
Delivery processes and responsibilities	Water companies.
Key constraints and issues regarding delivery	Cost??
Expected outputs and outcomes	Projects which inform the water resources planning process and provide information for companies to share.
Link to high level RES/RSS outcomes	Water Consumption target.

Table B.8: Rainwater Harvesting Booklet – scoping production

Objectives and key components	To promote the use of Rainwater harvesting to the Agricultural community. To give information and practical advice.
Rationale for intervention	Next step on from the Winter reservoir booklet that was produced and has been promoted in the region this year.
Stage of development and delivery timescale (including phasing)	In Scoping phase
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	£25K - joint project with Midlands region
Delivery processes and responsibilities	Environment Agency responsible for delivery and funding but in partnership with NFU, CLA and Natural England.
Key constraints and issues regarding delivery	Problem if no tenders for the project.
Expected outputs and outcomes	A useful booklet to inform farmer and more uptake of rainwater harvesting in the Agricultural community.
Link to high level RES/RSS outcomes	Water Consumption target.

Table B.9: Various water efficiency events to Agricultural community – complement production of additional booklet on Irrigation Scheduling

Objectives and key components	To promote Water efficiency amongst the Agricultural community. Try to 'reduce' the amount of water farmers use or at least get more productivity from their current usage.
Rationale for intervention	To encourage water efficiency within the region.
Stage of development and delivery timescale (including phasing)	Booklet is just being finalised – events are taking place over several months.
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	C£60K - £15K funded from Environment Agency. Other partners are Cranfield, Defra and Warwick University.
Delivery processes and responsibilities	Delivered at various events. A HGCA (Home Grown Cereals Association) water efficiency event was held at the end of October. There is a CLA event at the end of November again concentrating on water efficiency. Therefore costs are shared.
Key constraints and issues regarding delivery	

Expected outputs and outcomes	Greater awareness of water efficiency issues.
Link to high level RES/RSS outcomes	Water Consumption target.

Table B.10: Delivery of water and wastewater investment programme (AMP4 programme – 2005 to 2010)

Objectives and key components	Improvements to Anglian Water Assets Protecting and improving rivers, lakes estuaries, coastal waters and groundwater
Rationale for intervention	Environmental improvements Legal requirements
Stage of development and delivery timescale (including phasing)	2005-2010
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	Programme agreed and funded through Water Bills
Delivery processes and responsibilities	AMP4 investment programme is agreed between Ofwat and Water Companies (with input from Quality Regulators)
Key constraints and issues regarding delivery	Delivery is on track and there is no reason to believe the programme will not be delivered.
Expected outputs and outcomes	100 schemes to improve water quality Approximately 200km river improved or protected.
Link to high level RES/RSS outcomes	Ensure timely provision of appropriate additional infrastructure for water supply and waste-water treatment to cater for the levels of development provided through this plan, whilst meeting surface and groundwater quality standards, and avoiding adverse impacts on sites of European importance for wildlife.

Table B.11: Influencing, initiatives and joint working

Objectives and key components	Joint working to promote water efficiency Delivery of programme of water cycle studies to inform and support the formation of Local Development Frameworks across the region Regional flood risk study Policy influence – engagement in surface water management plan trials
Rationale for intervention	
Stage of development and delivery timescale (including phasing)	Ongoing (mainly delivered over next 5 years)
Resource requirements, including total cost. Public sector funding secured, public sector funding required, and gap	
Delivery processes and responsibilities	Effective joint working at a regional and local level to integrate water and spatial planning process – leadership role of the Water Partnership for the East of England
Key constraints and issues regarding delivery	
Expected outputs and outcomes	
Link to high level RES/RSS outcomes	