SOUTH EAST ENGLAND DEVELOPMENT AGENCY

BOARD MEETING ON 22 July 2008

ITEM 5

ENERGY POLICY– REVIEW & DISCUSSION

Recommendations

1. The Board is invited to:

(a) **Note** that the targets in the government's 26 June 08 Renewable Energy Strategy Consultation Document significantly exceed those in the RES, and provide a huge challenge.

(b) **Consider** the strategic approach set out in paragraphs 12-19, aimed at making the most of our limited funds and focusing on where our leverage and influence can have most effect. In particular to agree to:

- (i) Encourage E.ON to go for carbon capture and storage/sequestration at Kingsnorth from the start.
- (ii) Address renewables infrastructure investment in the RIF when in place.
- (iii) Decline to invest in volume production/use of first generation biofuels.

(c) **Consider** the proposed 'renewable energy hierarchy' as a further 'broad rule of thumb' way of targeting effort.

(d) **Note** other areas of SEEDA focus set out in paras 23-26: around planning, supply chains, the grid, and skills.

(e) **Agree** to continue to support nuclear new-build on appropriate sites within the region as an essential contribution to energy security and the supply of carbon-free electricity.

INTRODUCTION & BACKGROUND

2. This paper reviews the challenges and opportunities for the region presented by the government's commitment to a new national target for 15% of all energy (electricity, heat and transport fuel) to be derived from renewable sources by 2020, as mandated under the EU policy agreed in 2007. The target was set out in the government's recently published Renewable Energy Strategy Consultation (see Annex A). The document envisages 35-40% of UK electricity from renewable sources, along with14% of heat and 10% of transport fuel from renewables. The Government's proposals have been broadly welcomed as helping to create a longer-term climate of confidence for energy companies and other investors in 'clean' energy.

3. However, for electricity, these national targets will require a tenfold expansion of renewables over current levels, representing a massive

challenge both nationally, and for the region – where, currently, only about 3% of electricity is from renewable sources. The Consultation document includes a proposal for regional targets (along the lines of housing targets) for the deployment of renewable energy technologies, although as yet without quantification, or indication of the scale of investment required per region, although the overall cost of delivering the targets is estimated at £100Bn. Nor does the Document say how much investment the government might look to the RDAs to provide.

4. The new national renewable energy targets for 2020 are appreciably higher than those in the RES, which has targets for renewable electricity, but none for heat or transport. As well as a major challenge, it also offers considerable business opportunities, not only for UK markets but across EU and global. The Prime Minister has said that a 'Fourth Technological Transformation' is needed - to achieve low carbon energy and energy efficiency and in his view, this will make the low-carbon economy a new engine of productivity and economic growth.

ENERGY IN THE SOUTH EAST REGION

5. The South East region currently relies on an energy mix which includes gas, nuclear, coal and renewables, and it links with generating capacity (including coal-fired) in other regions; there is also a two-way interconnector link with France, where the supply is largely nuclear-based. SEEDA's policy is to achieve energy security as well as clean energy: this is critical to our global competitiveness. We face a potential national 'energy gap' around 2015-20 as older nuclear, and less-efficient coal-fired power stations are decommissioned. Annex B sets out the current position on new major energy facilities in the region, which will go some way towards reducing our vulnerability, offsetting some of the losses from decommissioning.

But this is not enough

6. Even assuming all current plans are delivered, the total clean **energy supply would not be sufficient for planned requirements, and would not meet our clean energy targets** particularly in short-term. **Progress is therefore needed on all fronts to ensure that the region has a robust portfolio of clean, secure energy supplies.**

PROSPECTS FOR RENEWABLE ENERGY

7. The Schemes under construction and in the pipeline are expected to achieve only 7% of electricity capacity from renewables by 2010, against the RES target of 10% – this is due, in part, to planning delays in Phase 1 of the London Array. So we are already lagging behind.

8. A recent SEEDA-commissioned study identified the region's potential for a higher (20% of electricity by 2020) level of renewable energy in partial anticipation of the Government's new renewable energy targets. An indicative mix, illustrating the scale and number of new renewable energy installations required to achieve 20% renewables, is at Annex C. Our consultants concluded that 'there will be few towns and villages in the SE that by 2020 will

not have a biomass energy scheme, a wind turbine or two close by coupled with extensive solar technology for housing and offices'.

9. This represents a massive change from the current situation. For example, there are currently no large, and only a few medium-sized Biomass CHP plants; no tidal energy installations; few onshore wind turbine clusters or windfarms (save for Cheyne Court, Romney Marsh, currently under construction); few biogas plants; and few significant PV arrays.

10. Yet even the scale of deployment, delivering 20% of electricity (along with more heat and transport fuels) from renewables, might well not be enough, given the Government's expectation in the Consultation Document that at least 35% of electricity nationally will need to come from renewables.

11. The scale of the challenge means that SEEDA's role needs to be extremely well focused, if we are to help achieve a transformational change - and to get anywhere near the 2020 targets. In resource terms our Corporate Plan includes only £5.8m to deliver a Low Carbon Programme over three years. The funding largely covers two main elements: a Renewable Energy Challenge Fund, focused on bringing forward medium-scale renewable energy schemes; and a Retrofit Programme, to deliver zone-based housing retrofit programmes to reduce energy requirements. Both SEEDA initiatives will need to secure significant partner funding to deliver at the scale required.

STRATEGIC AND TARGETED APPROACH

12. We have therefore proposed a strategic approach for SEEDA, which in broad terms, is reflected in the current Corporate Plan, and distinguishes Large-Scale, Medium-Scale, Small-Scale, support for the development of New Technology, Heat and Transport Fuels

For Large-Scale Developments

(a) Offshore & Onshore Wind, Biomass CHP

13 SEEDA's key role will focus on strategic influencing and securing major investments through carefully targeted spend, by establishing and actively managing relationships with the larger utilities and developers. The objective will be to **get investment focused into the SE rather than elsewhere,** as we are doing with the Zero Waste Initiative. SEEDA is already pursuing this approach in relation to London Array (eg the role of Ramsgate) and follow-on offshore wind investment.

(b) Carbon Capture & Storage (CCS).

14. Carbon Capture and Storage (CCS), while not yet commercially viable, offers the prospect of being able to use coal without adding to atmospheric CO2. It would bring huge global market opportunities, in China and elsewhere. SEEDA is in discussion with E.ON on its plans for Kingsnorth to encourage for the proposed plant to be 'CCS-ready' at the very least. E.ON has reached the shortlist in the Government's competition to fund a CCS demonstrator; while we are supportive of E.ON's bid, we would also want E.ON to investigate and act as a 'test-bed' for other forms of carbon sequestration which might prove closer to market. **The Board is asked to**

agree to encourage E.ON to ensure that any new coal-fired plant at Kingsnorth should serve as a development centre for viable carbon capture and storage (CCS) and other forms of carbon sequestration (eg algae-based).

For Medium-Scale Developments

15. SEEDA is opening discussions with beacon local authorities and developers, and could make the offer of some support through the new Renewable Energy Challenge Fund in the Corporate Plan, as well as working to help lever in other funding, as the Challenge Fund is only £4.2M over three years. For example, the RIF could include this type of infrastructure investment. **The Board is asked to agree that we should in principle look at such investment for the RIF**. SEEDA will work with developers to help to reduce risks and remove market barriers; we will also look to secure significant supply chain benefit for the region

For Small-Scale Developments

16. A key barrier can be the acceptability of developments to communities; and our Greening Campaign and other behaviour change work will be aimed at creating the right conditions within communities for planning acceptance etc. SEEDA's main direct intervention will be through its housing retrofit programme (addressed in a separate paper on today's Board agenda) to deliver low-carbon energy and improved energy efficiency at the community scale . We will also seek to maximise support for anaerobic digestion (AD) at the small- and medium scale, for example, for food waste; RDPE funding will provide some support for this.

Support for New Technology Development

17.. We will develop a programme of support - focusing on deployment of demonstrators - for emerging technologies which offer potential for deployment in the region. Scoping work has, for example, highlighted Tidal Stream technology as an area of opportunity. We will work with partners to lever–in funding to support R&D/Demonstration, including from the Government's Environmental Transformation Fund, the Technology Strategy Board, the public-private Energy Technologies Institute and the Carbon Trust.

Heat

18. While some 30% of non-transport energy used in the UK is in the form of heat for space heating or process heating, only 1% of current heat demand is satisfied through renewable heat or as heat from combined heat and power (CHP). This represents a massive opportunity, and there is significant potential for renewable heat and CHP in the South East. There is particular benefit to be gained from prudent use of biomass from existing woodland, where it can support good woodland management. SEEDA's approach will be as for medium-scale developments, to encourage local authorities and developers.

Transport Fuel

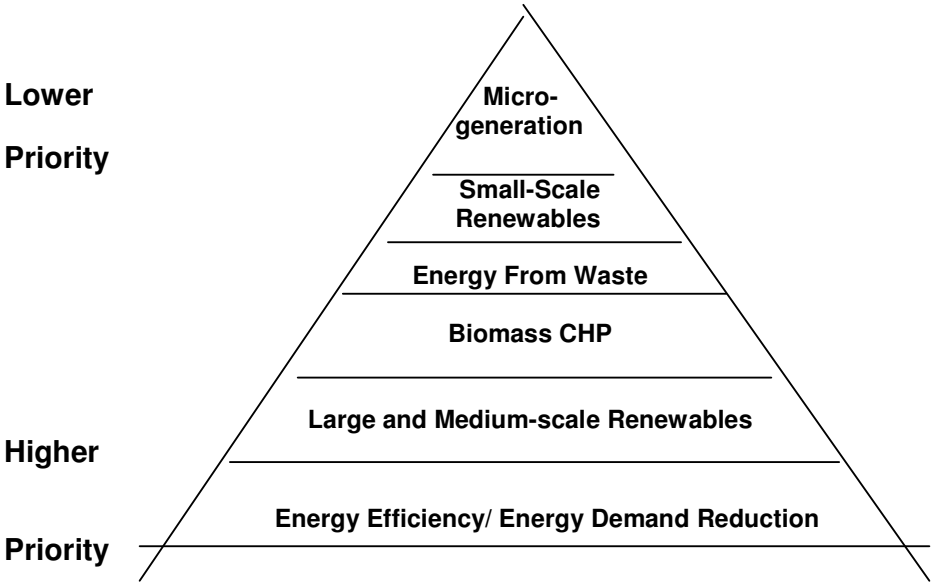
19. There is a raging debate about the benefits of first generation biofuels and the implications for land use given rising food prices. The recently published Gallagher report recommends a much slower rate of increase in biofuels than in the Renewable Transport Fuel Obligation; there are indications

the Government will accept this. So in the short term, while there is a case for localised small-scale manufacture of fuel from oilseeds, SEEDA's focus should largely be on using waste cooking oil as this also delivers our zero waste target. **The Board is invited to agree SEEDA should not put its limited resource into volume production/use of first generation biofuels.**

ACHIEVING GREATER CLARITY ON THE TYPES OF INSTALLATIONS AND FUELS TO SUPPORT

20.. The scale of the challenge – to achieve clean, secure energy supplies and to meet renewable energy targets while maximising benefit to the region - makes it the more important that we give clear market signals and focus on the types of renewables with the greatest pay-back. But equally we must not let the best be the enemy of the good: for example gas CHP as an initial step is better than no CHP. Thus, in order to avoid distraction and use of unsustainable sources, and to provide clarity for the energy sector and our other partners, we are proposing Renewable Energy Hierarchy for the prioritisation of SEEDA's support and investment, and as a basis for recommending prioritisation to others as follows:

Renewable Energy Hierarchy:
Prioritisation of SEEDA Support & Investment



21. Deciding priorities between energy sources is not an exact science, and the added value from SEEDA's intervention in supporting them will differ between technologies; factors such as cost, technology maturity, opportunities for application within the region, and carbon saving per £ invested will be key to the effectiveness of SEEDA support. With such factors in mind, and under the overarching requirement for sustainability, we **seek the Board's view on the above hierarchy as a broad rule of thumb in the** allocation of SEEDA's resources and targeting of our effort.

Nuclear Power

22. While clearly not renewable energy, nuclear power is effectively carbon-free and will make an important contribution to carbon targets as well as energy security. National plans for nuclear new-build favour existing sites, although entirely new sites have by no means been ruled out (a national site assessment exercise will be launched shortly). In the South East, British Energy, owners/operators of Dungeness B, have identified an adjacent site for new-build; this is one of the four priority sites identified by the company. SEEDA is in dialogue with British Energy and is being kept informed of its plans for Dungeness. SEEDA is also contributing to the national Nuclear Skills Academy, to assist in developing the skills necessary to support a new nuclear power programme and to help to secure benefit for the nuclear industry supply chain in the region. **The Board is asked to endorse SEEDA's continued support for nuclear new-build on appropriate sites** within the region as a contribution to energy security and to increase the supply of carbon-free electricity, within a balanced portfolio of 'clean' energy technologies.

OTHER SEEDA ACTIVITY TO ACHIEVE ENERGY SECURITY AND CLEAN ENERGY GOALS

Planning

23. SEEDA's Planning Team can play a proactive role in getting the right policy approach in Local Development Frameworks and by supporting planning applications for those schemes which fall below the Electricity Act threshold (locally determined if below 50MW; above 50MW, determined by Secretary of State). This will apply to many waste to energy plants, for example.

Supply Chains

24. SEEDA will need to continue to support the development of the region's energy sector and related supply chains through, for example, helping energy companies to access opportunities through brokering with energy developers, collaborative R&D, influencing procurement, and both promoting and identifying opportunities through Envirobusiness and UKTI. In the Renewable Energy Strategy consultation, the Government is committing to working with RDAs and other bodies to develop a co-ordinated strategy to tackle renewable energy supply chain barriers.

Grid Connection

25. Grid connections for renewable electricity developments have proved to be a barrier and there is a sizeable backlog of schemes 'in the pipeline' awaiting connection. The Government has taken steps to ensure that some of the backlog will be released through a 'connect and manage' approach, and a strategic review to accelerate planning and development of new grid infrastructure to meet the 2020 target will be delivered this year. SEEDA will work with network operators, power generators and local authorities to help to accelerate grid access for new schemes. For example, grid connection is less costly in some places than others and we can bring local authorities and the network operators together to plan investments in a more strategic and hence cost-effective way.

Skills

26. The expansion of renewable energy is expected to create thousands of new jobs; the Government's long-term commitment to renewable energy is expected to bring forward investment in skills and training as well as renewables development and deployment. At present, however, skills and training shortages are already constraining the energy industry. SEEDA has committed to working with relevant agencies to assist the development of the skills necessary to support the expansion of sustainable energy. This includes work with the Sector Skills Councils and developing initiatives through SESETAC and the new Institute for Sustainability. SEEDA is also a partner in the national Nuclear Skills Academy, linked with Dungeness; this will help to develop the skills needed for both decommissioning and newbuild.

ENERGY LEAD ROLE

27. The Board will be aware that SEEDA has the policy lead on Energy on behalf of the RDAs. As such, SEEDA is co-ordinating a joint RDAs' response to the Government's Renewable Energy Strategy consultation. On energy in general the RDAs' position is to support a mixed portfolio of energy supply technologies, with each component required to deliver carbon reductions, to contribute to energy security of supply, and to be cost effective. Each region will contribute according to its strengths, capacity and priorities; accordingly, several RDAs have not expressed support for nuclear newbuild; a SEEDA Board approval of the approach we propose for the SE would not necessarily be matched in all other regions.

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Date: 14 July 2008)v1

ANNEX A:
Key Proposals in the Government's Renewable Energy Strategy Consultation (June 2008)

Extending and raising the level of the Renewables Obligation to encourage up to 30-35% of our electricity to come from renewables sources by 2020;

Introducing a new financial incentive mechanism to encourage a very large increase in renewable heat;

Delivering more effective financial support for small-scale heat and electricity technologies in homes and buildings;

Helping the planning system to deliver, by agreeing a clear deployment strategy at regional level similar to the approach established for housing (ie regional targets for deployment of renewables);

Ensure appropriate incentives for new electricity grid infrastructure and removing grid access as a barrier to renewables deployment;

Exploiting the full potential of energy from waste, by discouraging the landfilling of biomass as far as is practical;

Requiring all biofuels to meet strict sustainability criteria, to limit adverse impacts on food prices, or other social and environmental concersn;

Promoting the development of new renewable technologies, through effective support, particularly where the UK has the potential to be a market leader;

Maximising the benefits for UK business and jobs, by providing a clear long-term policy framework, working with Regional Development Agencies to tackle key blockages, considering support for specific technologies and addressing skills shortages

ANNEX B: Major Projects Underway/Planned in the South East

Offshore Wind

1. The 1GW London Array offshore windfarm is already in the pipeline, and further offshore schemes are coming forward (and one of the areas allocated for Round 3 of Offshore Wind Site Licensing is off the South Coast). As well as providing 'clean' energy, offshore wind offers major opportunities for the region to secure supply chain benefits – which may be lost if the region's ports are unable to offer facilities to support offshore wind operations, especially suitable sites for supply chain companies at or close to the port.

London Array

2. The world's largest offshore wind farm (1GW – 300 turbines approx) in the Outer Thames Estuary, being delivered by the London Array Consortium. While Shell withdrew earlier this year, the project is proceeding (and tenders have been invited to take up Shell's share). All consents and grid connections agreed. Some delay due to initial planning refusal for substation, subsequently approved. Ramsgate identified as the operational base for London Array; SEEDA will contribute funds toward the Port works necessary to facilitate component laydown and assembly and ongoing offshore operations and maintenance.

Coal / Carbon Capture & Storage:*Kingsnorth Coal-Fired Power Station*

E.ON proposes to build a new £1.5bn 1600MW coal-fired power station adjacent to its existing plant at Kingsnorth (scheduled for decommissioning). E.ON's application is for two 800MW Advanced Supercritical (ASC) coal-fired generating units, together with ancillary infrastructure. E.ON has said that ASC offers greater operational efficiency and lower carbon emissions than conventional 'non-critical' coal-fired plant, delivering alifetime CO2 saving. E.ON intends to utilise the waste heat from the new station and has said that that the new power station would be 'CCS-ready' – ie., it would be capable of accepting Carbon Capture and Storage (CCS) technology when it becomes viable. The Company has asked the Secretary of State to defer his decision on their application until the outcome of UK/EU consultations on CCS regulations and the definition of 'CCS-ready'. (E.ON's Chief Executive has expressed the view that CCS is unlikely to be commercially viable at scale until 2020).

Nuclear Power

Dungeness Nuclear Power Station/s

Dungeness A is being decommissioned (closed December 2006). Dungeness B, originally scheduled for decommissioning in 2008 has, after due examination, been granted an operational extension to 2018.
Following the Government's conclusion to encourage the private sector to bring forward plans to build, operate and decommission a new generation of nuclear power stations, British Energy has identified its four 'front-runner' sites for which transmission connections have already been secured – Dungeness is one of these priority sites (the others are Hinkley Point, Bradwell and Sizewell). British Energy expect to make application for their first new station in 2010 and they would expect that, after due process, the station would be operational before 2020. Given the resources required to make the necessary applications, British Energy will bring forward their applications sequentially, rather than simultaneously; there would therefore be a 2-3 year interval

between applications. British Energy have not indicated any preference between the four 'front-runner' sites

Institute for Sustainability (Kent Thameside)

The newly-established, business-led Institute for Sustainability will have a key role in developing sustainable energy technology, particularly within an integrated systems approach; it will also deliver appropriate training. The Institute is already researching algae-based sequestration of CO2.

ANNEX C:
Delivering 20% of Electricity from Renewables by 2020: A Deployment Scenario by technology and number of installations likely to be required

A Very Large-Scale Schemes (>50MWe)

Biomass

Between 1 and 9 large Biomass Combined Heat and Power (CHP) Schemes in towns/cities with population over 100,000.

Onshore Wind

Four onshore windfarms in the 60-100MW range (eg., 15-25 4MW turbines each)

Offshore Wind

Between two and eight offshore windfarms, in the 100-200 MW range (25-50 4MW turbines each)

B Large-Scale Schemes (5-49MWe)

Biomass

Could involve a medium-sized Biomass CHP scheme in every centre of population over 50,000 people

Onshore Wind

One or two small windfarms (6-12 3MW turbines each) per county/unitary authority

Wave& Tidal

Could require one wave or tidal station per 100km of coastline

C Medium-Scale Schemes (1-4.9MWe)

Biomass

This could require a medium-scale biomass CHP facility in every town with a population between 10 and 50 thousand.

Onshore Wind

A small cluster of turbines (eg 3 x 1.5MW turbines) or a small windfarm (9 x 0.5MW) in each local authority area.

Biogas

A biogas facility for every town with a population between 10 and 100 thousand.

D Small-Scale Schemes (< 1MWe)

Biomass

This would involve a small-scale Biomass/CHP facility in every settlement with a population over 1500 (ie 282 installations).

Onshore Wind

A 0.5MW turbine in every settlement with a population over 1500(ie 282 installations

Solar Photo-Voltaic (PV)

A PV array for every 40 households (ie up to 165,000)

Biogas

A biogas facility for every few thousand cattle or pigs farmed (Food & drink processing wastes could also be included in hybrid facilities)

Hydropower

A hydro scheme for every 50 km of river or stream.