GREATERLONDONAUTHORITY

# London Electricity High-level Working Group
# Agenda

## 15 January 2013 – 15:30 – 17:30
## Committee Room 3 - City Hall

**Chair:** Sir Edward Lister

| Item | Time | Subject | Lead person |
|---|---|---|---|
| | 15.15 | Tea/Coffee on arrival | |
| 1 | 15.30 | Welcome and introduction | Chair |
| 2 | 15.40 | Draft Terms of Reference (paper herewith) | Chair |
| 3 | 15.50 | Identifying growth hotspots and areas of existing network stress that require strategic infrastructure investment (discussion paper herewith) | All |
| 4 | 16.10 | Potential of Decentralised Energy systems, district heating and demand side response measures to reduce electricity distribution infrastructure costs (discussion paper herewith) | All |
| 5 | 16.35 | Estimating costs of the investments required and considering models for how they could be met/shared (discussion paper herewith) | All |
| 6 | 17.15 | Next steps | Chair |
| 7 | 17.30 | Close | Chair |

**Agenda Item 2**

# Greater London Authority
# London's Electricity - High Level Working Group
# Draft Terms of Reference

## Introduction

1.1 London's continued success as a world city is impossible if it does not have a reliable, secure supply of electricity capable of meeting the demands of a growing and dynamic city. Electricity demand in London is forecast to increase by 1 to 4 % per year in the medium term and, with sustained levels of population and business growth, spare electricity capacity is significantly diminishing. Addressing this key challenge will mean public and private sectors working together to understand and plan for the capital's future needs.

1.2 The Mayor's Electricity Summit on 6 November 2012 brought together a select group of key players to discuss the energy systems needed by London over the coming decades and the mechanisms by which the challenges can be met. It marked the starting point of a commitment to ongoing, closer co-operation through a High-level Working Group.

## Aim and Remit

2.1 The aim of this High-level Working Group is to secure a resilient electricity network in London able to deliver connections and capacity timely and cost-effectively to ensure that London can compete with other world cities in terms of access to electricity supply and support for development and business growth where and when it is required. This will be delivered by timely and strategically-planned investment in the electricity network, with an effective distribution of risks and responsibilities between developers, Distribution Network Operators (DNO's) and consumers, and by economic and environmental innovation, including the delivery of the Mayor's agenda for decentralised energy, demand side response measures and active network management.

2.2 A close relationship will be established between local and national government, the regulator and industry, to understand the relevant issues London faces and how member organisations can work together to initiate improvements.

2.3 The High-level Working Group should:

- Promote sustainable levels of short and long-term investment in the delivery of London's electricity infrastructure when and where required; the two key components of this are network accessibility and network competitiveness;

- To supervise progress with key actions identified to facilitate the timely and cost-effective delivery of electricity connections and capacity, and to explore how barriers can be overcome;

- To assist the delivery of the Mayor's sustainable energy policies including on decentralised energy and demand side response measures to contribute to the competitiveness and sustainability of London's electricity and heat supplies;

- To explore coordination and improvement of plans and strategies by the partner organisations in the light of the aim of the Group;

- To assist in making policy recommendations to the Mayor on matters relating to electricity infrastructure planning for possible inclusion in the London Plan and/or other strategies.

## Working Arrangements

The working arrangements of the High-level Working Group are as follows:

3.1 The High-level Working Group is chaired by the Deputy Mayor for Planning and managed by GLA staff;

3.2 The High-level Working Group is drawn from officer representatives from the Network Distribution Operators (DNO's), National Grid, Ofgem, from the business and development sector, from local authorities and Government;

3.3 The summary notes of the meetings are circulated to all group members and placed on the GLA's website,

3.4 It is estimated that the High-level Working Group will meet twice per year; in addition, contributions to technical work by the Group's participating organisations to explore, facilitate and take forward key actions will be required.

3.5 The first meeting of the High-level Working Group takes place during January 2013.

# Greater London Authority
# London's Electricity - High Level Working Group
# Draft List of Participants

| Name | Borough/Company | Attending |
|---|---|---|
| Ben Wilson,<br>Keith Hutton and<br>Barry Hatton | UK Power Networks | |
| Tim Rotheray | Combined Heat and Power Association | |
| John Smart and<br>John Blyth | Scottish and Southern Energy | |
| Jon Fenn | National Grid | |
| Hannah Nixon,<br>Anna Rossington and<br>Mark Askew | Ofgem | |
| John Dickie | London First (representing business sector) | |
| Hugh Bullock | Gerald Eve (representing developers) | |
| Neil Pennell | Land Securities Group (representing developers) | |
| Chris Trew | Davis Langdon (representing property sector) | |
| Steven Bage | City of London | |
| Barry Smith | City of Westminster | |
| Rob Krzyszowski | Hammersmith & Fulham Borough Council | |
| Philip Gullet | Battersea Power Station Development Company<br>(representing VNEB OA) | |
| Chris Dancer<br>Vince Colby | Voreda (representing White City OA)<br>VBC Associates (representing White City OA) | |
| | | |
| Edward Lister (Chair) | GLA | |
| Andrew Barry-Purssell<br>Jorn Peters<br>Colin Wilson | GLA - Planning | |
| Peter North<br>Robert Tudway | GLA - Energy | |
| Kevin Hoctor | GLA - Business | |

**Agenda Item 3**

# Identifying growth hotspots and areas of existing network stress that require strategic infrastructure investment

## Background

Some key issues arising from the summit were as follows:

- A greater exchange of data and information between the DNOs and planners/developers is required to ensure better understanding of locations with (lack of) existing capacity and locations for upgrades of existing and new substations.
- Anticipatory investment in the electricity system can be funded if it is sufficiently evidenced and informed by stakeholders, but under current regulations, if it is to form part of the Distribution Network Operator's (DNO) regulated asset base, there must be no significant risk of the asset becoming stranded for any period.
- Planning can provide evidence of growth and development and help identify required land. In particular in growth/development hotspots permitted schemes are being built.

Since the summit Ofgem has confirmed that they would welcome the transparent exchange of key data/information between the DNOs and key stakeholders (including planners, developers and business representatives) about areas of network stress (data from the DNOs) and growth areas/hotspots (from the stakeholders) to support the DNOs' business planning and demand forecasting in particular. This would improve the robustness of the DNOs evidence base and could support the case for anticipatory investment. This is important as Ofgem and the DNOs are – partly based on past experience – concerned about the lack of certainty of planning/development data. The GLA is discussing with the DNOs (some initial talks with UNPN have already taken place) the scope and format of the data exchange.

## Approach to data exchange

Firstly, it is important that relevant stakeholders understand better the factors and assumptions informing the DNOs demand forecasting. UKPN's specific engagement with stakeholders in central London has started to improve this understanding.

Secondly, bringing together data about network stress and future demand should then help the DNOs to identify key investment required for the next Business Plan period. The following actions are/should be considered as part of the envisaged data exchange:

Some data about areas of **network stress** have already been provided by UKPN to stakeholders in central London. The GLA is reviewing the data but the information should also be provided to relevant stakeholders elsewhere in London, in particular in identified growth areas/hotspots.

In terms of the provision of robust data with a high degree of certainty about such **growth hotspots** the GLA has

- offered the DNOs development data we hold in our **London Development Database**, where we record information on planning permissions and completions and each permission has spatial co-ordinates and can therefore be accurately mapped. Details of a planning pipeline may be particularly useful for identifying likely areas of increased power demand. It is also possible to look at specific types of use (use classes) if their electricity demand generally varies considerably.

- identified other possible data sources including

    - the **Strategic Housing Land Availability Assessment** (SHLAA) which identifies the amount of land available for housing across London. It is site based and makes estimates of potential development capacity and likelihood of coming forward in the next 15 years. The results of the forthcoming SHLAA (due in early 2014) could in particular help to inform longer term demand forecasting. Subject to agreement by the boroughs interim results could be shared sooner.
    - the **London Office Policy Review** 2012 (LOPR 12) which includes a series of independent reviews of office market trends commissioned by the GLA. It specifically includes an office pipeline and provides a market perspective on likelihood of this coming forward.
    - **Infrastructure Studies** for several Opportunity Areas that are available (for VNEB and the Olympic Legacy) or underway (for White City and the Royal Docks). Studies for other Opportunity Areas are likely to be undertaken later this year.

There is also an opportunity for others to alert the DNOs of relevant data they hold. The timing of the data exchange should be established with relevant stakeholders shortly after this meeting so that the business planning process can still be informed. The level of detail and format of the data to be provided to the DNOs needs further consideration, but it is important that this potential barrier is overcome if the identified data can complement the DNOs own data and add robustness to their evidence base.

**Specific next steps**

- DNOs should consider providing data about network stress and a broad overview of the factors/assumptions informing their demand forecasting.
- UKPN should respond to the GLA's data offer shortly, also identifying a suitable format and level of detail of the data on offer.
- The GLA should provide SSE shortly with an example of data from the London Development Database for their consideration.
- Other stakeholders should consider the provision of additionally suitable development data to the DNOs.

**Agenda Item 4**

# Potential of Decentralised Energy systems, district heating and demand side response measures to reduce electricity distribution infrastructure costs

## Background

1. UK Power Networks

- The draft business plan on London's electricity network published for consultation in November 2012 by UK Power Networks refers to its Low Carbon London programme.The Greater London Authority are part of this project group. This uses London as a test area to support the development of smarter electricity networks that can manage the demands of a low carbon economy. Under the programme UKPN is (inter alia) improving its understanding of the effect that the low carbon transition will have on the operation of the electricity network, including some ground breaking commercial contracts aimed at reducing electricity consumption at times of peak demand by tapping into surplus small scale generation.
- UKPN has established demand response contracts with three external aggregators to enable the sign up of customers to reduce peak loads on selected substations.
- It will also be trialling techniques to assess how it can best enable, facilitate and manage distributed generation to improve security of supply and reduce network investment costs. There are a range of projects and partnerships which we are taking forward with UKPN , for example the Celcius project in Islington.
- With access to a portfolio of responsive demand, storage and controllable generation assets that can be used actively to contribute to distribution system operation, there is the prospect of London's electricity distribution network being managed as a distribution system operation business rather than as a conventional distribution network operation. This translation to a new business model would support efficient use of network assets and enable the connection and operation of low and zero carbon saving and demand side response systems in London to be supported and managed more effectively.

2. The Mayor's Climate Change Mitigation & Energy Strategy

- The Mayor has a target of 25% of London's energy needs being sourced from local decentralised energy sources by 2025. The Mayor's Decentralised Energy Project Development Unit is currently supporting the development of in excess of 25 decentralised energy projects in London, under a rolling programme towards delivery of the target. The Mayor's energy supply strategy is also represented in a range of other initiatives, including planning requirements as reflected in the London plan, the London Green Fund investing in decentralised energy, the Mayor's waste strategy supporting new sources of local generation and a range of other large scale projects. All these initiatives give scope for increasing the cost competitiveness of the local electricity network and supporting its resilience..
- The decentralised energy programme involves the development of heat networks, collecting heat from a range of different sources and, where appropriate, the operation of heat storage facilities.
- These decentralised energy systems, both through their local electricity generation and their heat production and storage, have the potential to support UKPN in reducing network investment costs and enhancing security of supply, as described above.
- Decentralised energy systems (DE) which produce electricity need to connect to the electricity distribution network; but only bearing connection costs which are proportionate to the scale of the systems involved and recognising locational constraints arising from land availability and the need to generate heat at a location from which it can economically be distributed to those consuming it.

3. Ofgem

- Ofgem recognises that a key challenge for RIIO – ED1 is to ensure that networks can connect and manage the new low carbon technologies and generation required. This will include significant volumes of local electricity generation and also the need to accommodate increasing loads from domestic electric vehicles, heat pumps and other sources without overloading the network or engaging in inefficient reinforcement.
- Ofgem sees that its function includes helping industry and stakeholders understand the future role of distribution network operators, the regulatory and policy implications and creating a package of outputs, incentives and financing for RIIO – ED1 that incentivises network operators to accommodate these new loads efficiently.
- Ofgem's role is fundamental to the delivery of the objectives of the Mayor's electricity summit, since the attainment of those objectives is substantially influenced by policy and regulatory considerations within Ofgem's function.

**How can UKPN's low carbon agenda and the Mayor's decentralised energy programme help deliver optimal cost competitiveness to London's electricity network?**

1. *The requirements*

- A connection tariff to attract new DE plant capacity recognising the benefits the technology could bring to particular areas of the electricity network. The tariff would signal DE investment opportunities optimised on electricity generating capacity potentially with heat storage capability.
- An electricity supply tariff (or similar) to ensure DE is operated at those times the electricity network support is required. The tariff should include mechanisms that enable the contribution of heat storage in delivering demand side response services to be transparent and rewarded.
- The development of other/new market mechanisms to attract dispatchable resources (that is to say local electricity generation which is capable of being called upon to generate at short notice to help UKPN manage local distribution system constraints), smart grid development and other capacity and demand response aggregation services to enable demand side responses within the network to be developed to its optimal level.
- A strategy to deliver all the above objectives.

2. *How the requirements will be met*

- The development by distribution network operators of connection and electricity supply charging for DE which meets the requirements of locational constraints, proportionality of cost and contribution to avoided investment cost. The mechanisms needed to deliver this may in some instances already be incorporated into existing charging arrangements.
- The delivery by UKPN and the Mayor of proposals for realising the potential for DE systems in London to contribute to future network requirements for ancillary generation services (generation services needed by UKPN to help manage its network).
- The delivery by UKPN and industry of detailed proposals for incentivising or otherwise promoting the development of demand side response systems for the purposes of reducing network investment costs, including the provision of smart grids and other enabling infrastructure, dispatchable resources, in addition to DE and systems for the aggregation of demand side response capability both at a commercial and domestic level.
- Determination by the Mayor with UKPN of what it is appropriate and practical for the Mayor to do to assist in the promotion and development of such demand side response facilities.
- Consideration by Ofgem of the regulatory and policy requirements to deliver on the above objectives with appropriate proposals.

Taken together these actions can play an important part in delivering the Mayor's objectives which are that electricity delivery in London meets the requirements of those developing London's infrastructure for responsive connection facilities and at the same time ensures that the cost of running and improving

London's electricity network is cost competitive and good value both to investors in London and individual consumers.

**The process for delivery of the requirements**

1. Brief by GLA to UKPN on connection costs and use of system charging constraints on the delivery of DE.
2. Delivery by UKPN of the available options for charging connection and electricity supply costs to attract electricity-optimised DE investment.
3. Ofgem's comments on the available options
4. Delivery by UKPN of its proposals in its capacity as distribution network operator for incentivising or promoting –
    - delivery of demand side response services (including heat storage facilities) aimed at reducing network investment cost;
    - to the extent not already available proposals to enable DE to participate in the provision of ancillary services.
5. Formulation by the Mayor of any measures appropriate and available to him to support UKPN in relation to 4 above.
6. Ofgem's comments
7. Preparation of a joint UKPN / GLA strategy for network operation for DE in London and GLA input to UKPN on its strategy for the development of demand side response services.
8. Timing and formulation of action on strategy.

**Agenda Item 5**

# Estimating costs of investments required and considering models for how they could be met/shared

## Background

Some key issues arising from the summit were as follows:

- UKPN propose building six new London substations at a cost of c£170m (Vauxhall-Nine Elms-Battersea, White City, Calshot Street (King's Cross), The Isle of Dogs, the City and the West End) to be funded by connection charges to new customers, including those connecting after these are built.
- Anticipatory investment in the electricity system can be funded if it is sufficiently evidenced and informed by stakeholders, but under current regulations, if it is to form part of the Distribution Network Operator's (DNO) regulated asset base, there must be no significant risk of the asset becoming stranded for any period.
- Appropriate ways of socialising anticipatory investment and how to pay for the risk of stranded assets have to be explored. This risk is not so much that an asset would be stranded indefinitely, but that there would be a delay in developers requiring the connection, beyond the time originally envisaged.

This paper sets out the context for discussing these issues in terms of areas that could be progressed.

## 1) The current funding system

Within the current regulatory framework, Ofgem regulates all DNOs through a price control system. The consultation process around the next price control process (the RIIO model) will apply from April 2015.

This system includes two elements:

- **A baseline level of revenue** for each DNO to cover their investment (including asset replacement and re-enforcement) and operating costs in order to meet agreed outputs which can be incorporated into the DNO's Regulatory Asset Value (RAV). The DNO then sets out how this revenue will be recovered by customers, including pricing costs.
- **Additional responses to customer demand for products and services** which is not part of the RAV and is therefore incremental investment which requires a direct investment from the developer, including an upfront cost (although charges are allocated on a pro-rata basis).

The former element is focused upon demand expectations over time whilst the latter operates on responses to customer demand. This raises questions as to the right balance of these two elements for London over the next price control period. It also raises the point as to whether the current regulatory framework enables investment based on demand expectation to take place sufficiently far forward to avoid undue and expensive delay in completing connections to new developments. This is also creates a reputational risk that can impede future investment decisions.

## 2) The balance between strategic vs. incremental investment

There are strong reasons to believe that London's economy is best served by an approach to the capital's electricity capacity and distribution network that is strategic and anticipatory rather than incremental. These include:

- **Efficiency and resilience** – investing effectively to facilitate predicted load growth, reduce connection times/costs, avoiding the need for long cable lengths to substations and other associated impacts on related costs, streetwork disruption and faults.

- **The predictability of growing demand in London** – The capital's electricity demand is forecast to increase by 1 to 4% per year in the medium term, with sustained levels of population and business growth (supported by data underpinning the GLA's London Plan). Equally new developments are being built in London, such as the Shard, with electricity requirements greater than other UK cities. As a result there is very little risk of new London substations being underutilised for any length of time.
- **The economic risk of not investing** – The Mayor of London's ambitions for the capital to remain the world business capital and deliver on his mandate for jobs and growth is dependent upon the city's internationally competitive offer to business. Electricity provision which is not able to meet the needs of these companies or to do so in a timely way and support their development, jeopardises London's attractiveness as an economic destination. Developer reports that the incremental approach to funding additional capacity introduces significant risks of projects not being delivered to their full potential or delivered on time. The risk is not only the unpredictability of connection costs, but is more often the delay involved in the development requiring major and time consuming connection works which are not already incorporated in the DNO's strategic investment plans.

### 3) Who should pay/take on risk for anticipatory investment?

If it is accepted that London requires a more strategic and anticipatory approach to investment in the capital, there is an important question in terms of how this should be paid for, which the High Level Working Group needs to consider e.g. how should the risk of any stranded assets be shared between developers, the DNO and consumers?

There are a range of options for socialising these investment costs, which carry potential risks and benefits for different stakeholders. We have set out some of these options for discussion as Table 1. We therefore suggest that the High Level Working Group discusses these options, considering:

- What is the scale and certainty of London's electricity investment needs and costs?
- How should the right balance of risk in terms of funding additional capacity amongst the DNO, Local Authorities, developers and customers be struck?
- How far can increased investment be set within the new baseline revenue?
- Could existing mechanisms for meeting customer demand for additional electricity capacity around new developments be made to work more effectively?
- Do more radical options, which could require legislative/regulatory changes, need to be considered in order to meet London's future needs?

It is also worth noting that:

- The options set are not mutually exclusive and a combination of one or more may provide the necessary solution/s.
- UKPN have proposed a possible solution in terms of the proposed new substations being funded by connections charges to new customers after the substations have been built and incorporated within the DNO's regulated asset base. However, this would involve a changed regulatory approach from Ofgem.
- Many London developments involve a range of property firms, rather than one sole company (making co-ordination of contributions more problematic).

## Table 1: Possible options and their benefits or barriers/risks

| Possible Options | Potential Benefits | Potential Barriers/Risks |
|---|---|---|
| A) Strategic investment ahead of need under current system (including frontloaded developer contributions). | • No legal/regulatory changes required.<br>• Existing processes used.<br>• No additional DNO cost risks.<br>• No additional consumer cost risks. | • Anticipatory investment may not happen due to limited incentives/potential risks for the DNO e.g. currently, there must be no material doubt in evidence of need to satisfy Ofgem that consumers will not face unrecovered costs.<br>• Upfront developer costs and the uncertain/extended timing of installing connection assets (other than as a forward investment), can act as a barrier to development at full potential. |
| B) New developer arrangements within the existing model (including agreed, shared developer payments). | • No legal/regulatory changes required.<br>• Developer cost/timing risks mitigated, limiting any negative development impact.<br>• No additional DNO cost risks.<br>• No additional consumer cost risks. | • Anticipatory investment may still not happen (due to lack of incentives).<br>• Voluntary model could create co-ordination/enforcement problems. |
| C) DNO taking on risk as an unregulated asset. | • No additional cost risks borne by developers (unless development occurs).<br>• No additional risks for consumers. | • DNO unlikely to take on risk, as would directly impact on shareholder returns, meaning anticipatory investment not likely to happen.<br>• Legal/regulatory barriers. |
| D) DNO paying for investment costs as part of its regulated asset base. | • Anticipatory investment likely.<br>• Mitigated DNO investment risk.<br>• No additional developer cost risks (unless development occurs). | • Developers potentially paying for substations after they have been built.<br>• Potential for stranded asset to fall on consumer.<br>• Legal/regulatory barriers. |
| E) The Mayor's Community Infrastructure Levy (CIL). | • Operates at a strategic pan-London level (limiting co-ordination problems).<br>• Ties in developer contributions within a legal framework. | • Legal/regulatory barriers i.e. can currently only be used for transport.<br>• GLA prioritisation e.g. is currently helping to fund Crossrail.<br>• London-wide CIL payers will fund infrastructure benefitting local areas/developments. |
| F) London Borough Developer Contributions (CIL/Section 106). | • Ties in developer contributions within a legal framework.<br>• Links cost with local developers (that will feel the benefit).<br>• No legal/regulatory changes. | • Need for Borough to prioritise this.<br>• Funds could already be committed.<br>• Any cross-borough co-ordination could be problematic.<br>• Developers to pay through two different mechanisms (CIL+ connection charge). |
| G) DNOs/developers/Local Authorities to share investment costs. | • Risk/revenue shared between DNOs/developers.<br>• Consumer risk mitigated. | • Legal/regulatory barriers.<br>• Potential co-ordination/ enforcement issues. |