

Innovative Waste Infrastructure Procurement in the UK – Separated Waste Services and Fuel Use Contracts

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Abstract

The North London Waste Authority has chosen to pursue an innovative approach to its procurement in order to maximise the environmental, social and financial performance of its waste management solution. As well as delivering the Authority's ambitions in diverting waste from landfill, this approach seeks to maximise the value of materials by recognising the resource value entrained in the waste stream, through the separate procurement of waste services to treat household waste for fuel production, and the utilisation of the resulting fuel to meet heat and energy demands. In pursuing a separated procurement, the Authority aims to attract as wide a market as possible for the fuel, ranging from large scale industrial users to smaller decentralised energy/district heating schemes, which would otherwise be excluded from a procurement of this nature.

Keywords

UK, Waste, Procurement, PFI, Recycling, MBT, AD, MRF, HWRC, EfW

1 Authority Background

The Authority is the second largest waste disposal authority ("WDA") in the UK, handling around 3% of the national municipal waste (1.3 million tonnes per annum ("tpa")) by 2045).

The Authority is a statutory authority, which was established in 1986 after the abolition of the Greater London Council ("GLC"). Its prime statutory responsibility is for the disposal of waste collected by the seven north London boroughs of Barnet, Camden, Enfield, Hackney, Haringey, Islington and Waltham Forest (the "Constituent Boroughs"). The Constituent Boroughs are also the waste collection authorities ("WCAs").

For the past 15 years the Authority has managed its waste arisings predominantly through its waste treatment and disposal contract with LondonWaste Limited ("LWL") entailing the use of an EfW plant at a site in Edmonton. Due to the limited life of the existing EfW plant and a commitment to increase recycling rates and minimise impact on climate change the Authority must procure new services.

The Authority is therefore seeking to award a Waste Services Contract and a Fuel Use Contract(s) to one or more private sector partner(s) (respectively known as the “Waste Services Contractor” and the “Fuel Use Contractor(s)”), for the provision of a solution for the treatment of municipal solid waste (“MSW”). The Authority’s procurement will be divided into two lots. The Waste Services Contract will be procured under the first lot (“Lot One”) and the Fuel Use Contract(s) will be procured under the second lot (“Lot Two”). Under Lot Two, there will also be two additional sub-lots.

1.1 Functions and duties

The Authority’s statutory duties include:

- processing, treatment and disposal of waste collected by each of the Constituent Boroughs;
- management, transport and disposal of household waste from the household waste recycling centre (“HWRC”) network;
- storage and disposal of abandoned vehicles (this is currently delegated to the Constituent Boroughs);
- preparing a joint waste strategy for North London; and
- delivering performance that is consistent with statutory recycling and composting targets and diversion performance targets.

1.2 Geography and Population

North London is an area of approximately 30,000 hectares (“ha”). It is bounded by the M25 Motorway and Hertfordshire County Council to the north, Edgware Road and West London Waste Authority area to the west, the M11 Motorway and the East London Waste Authority area to the east, and by Westminster, the City of London and Tower Hamlets to the south. The table below outlines the area covered by each Constituent Borough:

Table 1 Covered areas of each Borough

Borough	Area (ha)
Barnet	8,677
Camden	2,178
Enfield	8,014
Hackney	1,904

Haringey	2,961
Islington	1,486
Waltham Forest	3,881
Total	29,101

The total population of the north London area is 1.7 million people who live in approximately 696,000 households. This population has increased from approximately 1.5 million in 1991 and, according to Greater London Authority (GLA) population estimates, is likely to rise by a further 150,000 by 2016 as part of a London-wide trend.

1.3 Analysis of Waste Arisings

The total waste arisings generated in the Authority area in 2008/09 was 904,440 tonnes. This was split on the following basis:

- residual waste (711,113 tonnes, 79% of total tonnage);
- dry waste (131,945 tonnes, 15% of total tonnage); and
- organic waste (61,082 tonnes, 6% of total tonnage).

1.4 Strategic Context

The Authority leads the development of the Joint Waste Strategy (JWS) which was adopted by the Constituent Boroughs in June 2008, providing the framework, appropriate management systems and resources to achieve all statutory performance standards and relevant new European Directives, national and regional targets and obligations to which the Authority and Constituent Boroughs are subject to.

The adoption of a JWS in north London has provided the opportunity for considerable analysis of the options, incorporation of stakeholder views and reflection of the changing national and regional policy framework. As adopted it provides a clear opportunity for the strong partnership working between Constituent Boroughs, the Authority and other stakeholders to continue and develop.

1.4.1 JWS Aims and objectives

The key aims of the JWS are:

- to promote and implement sustainable municipal wastes management policies in north London;

- to minimise the overall environmental impacts of waste management;
- to engage residents, community groups, local business and any other interested parties in the development and implementation of the above policies; and
- to provide customer focused, best value services.

The key objectives of the JWS are:

- to minimise the amount of municipal waste arising;
- to maximise recycling and composting rates;
- to reduce greenhouse gases by disposing of less organic waste in landfill sites;
- to coordinate and continuously improve municipal waste minimisation and management policies in north London;
- to manage municipal waste in the most environmentally benign and economically efficient way possible through the provision and co-ordination of appropriate waste management facilities and services;
- to ensure that services and information are fully accessible to all members of the community;
- to maximise all opportunities for local regeneration; and
- to ensure an equitable distribution of costs, so that those who produce or manage the waste are responsible for paying for it.
- The JWS also sets out a series of implementation actions and policies in relation to:
 - waste prevention and minimisation;
 - recycling and composting;
 - diversion and landfilling of residual waste; and
 - environmental protection.

1.5 Current Collection and Disposal Arrangements

The Constituent Boroughs have varied collection arrangements and systems. There is a broad split between Constituent Boroughs tending to collect co-mingled materials and those collecting source-separated materials. Some Constituent Boroughs are also now opting for hybrid systems under which paper is collected separately and other materials

co-mingled. Further distinctions exist between the systems for collecting organic waste and compulsion measures.

The relationship of the collection systems to disposal is the subject of review both collectively and within the Constituent Boroughs. It is agreed by the Constituent Boroughs in the principles of the Inter-Authority Agreement (“IAA”) that the Constituent Boroughs need to seek to promote similar arrangements which are conducive to higher levels of recycling. The Authority is working with the Constituent Boroughs to undertake a full review of future waste collection systems.

1.5.1 Household Waste Recycling Centres (HWRCs)

North London is unusual in that the provision and operation of HWRCs has historically been the responsibility of the WCAs rather than the WDA. This has meant that some of the sites have a local service focus and target the more easily recyclable materials rather than the smart disposal of residual waste (eg. the use of waste wood that cannot be recycled as a biomass fuel source) and/or the recycling of material where volume is an issue (eg. plasterboard)

The Constituent Boroughs have agreed in principle, however, to transfer a property interest in and operation of the HWRCs to the Authority by the anticipated Contract commencement, October 2012 and as such the management of these facilities will form part of the new contractual arrangements.

Overall, the density of site coverage in some parts of the north London area means residents have to travel further than desirable to encourage frequent use of sites. This situation is causing congestion on key sites, leading to poor recycling performance and residents deciding to use alternative disposal routes.

An assessment of the current HWRC network performance has identified that the volume of material received is lower than expected, and that there is considerable scope for improving recycling rates. The Authority’s preliminary view is that with investment in new sites and the upgrading of existing sites would result in significant improvement in the performance of its HWRCs.

1.5.2 Current waste disposal contract

The majority of waste that the Authority currently handles is managed through its current waste disposal contract with LWL. This contract is based on an incineration at Edmonton EcoPark and landfill, with a small amount of IVC. LWL is wholly owned by the Authority. This waste disposal contract will be terminated prior to the Authority entering into the Waste Service Contract.

1.5.3 Edmonton EcoPark

The Ecopark, a waste management complex of around 16 ha is located within the London Borough of Enfield, close to its borders with the London Boroughs of Haringey and Waltham Forest. A total of 600,000 tpa of the municipal waste arising in the north London area was consigned to this site in 2008/09.

The EfW facility on the site has a capacity of circa 550,000 tpa, and was constructed by the GLC and opened in 1974. It receives all residual waste from the London Boroughs of Enfield, Haringey and Waltham Forest. A significant proportion of Hackney's residual waste is also accommodated together with small amounts from the other three Constituent Boroughs. The facility generates 55 megawatts ("MW") of electricity, 85% of which is exported from the site. Ferrous metals extracted from the resultant ash are sent for recycling and the remaining ash is consigned to an onsite ash recycling facility. The EfW supplies a relatively small amount of the excess heat generated to the Ecopark's autoclave facility.

Whilst a considerable amount of the Authority's residual waste delivered to the site is consigned directly to the incinerator (circa 250,000 tonnes in 2008/2009), a considerable proportion (circa 150,000 tonnes) is first treated onsite in either the Fuel Preparation Plant ("FPP") or the Bulky Waste Recycling Facility ("BWRF") to extract materials suitable for recycling. The Authority does not currently use the full capacity available at the EfW plant, the remainder of which is filled by municipal waste from other sources.

Around 30,000 tpa of the waste consigned to the site is treated in an IVC facility, producing a compost product which has been Publicly Available Specification "(PAS") 100 certified. The compost is made available for use by the Constituent Boroughs and for agricultural purposes. Despite its strategic role in raising the recycling composting rate of the NLWA's Constituent Boroughs over recent years, in terms of tonnage contribution, the IVC plays a relatively small role in the management of the Authority's waste which is dominated by the Edmonton EfW plant.

2 Reference Project

The Authority conducted a full technical options appraisal which built upon the assessment of options within the JWS. The Authority has also conducted a particularly rigorous and comprehensive analysis involving a number of different technological scenarios. This appraisal considered a wide range of possible technical solutions and assessed these using a range of relevant criteria such as performance, sustainability and cost in order to identify a reference project. The carbon impact of solutions, using the Environment Agency's Waste and Resources Assessment Tool for the Environment ("WRATE") methodology was a key issue.

The technical options appraisal identified the need for a MRF, an AD facility and green waste composting facilities to deliver local and national ambitions on recycling. It also identified the need for a major upgrade of the HWRCs, both as a means to delivering recycling ambitions and improving the residual waste treatment solution.

On residual waste, the front runners were traditional EfW and mechanical biological treatment (“MBT”) with AD providing the biological treatment and with the process producing SRF. The Authority concluded that the second of these options provides a more appropriate reference project, as it provides a much better prospect of delivering a combined heat and power (“CHP”) solution, a better prospect in planning terms, an additional boost to recycling, and better prospects of bidders over-achieving against modelling assumptions.

On this basis the Authority selected the following, as its Reference Project within the context of a separated procurement for the Waste Services Contract and Fuel Use Contract(s).

Table 2 Facilities of the Waste Services Contract and the Fuel Use Contract

Contract	Proposed facility	Number of proposed facilities	Capacity of facility
Waste Services Contract	HWRCs	6 new facilities (additional refurbishment of some old sites)	6 sites totalling additional 29 ktpa
	IVC (existing)	1 facility	30 ktpa
	Green Waste Composting	1 facility	25 ktpa
	Rail Transfer Station (existing)	1 facility (West)	300 ktpa
	MRF	1 facility	100 ktpa
	AD	1 facility (East)	112 ktpa
	MBT-AD	2 facilities (East and West)	345 ktpa and 240 ktpa
Fuel Use Contract	SRF	1 facility (no site allocated)	320 ktpa

A key reason for conducting two separate procurements is to open up the fuel use to energy users who traditionally might not have any involvement with the waste industry and are able to derive value from SRF, by displacing fossil fuels for the creation of electricity and heat. This approach does not preclude waste management companies with energy production skills from putting forward solutions, but rather seeks to recognise that markets beyond the boundaries of the mainstream waste industry may in fact provide the optimal solution.

Responsibility for transport of fuel and outputs from the Waste Services Contract will fall within the main Waste Services Contract. In the event that fuel is transported, the Authority would wish to see as sustainable a transport solution as is possible and to this extent the Authority can facilitate via use of the existing Hendon rail transfer station or the wharf at the Edmonton site linked to the Lee navigation.

2.1 Costs, Budget and Finance

The Authority envisages that the procurements for the Fuel Use Contract(s) and the Waste Services Contract will be delivered under the UK Government's Private Finance Initiative (PFI). The relevant capital expenditure (in real terms) on the waste services infrastructure is £230.4 million and on the fuel use is £226 million.

2.2 Procurement Process

The overall procurement strategy developed for the Waste Services and Fuel Use Contracts takes into account the Authority's key requirements of: affordability and best value; deliverability; and sustainability.

Competitive Dialogue (CD) has been selected as the most appropriate European Union ("EU") tendering procedure for the contract. The Authority is mindful of the costly process that CD engenders and therefore is aiming to achieve an efficient process through to final tender. Accordingly, the Authority proposes to limit the number of stages with corresponding number of bidders as set out in the table below.

Table 3 Stages of the Competitive Dialogue (CD)

Stage	Comments
Pre- Qualification Questionnaire (PQQ)	The PQQ criteria have been drafted to ensure the short listing of a manageable number of bidders who are genuinely and demonstrably capable of developing and operating a facility of the scale and nature required by the Authority.
Invitation to Submit Out- line Solution (ISOS)	Due to the complex nature and scope of the fuel use procurement in relation to the acquisition of a site, preparation of a planning application, and identification of a preferred technology, a detailed ISOS response will be required from all bidders.
Invitation to Submit De- tailed Solu-	Following the initial dialogue, the submission of detailed solutions will be used to provide further clarity regarding how bidders' solutions meet the Authority's requirements, thereby allowing de-selection. The detailed solutions will concentrate on elements of bidders' proposals which are likely to be

tion (ISDS)	critical in evaluation.
Further Dialogue	Following de-selection resulting from the submission of detailed solutions, further dialogue will be used to develop the final solution together with all project documentation prior to the call for final tender. During this stage the Authority will test and define an approach to deal with all issues which could affect price or risk. This is likely to include substantial involvement from funders.
Final Tenders	On the close of dialogue, final tenders will be submitted for evaluation in accordance with the defined criteria, which will result in selection of a the contractor.

2.2.1 Evaluation

The dialogue process will be initiated by the issuing of a Pre Qualification Questionnaire (“PQQ”) to prospective bidders. Once pre-qualified, shortlisted bidders are subsequently to be invited to participate in the competitive dialogue process.

Shortlisted bidders shall be evaluated at various stages of the procurement against the Evaluation Framework to be issued with the ISOS. At each stage of the procurement a relevant set of submission requirements shall accompany each submission invitation such that bidders only submit the required information at each stage.

The Evaluation Framework shall form the basis for deselecting bidders throughout the procurement, through to the selection of a preferred bidder following the receipt of final tenders.

In the case of the procurement for the Fuel Use Contract(s), the Authority reserves the right before the start of the dialogue to limit the number of bidders it invites to participate in the dialogue in accordance with Regulation 18 (12) of the Public Contract Regulations 2006.

2.2.2 Form of Contract Documents

The draft Project Agreement and other associated contractual documents will adopt, so far as is applicable, the drafting and principles required by the UK Government’s Standardisation of PFI Contracts (SoPC4) or such replacement guidance as may be applicable at the time the contractual documentation is issued to bidders.

The Authority has sought to develop as simple a project as possible. This objective is likely to be achieved through the early identification of a preferred technology, acquisition of a suitable site, and development of a planning application for a reference project ahead of procurement. Derogations will therefore be limited to those widely recognised

in the waste sector such as those contained in DEFRA guidance “Standardisation of Waste Management PFI Contracts: Guidance on SoPC derogations” published in May 2006. Bidders will not be permitted to make derogations to the standard documentation that is proposed for non project-specific reasons.

The Authority is named as lead contracting authority in the OJEU Contract Notice and will be the contracting party to the project agreement. The IAA will sit behind the project agreement to govern the relationship between the Authority and the Constituent Boroughs.

2.2.3 Interface Between the Waste Services Contract and Fuel Use Contract(s)

The procurements will remain separate. The call for final tenders will be staggered with the Fuel Use Contract(s) in advance of the Waste Service Contract to enable the destination of the fuel to inform the transport solution.

3 Waste Services Contract

The fundamental objectives of the Services are to:

- Manage Contract Waste in a safe, efficient and effective manner;
- Manage Contract Waste to maximise recycling, composting and reuse, minimise the amount of Contract Waste to landfill and to produce SRF in the most efficient way possible; and
- Minimise the climate change of managing Contract Waste.

3.1 Scope of Waste Service Contract

The Waste Services Contract covers:

- the design, construction, commission and financing of any additional facilities required for the provision of the service;
- the operation and maintenance of all facilities;
- the closure and replacement of two HWRCs, improvements made to two existing sites and the creation of three new HWRCs;
- the provision of at least four reception points for municipal wastes collected by the Constituent Boroughs. These will be either at the sites that the Authority has provided or within 2 km of those sites;

- the selection and securing of new sites, where they are not provided by the Authority;
- the treatment of all wastes including materials separately collected by the Authority's Constituent Boroughs in order to maximise the contribution to the Authority's 2020, 50% household waste recycling/composting target, divert waste from landfill to contribute to the Authority's 75%, 2020 landfill diversion target and produce SRF to a specific physio-chemical specification;
- the disposal of residues and waste not able to be treated as above;
- responsibility for the transport of all materials from reception points and HWRCs between project facilities to end users, markets, fuel users and/or final disposal;
- ensuring that appropriate and necessary consents including planning permission are in place for all sites and operations within the scope of this project;
- full responsibility for the outputs from all operations within the scope of this project including handling, management, marketing, sale and disposal;
- the provision of a service for the education of the local community and engagement with the community waste sector in order to facilitate socially beneficial reuse of durable items; and

The Authority envisages that the successful bidder will acquire shares in LWL from the Authority, which would see it take over responsibilities at Edmonton EcoPark, managing the existing assets including the EfW facility until the conclusion of its operational life.

The duration of the Waste Services Contract will be determined by the Authority through competitive dialogue, but it is expected to be for a period of between 25 to 35 years from financial close. The duration of the contract will be co-terminus with the Fuel Use Contract(s). The operational start date for the Waste Services Contract is anticipated to be 1 April 2016.

3.1.1 Sites

Under the Waste Services Contract the Waste Services Contractor will be required to design, build, finance and operate certain waste treatment, processing and disposal facilities capable of processing approximately 1,300,000 tpa of MSW. As part of the Waste Services Contract, the Authority also requires the production of solid recovered fuel ("SRF"). It is envisaged that the facilities will produce approximately 320,000 tpa of SRF. Please see the Fuel Use Contract(s) section below for information relating to the treatment of the SRF produced.

The Authority has identified sites on which to locate its waste treatment, processing and treatment facilities, namely a site in Edmonton (in the Constituent Borough of Enfield), Pinkham Way (in the Constituent Borough of Haringey) and a site in Hendon near the Brent Cross Shopping Centre (in the Constituent Borough of Barnet). The sites comprise:

- **Edmonton:** The Reference Project proposes the following new facilities as well as the existing infrastructure located at the site: 345,000 tpa MBT (AD); 112,000 tpa AD. This site is located in the London Borough of Enfield.
- **Pinkham Way:** The reference project proposes a new 240,000 tpa MBT (AD). This site is situated in London Borough of Haringey.
- **Hendon:** The site is identified for a 100,000 tpa MRF to support the Authority's proposals. The local authority is the London Borough of Barnet.

4 Fuel Use Contract

The fundamental objective of the Fuel Use Contract is to accept SRF from the North London Waste Authority (the "Authority") and use it in a cost effective manner to generate energy in order to minimise the climate change impact of managing municipal solid waste through effective diversion from landfill in the most efficient means possible.

The Authority wishes to procure a fuel use solution(s) that delivers the best environmental, financial and commercial terms in a way that maximises the prospect of early delivery. This solution is intended to fulfil the following environmental, financial, commercial and deliverability objectives:

1. the Authority's environmental considerations include the creation of ongoing landfill diversion capacity and improved carbon impact of using the SRF, including any transport. It is hoped that the best overall environmental solution will incorporate good quality CHP solutions which lead to substantial heat use;
2. the Authority's primary financial consideration is the cost of building the plant and the associated gate fee payable by the Authority to the energy user. This fee should include benefits from the sale of energy and any other financial benefits such as ROCs, ECAs, RHIs along with any other carbon benefits such as carbon trading;
3. the Authority's key commercial considerations include: risks associated with design, build, finance and operation of the facility(ies); certainty over SRF markets; realising the residual value of facility(ies) at the end of the contract; and what might happen in the event of a failure.

Deliverability considerations will need to take into account not only the likelihood of establishing a solution and the timescales involved, but also the contribution that the solution makes to the wider community in terms of place shaping and regeneration, employment opportunities and synergy with sub-regional or regional sustainable development in the context of potential planning considerations.

4.1 General

The OJEU notice contains the following two sub-lots for bidders to bid for:

- (a) Sub-Lot 1: 130,000 to 170,000 tpa; and
- (b) Sub-Lot 2: 280,000 to 340,000 tpa.

The Authority may, at its discretion, award two contracts under Sub-Lot One. If only one lot of 130,000 to 170,000 tpa under Sub-Lot One is successfully awarded, the Authority reserves the right to carry out a new procurement for the remaining SRF in 2018 (for service commencement operation by 2020) and the remaining SRF Tonnage produced under the Waste Services Contract is expected to be disposed of by the Waste Services Contractor.

A bidder may put forward proposals for any combination of sub-lots (2 times sub-lot 1; or sub-lot 1 and sub-lot 2), provided each proposal relates to a different solution and different site.

4.2 Scope of Fuel Use Contract(s)

The Fuel Use Contract(s) will potentially involve the design, build, finance and operation of an EfW facility or the use of a merchant facility to utilise approximately 320,000 tpa of SRF produced under the Waste Services Contract. The operational start date for the Fuel Use Contract(s) is anticipated to be 1 April 2017.

The Waste Services Contractor will be responsible for the provision and transfer of SRF to the Fuel Use Contractor(s) and the operational start date for the Fuel Use Contract(s) is anticipated to be 1 April 2017.

The duration of the Fuel Use Contract(s) will be determined by the Authority through competitive dialogue, but it is expected to be for a period of between 25 to 35 years following the commencement of production of the SRF under the Waste Services Contract. The duration of the contract will be co-terminus with the Fuel Use Contract(s).

4.2.1 Technology

The Authority is seeking solutions which derive the maximum economic and environmental benefit from the SRF by displacing fossil fuel use for the creation of electricity and heat as part of its overall waste strategy. To facilitate this, the Authority has adopted a strategy that is broadly and deliberately technology neutral. Notwithstanding this, the Authority is seeking a proven technology solution(s) in respect of its operational status, reliability and flexibility.

In doing so, the Authority is endeavouring as far as is practicable to facilitate the delivery of a CHP solution. It is the Authority's view that a separated procurement strategy provides greater opportunity for realising CHP solutions as it allows industrial energy users to supply their production processes by using SRF to displace fossil fuels. At the same time, the strategy provides an opportunity for local urban regeneration projects to satisfy London (or other) planning guidance on renewable energy whilst delivering CHP solutions.

Whilst the Authority will require a degree of flexibility in respect of the SRF tonnage capable of being processed in any given period, the Fuel Use Contract is likely to specify a guaranteed minimum tonnage of SRF that meets a pre-determined specification.

4.2.2 Sites, Planning and Design

The Authority's procurement approach recognises that the solution for the fuel use procurement needs to be located close to the intended energy use and that it makes sense for the fuel use provider to provide the relevant site, rather than the Authority to do so. The Authority has not therefore sought to provide a site to support the Fuel Use Contract. On this basis the Authority will require bidders to propose their own site solutions in putting forward their fuel use solutions.

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