

GREATER LONDON AUTHORITY

REQUEST FOR MAYORAL DECISION – MD2394

Title: Home Response (phase two household energy flexibility demonstration)

Executive Summary:

The Greater London Authority, in partnership with Element Energy, Moixa, Repowering London and UK Power Networks, has been conditionally offered grant funding of £927,842 from the UK Government Department for Business, Energy and Industrial Strategy (BEIS). This follows a successful application to their Domestic Demand Side Response Competition (phase two).

Home Response will look at how electrical hot water heating and solar PV with battery storage technologies can be used in social housing to help Londoners cut their energy bills, financially reward flexible use of energy, reduce emissions and contribute to a smarter, cleaner energy system for London. By using innovative business models and customer engagement approaches, combined with controlling when and how hot water heating and batteries are used, the project team aims to supply 0.5MW of additional, flexible electrical power to local and national electricity networks by December 2020 – increasing low carbon electricity capacity and improving security of supply to meet Londoners' variable demands for power, i.e. at peak times of the day.

This demonstration project contributes to delivering several Mayoral objectives and proposals:

- For London to be a zero-emission city with clean transport and clean energy;
- To develop clean and smart, integrated energy systems utilising local and renewable energy resources;
- To investigate the potential for demonstrators where Londoners can help manage London's energy demand; and
- To undertake demonstration projects to improve London's energy systems.

Decision:

That the Mayor approves:

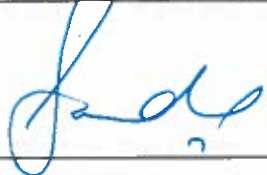
1. Receipt of conditional grant income of £927,842 and GLA entering into a grant agreement with the Department for Business, Energy & Industrial Strategy;
2. Disbursement of the grant income to project partners Element Energy (£104,918), Moxia (£427,835), Repowering London (£147,360) and UK Power Networks (£33,159);
3. GLA entering into a collaboration agreement with Element Energy, Moixa, Repowering London and UK Power Networks; and
4. GLA expenditure of £214,570 from 2019 – 20 to pay for a full-time, fixed term project manager, existing staff time, associated project management expenses, dissemination and learning activities in line with commitments made in the proposal for grant funding.

Mayor of London

I confirm that I do not have any disclosable pecuniary interests in the proposed decision and take the decision in compliance with the Code of Conduct for elected Members of the Authority.

The above request has my approval.

Signature:



Date:

19/12/12

PART I - NON-CONFIDENTIAL FACTS AND ADVICE TO THE MAYOR

Decision required – supporting report

1. Introduction and background

- 1.1 The Mayor wants London to be zero emission by 2050. Home Response will accelerate the delivery of many Mayoral objectives and proposals set in the London Environment Strategy:
 - For London to be a zero-emission city with clean transport and clean energy;
 - To develop clean and smart, integrated energy systems utilising local and renewable energy resources;
 - To investigate the potential for demonstrators where Londoners can help manage London's energy demand; and
 - To undertake demonstration projects to improve London's energy systems.
- 1.2 The Greater London Authority, in partnership with Element Energy, Moixa, Repowering London and UK Power Networks, has been conditionally offered grant funding of £927,842 from the UK Government Department for Business, Energy and Industrial Strategy (BEIS) Domestic Demand Side Response Competition (phase two). The grant income to project partners is GLA (£214,570), Element Energy (£104, 918), Moxia (£427,835), Repowering London (£147,360) and UK Power Networks (£33,159).
- 1.3 BEIS' aim for Domestic Demand Side Response (DSR) Competition (the 'Competition') is to identify and demonstrate controllable, flexible electricity demand in households. BEIS is interested in demonstrations that better control existing demand for electricity (for example for heating water for washing etc). Also, demonstrations that control emerging technologies that supply demand for electricity that could offer substantial flexibility in the future (for example using batteries to store green electricity from solar PV and supply power to the grid at times of peak demand between 4pm and 7pm). Projects that demonstrate novel business models that engage consumers in meaningful and sustainable ways are also encouraged.
- 1.4 A first phase feasibility study, also grant funded by BEIS and approved by decision ADD2245, identified flexible ways to manage electricity use and demand in Londoners' homes. The study resulted in a funding proposal to complete a phase two demonstration to test the phase one recommendations of how to control electricity demand and use it flexibly. The Home Response proposal was selected by BEIS, from over thirty proposals, for conditional grant funding worth £927,842.
- 1.5 Home Response will demonstrate, from January 2019 and finish in December 2020, how electrical hot water heating and solar PV with battery storage technologies can be used in Londoners' homes to cut energy bills, financially reward flexible use of energy, reduce emissions and contribute to a smarter, cleaner energy system for London. These technologies will be controlled in 160 social housing households (with their consent), enabling and rewarding those households who lower their electricity use at peak times and/or shift their electricity use to non-peak, lower carbon times of the day, or supply clean electricity stored in batteries. In return for being flexible users of electricity, households will receive payments, via commercial project partners, from national (National Grid) and local electricity grid (UK Power Networks) operators to meet their needs for flexible capacity to meet Londoners' variable demands for power, i.e. at peak times of the day between 4pm and 7pm when more power is needed.
- 1.6 By using innovative business models and customer engagement approaches, combined with controlling when hot water heating and batteries are used, the project team aims to supply 0.5MW of additional, flexible electrical power to local and national electricity networks by December 2020 –

increasing low carbon energy capacity and security of supply. We believe the replication potential across London is up to 1MW by December 2022, which will contribute to London's estimated 1 GWe of flexible peak electrical power capacity by 2050.

1.7 The GLA is contractually responsible for:

- Ensuring all grant agreement obligations are followed and fulfilled as accountable body to BEIS;
- Running the project management office, ensuring all collaboration agreement obligations are managed through the project governance arrangements stated in the agreement; and
- Disseminating project learnings and opportunities to electricity customers and stakeholders across industry, public and community sectors.

1.8 The GLA's funding of £214,570 will be used to cover revenue costs from January 2019 – December 2020 for a full-time, fixed term project manager (offered as an internal recruitment opportunity in the first instance), days spent on the project by existing staff, associated project management expenses, and dissemination and learning activities on behalf of the project partners.

2. Objectives and expected outcomes

2.1 The objectives for Home Response are to:

- Engage and recruit households by using innovative engagement methods that have been tried, tested and improved upon through the development of community energy projects;
- Remotely control households' flexible demand for electrical hot water heating and solar PV combined with battery storage technologies by using Moixa's GridShare software and hardware technologies to commercially trade additional power capacity with UK Power Networks and National Grid to meet their network capacity and balancing (supply and demand) needs;
- Moxia will give their participating households a share of the profits and rewards received from energy trading (this will not be from the grant);
- Moxia to manage everything for households. Once they have signed up to GridShare there's nothing they need to do. Moixa will sell the energy, collect payments from network operators, and once a year send customers their share;
- Develop and trial two flexible energy business models aimed at households that provide replication potential for commercial energy businesses and community energy organisations;
- Meet UK Power Networks need for local level electricity grid capacity flexibility (which includes increasing supply and reducing demand for electricity) at times of critical need for Londoners (i.e. peak times of the day between 4pm and 7pm);
- Meet National Grid's capacity and supply and demand balancing needs for the national electricity network; and
- Demonstrate and disseminate to communities with similar opportunities how to implement household demand flexibility by producing detailed materials, events and learning experiences.

2.2 The outcomes for Home Response are to:

- Provide greater levels of demand flexibility (up to 0.5MW) by controlling electrical technologies and testing the usefulness of smart meters in 160 social housing households, managed by Housing Associations and London Boroughs;
- Create new business and customer engagement models to reward Londoners' flexible use of energy and kick start household flexibility markets, with the aim to provide up to 1MW of flexibility services for grid operators by December 2022;

- Demonstrate and disseminate project learnings and opportunities to household electricity customers and stakeholders across the public, private and community benefit sectors;
- Realise a range of energy system benefits;
- Deliver the Mayor's policies and proposals to develop clean and smart, integrated energy systems utilising local and renewable energy resources; and
- Accelerate collaboration and partnerships between energy users, technology and supply chain providers, researchers and policy makers to provide technical, commercial and environmental solutions and benefits.

3. Equality comments

- 3.1 The GLA will ensure that (as part of its on-going legal responsibility to have due regard to the need to promote equality, in everything it does, including its decision-making), barriers are removed that may prevent those with protected characteristics benefiting from the project. The project will require the partners to identify those protected groups who could benefit, determine whether barriers exist and measures to remove those barriers. The partners will estimate the numbers involved for each relevant characteristic.
- 3.2 The GLA Environment Unit commissioned an Integrated Impact Assessment (IIA) on the draft London Environment Strategy. This evaluated the social, economic, environmental, health, community safety and equality consequences of the strategy's proposed policies to ensure they are fully considered and addressed. A post-adoption statement showing how the IIA influenced the final strategy and Equality Impact Assessment (EqIA) report has been published.

4. Other considerations

Key Risks, Impact, Mitigation

Risk Category Description	Impact	Overall risk rating: (Probability x Impact) High, Medium or Low	Mitigation actions (Actions taken or planned responses to reduce the impact and/or probability of the risk)
Technical Lack of technology interoperability between hardware technologies & software systems.	This would prevent ability to demonstrate demand flexibility because the software systems will not be able to control the electrical hot water heating and/or solar PV with batteries.	(2 x 3) Medium	Identified options in the project plan to undertake technical interoperability work if necessary.
Technical Recruitment and engagement strategy not adequately designed and tested with customers.	Demonstrator does not include all 160 households and/or put 0.5MW of additional capacity on to the grid. This will prevent all the solution benefits being realised	(2 x 3) Medium	Draw on learnings of best in class recruitment and engagement. Repowering London is our expert partner leading on recruitment and engagement. Work closely with client (boroughs and housing associations) engagement and customer service teams – they know their customers best. Pre-engagement testing included in project plan timetable to test value proposition and response to local recruitment campaigns.
Technical	This would prevent ability to demonstrate demand flexibility because the	(2 x 5) Medium	Response time and service levels, along with a Freephone number, offered and agreed with participant households. Service support

Technologies provided to customers are faulty.	technologies don't enable demand flexibility.		responsive to customer needs (i.e. opening hours and language requirements).
Technical Customer personal data and sensitive personal data is mis-handled and is non-compliant with relevant laws and protections.	Customers' leave project. Legal, and possibly criminal, challenges. Exposure to significant fines.	(1 x 5) Medium	The data protection obligations will be clearly agreed in the Collaboration Agreement between the partners. A Data Protection Impact Assessment has been carried out, and a data management framework is operational, with spot audits completed.
Technical Too few customers sign-up to participate in the demonstrator.	Demonstrator does not include all 160 households and/or put 0.5MW of additional capacity on to the grid. This will prevent all the solution benefits to be realised and limits Return on Investment (RoI) for partners and BEIS.	(3 x 5) High	Repowering London (supported by all partners and clients) will use their community networks and award-winning engagement methods to sign up customers throughout prestart and first three months of the project. Will complete a 10-household pilot to inform and tweak the recruitment and engagement strategy (including branding) in response to results. Support project team to gain confidence that households see the value in getting involved. Consortium will track new customer engagement and acquisition models as they come to market – increasing the size of potential customer base. Customer recruitment and engagement strategy will take into consideration all recruitment opportunities, including community events.
Benefits High level of attrition of participating households in the flexibility campaign. Therefore, dilutes quality of findings.	Cannot demonstrate all the benefits of solution, which require a critical number of households, and limits quality of research learnings.	(2 x 3) Medium	Complete telephone interviews, questionnaire or other forms of enquiry with households who withdraw from the trial to understand their reasons. Prevent future drop-out by analysing these findings to understand the reasons for withdrawal to determine how the project can respond. Set up of a community forum (including community events) where participating households can voice their experiences and feedback, which will inform and shape the campaign so it's reflective to their needs. Providing comfortable facilities, travel (or recovered costs) and appropriate refreshments. These forums are invaluable.
Benefits Learnings not disseminated effectively to communities with similar opportunities for implementing demand flexibility. Different parties will have different interests and learning styles.	Learning is lost and reduces opportunities to promote further DSR deployment.	(2 X 2) Low	Design of a dissemination strategy that identifies targeted stakeholders and their preference in style and interest. Design a communications and engagement plan. Design an events plan.
Benefits Participating households make adverse life choices, e.g. heat their hot	Customers leave project due to poor experience.	(2 x 5) Medium	Customer protection plan put in place. Link with customer services provided by the client boroughs and housing associations.

water when it's not required for fear of not being able to at peak times, based on misunderstanding of how things work.			
Benefits Customer participation rates insufficient to reduce emissions when extrapolated.	Project fails to demonstrate a significant decarbonisation impact.	(2 x 3) Medium	Design stage will ensure that shifting and reduction of energy demand happens when electricity grid carbon intensity is high.
Commercial Commercial benefits unrealised, revenues too low.	Low RoI for future household flexibility opportunities for commercial businesses, limiting commercialisation options and scale of the market.	(3 x 3) Medium	Design of the solution(s) must capture all the possible benefits, including those from other live trials by partners and other projects funded by BEIS etc. Set up a funded projects network to share learnings.
Management Multi-partner project leading to poor coordination, delivery, timescales & grant claims missed.	Slow delivery, delays and overruns.	(3 x 2) Medium	Clearly defined roles and responsibilities and obligations set out in a signed Collaboration Agreement. Weekly & monthly calls/meetings. Escalation paths available for timely issue redress. Project management methods tailored to ensure delivery.

- 4.1. The Mayor wants London to be zero carbon by 2050. To help achieve this aim the London Environment Strategy has set the policy objective to develop clean and smart, integrated energy systems utilising local and renewable energy resources. This objective will, in part, be delivered by demonstration proposals, like Home Response, which improve London's energy systems and investigate the potential for Londoners to help manage London's energy demand.

5. Financial comments

- 5.1 Mayoral approval is sought for the acceptance, and distribution to project partners, of the conditional grant offer of £927,842. The grant will be from the UK Government Department for Business, Energy and Industrial Strategy (BEIS) to fund the phase two Home Response project. The GLA will be paid by BEIS through grant claims process after actual expenditure has been incurred.
- 5.2 The income will be claimed by the GLA from BEIS on delivery of agreed work and the GLA will then grant the partners: Element Energy (£104,918); Moxia (£427,835); Repowering London (£147,360); UK Power Networks (£33,159), leaving the GLA with £214,570 to be utilised on a full-time fixed term project manager, existing staff time, associated project management expenses and dissemination and learning activities.
- 5.3 Approval is therefore also sought to spend the GLA element of the grant. The expected spend profile of this grant is detailed below.

Year	Salary & on costs £	Expenses £	Dissemination & Learning £	Total £
2018/2019	20,445	124	6,250	26,819
2019/2020	81,785	500	25,000	107,285
2020/2021	61,340	376	18,750	80,466
Total	163,570	1,000	50,000	214,570

6. Legal comments

6.1 The foregoing sections of this report indicate that:

6.1.1 The decisions requested of the Mayor fall within the GLA's statutory powers to do such things considered to further or which are facilitative of, conducive or incidental to the promotion of social development and the promotion of the improvement of the environment in Greater London; and

6.1.2 In formulating the proposals in respect of which a decision is sought officers have complied with the GLA's related statutory duties to:

- (a) Pay due regard to the principle that there should be equality of opportunity for all people;
- (b) Consider how the proposals will promote the improvement of health of persons, health inequalities between persons and to contribute towards the achievement of sustainable development in the United Kingdom; and
- (c) Consult with appropriate bodies.

6.2 In taking the decisions requested, the Mayor must have due regard to the Public Sector Equality Duty; namely the need to eliminate discrimination, harassment, victimisation and any other conduct prohibited by the Equality Act 2010, and to advance equality of opportunity and foster good relations between persons who share a relevant protected characteristic (race, disability, gender, age, sexual orientation, religion or belief, pregnancy and maternity and gender reassignment) and persons who do not (section 149 of the Equality Act 2010). To this end, the Mayor should have particular regard to section 3 (above) of this report.

6.3 Officers have indicated that the contribution to the project partners amounts to the provision of grant funding and not payment for services. Officers must ensure that:

- (a) The funding is distributed fairly, transparently in accordance with the GLA's equalities duties and in a manner which affords value for money in accordance with the GLA's Contracts and Funding Code;
- (b) Appropriate funding agreements are put in place between and executed by the GLA and project partners before any commitment to fund; and
- (c) The GLA's use of the BEIS funding and its arrangements for the same is fully compliant with the conditions applicable to that funding.

7. Planned delivery approach and next steps

Activity	Completion
Delivery Start Date	January 2019
Public announcement	Q1 2019
Smart Meter integration	Q2 2019
Household recruitment	Q2 2019
Mini pilot demonstration	Q2 2019
Energy technology integration	Q3 2019
Structure whole system value	Q4 2019
Security and communications review	Q3 2020

Monitor project KPIs	Q3 2020
Communication and dissemination	Q4 2020
Develop pipeline of opportunities	Q4 2020
Final insight reports	Q4 2020
Delivery end date	December 2020
Project closure (internal evaluation)	Q1 2021

Appendices and supporting papers:

None.

Public access to information

Information in this form (Part 1) is subject to the Freedom of Information Act 2000 (FoIA) and will be made available on the GLA website within one working day of approval.

If immediate publication risks compromising the implementation of the decision (for example, to complete a procurement process), it can be deferred until a specific date. Deferral periods should be kept to the shortest length strictly necessary. **Note:** This form (Part 1) will either be published within one working day after it has been approved or on the defer date.

Part 1 - Deferral

Is the publication of Part 1 of this approval to be deferred? NO

If YES, for what reason:

Until what date: (a date is required if deferring)

Part 2 - Sensitive information

Only the facts or advice that would be exempt from disclosure under FoIA should be included in the separate Part 2 form, together with the legal rationale for non-publication.

Is there a part 2 form - NO

ORIGINATING OFFICER DECLARATION:

Drafting officer to
confirm the
following (✓)

Drafting officer:

Daniel Barrett has drafted this report in accordance with GLA procedures and confirms the following:

✓

Sponsoring Director:

Lucy Owen has reviewed the request and is satisfied it is correct and consistent with the Mayor's plans and priorities.

✓

Mayoral Adviser:

Shirley Rodrigues has been consulted about the proposal and agrees the recommendations.

✓

Advice:

The Finance and Legal teams have commented on this proposal.

✓

Corporate Investment Board

This decision was agreed by the Corporate Investment Board on 17 December 2018.

EXECUTIVE DIRECTOR, RESOURCES:

I confirm that financial and legal implications have been appropriately considered in the preparation of this report.

Signature

M. D. Allen

Date

17.12.18

CHIEF OF STAFF:

I am satisfied that this is an appropriate request to be submitted to the Mayor

Signature

D. Bellamy

Date

17/12/2018

