

**UPDATE ON THE COUNCIL'S ENERGY PROGRAMME**

**REPORT OF DIRECTOR OF CITY OPERATIONS**

**AGENDA ITEM: 11**

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**PORTFOLIO: TRANSPORT, PLANNING AND SUSTAINABILITY  
(COUNCILLOR RAMESH PATEL)**

**Reason for this Report**

1. To provide an update on the implementation of the Council's energy strategy and prioritise the next phase of delivery in view of the deterioration in the Council's financial position.

**Background**

2. Ensuring access to affordable, sustainable and secure energy is crucial if the City of Cardiff Council is to effectively deliver services from the lowest possible operating costs. From the city perspective, Cardiff is projected to be the fastest growing city in the UK. Meeting the growing demand for energy in a safe and environmentally responsible manner is therefore crucial if Cardiff is to achieve its vision of becoming Europe's most liveable city.
3. The Cabinet has previously considered, at its meeting in July 2014, a report entitled 'Energy for a Liveable City', which captured a pipeline of projects and initiatives to deliver against the Council's aspirations in this area. A number of these projects have now been progressed and feature in the Council's energy portfolio.

**Update on Progress**

4. The Council's energy programme has focused on four key areas of delivery: awareness and behaviours; efficiency and retrofit; local generation; and innovations in energy technologies. A detailed update on progress can be found in Appendix A, and a summary of progress is provided below:
  - **Awareness and behaviours:**
    - Better energy management, such as switching off energy during School holidays, has led to revenue savings of £100k.

- **Efficiency and retrofit:**
  - Energy efficiency retrofit has been delivered in almost 1,000 homes;
  - Energy saving measures have been installed across the Council's estate.
- **Local generation**
  - Electricity generating technologies have been installed, which generate 6MW worth of electricity; which is enough to power the equivalent of 3,000 homes. These include solar schemes at Lamby Way depot roofs and landfill site, solar on schools, and hydro power at Radyr weir.
  - The development of the Viridor energy for waste plant has been successfully facilitated, which converts residual waste into 30MW of renewable energy. Work is ongoing to progress a city centre district heating scheme.
- **Innovations in energy technologies**
  - £8m in external funding for projects has been secured, providing enough revenue income to fund 2.5 FTE salaries in the Council's Energy and Sustainability team.
  - £2.2m has been secured to deliver six energy related research and innovation projects which showcase the City's approach to sustainability, technology and product innovation.
  - Cardiff has become the first and, thus far, only local authority in the UK to run schemes under the UK Government's Small Business Research Initiative. This has involved managing innovation competitions that focused on "Heritage Retrofit" solutions and "portable renewables" technology.
  - Early discussions with the British Geological Survey have been initiated to exploit the City's geothermal sources of heat
  - Funding for "Smart City" bids have been explored. This funding would enable Cardiff to use data and technology to manage key infrastructures like transport, waste, water, energy and digital in a more effective and sustainable way.

5. The Council's ground breaking approach to energy, and in particular the development of the Energy Prospectus, has been recognised by Welsh Government. The Welsh Government is therefore pursuing options to extend the Cardiff approach across the rest of Wales. To this end Local Partnerships, a jointly owned not for profit venture between the Local Government Association and HM Treasury, have been commissioned to identify energy pipeline projects for all Local Authorities in Wales. This work has identified 143 potential projects, most of which are currently at the concept stage and need support in getting to the point of installation. If all the projects were successfully delivered, it is estimated that they would deliver 14% of the energy needs of the public sector estate.
6. Welsh Government is also considering an investment vehicle which could offer £500m borrowing capacity, or potentially equity, into energy projects. This initiative approach was launched in concept last year as "Green Growth Wales" combining direct borrowing from Welsh

Government alongside Green Investment Bank loans. This organisation has also expressed a strong interest in developing strategically important projects in partnership with the City of Cardiff Council.

## Issues

7. The marked deterioration of the Council's budgetary position presents a real challenge to the financial resilience of the organisation. The scope and scale of the challenge is such that every directorate now needs to plan for a radical adjustment of delivery models to reflect an era of severe budgetary constraint. For the Council's Energy Prospectus, it will require a sharp prioritisation of identified projects. As a first step, an examination of the UK and European policy position points towards clear areas of focus:
  - **Development:** Development work should focus on adopting a zero carbon approach to new development and extensive retrofitting of existing premises. Developing and expanding energy networks to compliment Energy from Waste facilities are also acknowledged as key drivers of the agenda.
  - **Transport:** Growing cities that offer a high quality of job opportunity and a high quality of life place 'Green Transport' at the centre of their city strategies. This includes, for example, promoting renewable fuel technologies for buses and cars, and Cardiff has demonstration sites with partners to investigate Hydrogen Fuel technology.
  - **Renewable Energy Generation:** Localising and diversifying energy production are a characteristic of many successful cities, which means deploying major solar and hydro-generation schemes on city, coastal and council sites.
8. In view of the leading policy drivers, it is proposed that an urgent review of the projects in Cardiff's energy prospectus is undertaken with the aim of identifying fewer but more impactful projects. Whilst acknowledging the need to establish strategic projects it should be recognised that a significant body of work has been committed to and identified in the following sections.

## Carbon Reduction Strategy

9. The Strategy sets out actions for reducing carbon emissions and achieving cost savings through 4 key strands. These include:
  - a. **Good Housekeeping-** improving building management
  - b. **Design and Asset Management-** improving or rationalising the council's built estate
  - c. **Invest-to-Save Projects-** retrofitting energy efficiency projects
  - d. **Renewable Energy Generation Projects-** generating on site renewable energy to reduce reliance on imported energy from the grid.

10. The strategy is informed by extensive data analysis and is critical to supporting future investments within the prospectus as well as any strategic decision moving forwards.

### **Establish District Heating / Energy Networks**

11. Maximising the renewable energy potential of the Energy from Waste Plant at Trident Park has been a long standing priority for the Council and for Viridor. To this end the Council has secured funding from the Department of Energy and Climate Change (DECC) to explore the potential of delivering a district heat network to supply business and properties in the vicinity of the plant with the heat that is the by-product of its combustion process. The grant has helped identify possible investment opportunities and explore likely governance issues in the delivery of such a scheme. The funding will extend into 2015/16 and has, to date, allowed the Council to consider issues such as:
  - funding a new company to deliver and run the network;
  - becoming a customer for the heat, along with other major public sector organisations in Cardiff; and
  - addressing fuel poverty via links between the heat network and housing retrofit funding.
12. The opportunity also exists to develop Energy Networks in collaboration with major city partners, such as the Universities, and on any major new LDP housing allocation sites. A key part of this work involves scoping the range of opportunities that exist within various locations across the city. An assessment of energy network opportunities will allow options to be prioritised following a consideration of key factors such as cost, deliverability, energy benefits etc. in order to produce a preferred option or set of delivery mechanisms.
13. A business plan will then be developed based on the preferred option. This will propose appropriate governance arrangements and confirm what stake the Council could take in respect of any Municipal Heat Network management and ownership arrangement. It is in the long term interest of the City's resilience to retain a level of control of any such infrastructure development, heat supply and network construction and operators. With the Local Development Plan and district heating being a feature of new build estates, that often have greater output than demand, it is essential that strategic control remains with the Council. This can be facilitated through planning development processes and by assisting with overcoming retrofit challenges within existing infrastructure. Ultimately, a key goal is to deliver attractive Energy Tariffs for the City, its residents and business.
14. As an immediate step it is recommended that DECC funding be used to support the commencement of a dialogue with significant heat source companies on governance options for delivering and operating a district heating network, in order to identify the best vehicle to deliver the

network and achieve the Council's energy sustainability and infrastructure investment goals.

15. DECC regard this work as important in informing the next steps of their Heat Network Delivery Unit network. The findings will be the subject of a more detailed future report to Cabinet and will allow the Council to agree a strategy to develop a resourced delivery plan including engagement with the private sector.

### **Review the Opportunity for a Tidal Lagoon**

16. The potential of tidal lagoon project off the coast of Cardiff has been mooted in the public domain. Although the opportunity remains at an initial stage of development, the Council has been approached by a private sector company with an interest in developing the concept into a major project. In response, the Council needs to consider fully the opportunities, impacts and risks involved in such a major undertaking. Part of this work will need to involve a shared understanding of the issues arising from tidal power generation along the Severn Estuary in the context of work being undertaken by Great Western Cities. This will need to inform the Council's own assessment of a development that would cost up to £7 billion and generate circa 600 MW of energy per annum. The implications of such a scheme for Cardiff need to be clearly understood.

### **Other Key Projects:**

17. There are a range of other key energy efficiency and renewable technology projects that are supporting the Carbon Reduction Strategy. These include:
  - Additional Hydro-electric generation schemes on the City's rivers
  - Large scale roll-out of solar schemes on the Council's estate and, especially schools (a potential £12m investment)
  - Greener Grangetown Partnership with Dwr Cymru Welsh Water and the Natural Resources Wales, delivering retrofit sustainable drainage bio diversity and carbon reduction
  - Extending the conversion of Street lighting to LED technology
  - Maximising the sustainability credentials of new communities arising from the LDP by working proactively with developers and other infrastructure providers to build renewables more positively into emerging designs.
  - Further engagement with innovation funding sources including the European Union's "Horizon 2020" programme and other DECC and Innovate UK opportunities to support the roll-out of emerging technologies.

### **Funding**

18. Going forward, a paper on capital investment criteria for "Invest to Save" schemes is currently being prepared, which will look at issues such as overall business case requirements, approval processes as part of the

budgetary framework, interest rates, repayment mechanisms, acceptable returns on investment and crucially from an energy perspective, whether there should be a maximum cap to capital exposure in certain categories of investment. This will enable the Council to determine the appropriate levels of investment it wishes to commit to the development and delivery of specific energy projects in the context of the wider social agendas.

19. In broad terms the Council's options are to :
  - Continue to invest from its own capital programme and take the rewards back into the revenue account as projects provide a return on investment,
  - Take a lower risk option of leasing assets (as in the various "rent-a-roof" solar schemes that are on offer) or leasing equipment e.g. heat exchangers or PV (similar to leases for photocopiers), though generating lower return
  - Engage more actively with community energy company models to share the responsibilities and opportunities, but this would also mean sharing the profits.
  - As the Council owned energy production estate grows, trade in energy and set up the Council's own appropriate Company vehicle.
20. In reality, a multi-dimensional approach, encompassing all of the above options may be appropriate as individual schemes often present different risks, rewards, and complexities. There are also a range of background issues which are also becoming clearer as the Council progresses work in this area. For example, there are electricity purchasing arrangements available, known as direct power purchase agreements or "sleeving", which would allow the Council as the body which owns the generating capacity to buy back that electricity at rates which are better value than traditional purchase from the grid. For instance, where the Council has energy generating projects geographically far removed from Council buildings, like Radyr Weir, this arrangement could be beneficial. Radyr Weir, for example, sells electricity to the grid at 5p per kwh, whilst County Hall purchases electricity back from the at 11p. Under a direct power purchase agreement the Council could enter into an agreement with a licensed supplier to buy back the power produced at a discounted rate of, say, 8p. The Council is currently examining these opportunities which may have positive additional benefits for the "invest to save" business cases.
21. There would need to be clear synergy between energy investment decisions and the Council's asset retention plans and other devolved financial arrangements. In particular, complexities around energy investment on the schools estate need to be understood to ensure mutual benefit to both delegated schools budgets and the Council's bottom line return on its capital investments.

22. This report highlights the diverse range of opportunities that the energy sector holds for the Council. The Council's growing intelligence in the field has, however, highlighted the complexity that underlies any investment decisions and in establishing appropriate delivery mechanisms. It is proposed, therefore, that future investment decisions are considered in the context of a delivery framework. Under this framework, self-financed projects would be prioritised where they meet the revised "Invest to Save" criteria and deliver the best income and return for the Council. The Council could seek an appropriate partner delivery mechanism where the business case is less clear.
23. Local Partnerships (LP) is currently bidding to Welsh Government to provide a support package to each Local Authority in Wales which will offer a free at point of use assistance to accelerate delivery of these projects. This would include support with feasibility studies and business cases, assessment of due diligence, identification of further opportunities for efficiency or generation, assessment of investment models eg community ownership, and identification and/or establishment of procurement frameworks to speed up and de-risk processes.
24. It is therefore proposed that the Council engages proactively with any forthcoming Welsh Government support provided via Local Partnerships. Alongside existing support such as DECC's heat network grant, and the Council's own in-house financial guidelines, a package of support exists to help fully understand the options and issues associated with each potential energy project.

### **Reason for Recommendations**

25. To enable future decisions on energy schemes to be taken with the benefit of informed business cases and delivery options, and to ensure that engagement with potential delivery partners is transparent and mutually beneficial.

### **Financial Implications**

26. The Budget report for 2015/16 highlighted concern about the affordability of the capital programme, and also the increasing ratio of capital financing costs to controllable budgets. Whilst direct Council investment is an option, regard must be had to the sustainability of any Council borrowing to areas such as energy compared to other Council priorities in order to minimise risk of the borrowing itself and any factors that may change in future that could impact on affordability
27. The generic Invest to Save paper referred to above will provide greater clarity to Directorates to assist with their development of their Invest to Save Capital schemes. It will consider the introduction of a "hurdle" test to reflect the opportunity cost to the Council of not being able to invest in other projects with a particular emphasis on the financial return the council could achieve from a risk free investment. Further consideration will be required of the future impact on the Council's revenue budget of the potential increased capital financing expenditure (the "gearing")

effect). Of particular significance in this context is the repayment periods of potential invest to save projects as well as the risk that the projects may not generate the expected benefits putting further strain on the Councils Revenue Budget.

28. This report outlines a strategic framework to bring forward energy projects including a potential support package to be provided by the Welsh Government. As such there are no direct financial implications arising from this report. Detailed business cases, including a financial evaluation, will still be required for individual proposals which will need to be considered and approved by Investment Review Board, Cabinet and Council as appropriate.
29. If the Green Growth Wales investment vehicle is developed then this would represent a further funding option to be added to the existing options listed in paragraph 12 of this report. The funding options available at a point in time would require assessment as part of the preparation of the detailed business case for specific projects. An assessment of the council's appetite to share risk and reward would be included as part of the evaluation of the funding options.

### **Legal Implications**

30. There are no direct legal implications arising from this report. Each project as it comes forward will need to have legal advice and input.
31. This will include input required in connection with securing any relevant external funding (including any tariffs), appropriate terms for construction/supply, power purchase agreements, grid connections and otherwise managing risk
32. Energy projects such as those being considered will play an important part in the consideration of how the Council fulfils its duties under the Well-being of Future Generations (Wales) Act 2015 when those duties are in force
33. There are no equality implications arising from the recommendations

### **RECOMMENDATIONS**

Cabinet is recommended to:

- (1) Note progress to date.
- (2) Agree to a review of the Council's strategic energy projects, guided by the delivery mechanisms set out in this report.
- (3) Agree that Cardiff engages with Welsh Government's Green Growth Fund and the associated Local Partnerships support package to inform and support the emerging strategy and delivery programme.



- (4) Authorise that an options appraisal be undertaken to identify the most appropriate vehicle to deliver and operate a district heat network and deliver the Council's renewable energy goals, and for a report on the findings of this work to be brought back to Cabinet.

**ANDREW GREGORY**

Director

10 July 2015

*The following appendix is attached:*

Appendix A: Programme Overview





