
ELECTRIC VEHICLE CHARGING POINTS

Responsible Cabinet Member – Councillor David Lyonette, Transport Portfolio

Responsible Director – Richard Alty, Assistant Chief Executive (Regeneration)

SUMMARY REPORT

Purpose of the Report

1. To approve the release of funding for the provision of electric vehicle recharging infrastructure, as part of a Regional network, that seeks to develop a business model for the long term provision of charging points.
2. To make the necessary amendments to traffic regulation orders for car parks.

Summary

3. The development of an effective and widespread vehicle recharging infrastructure in the UK is essential to enable the roll-out of volume production battery-electric and hybrid-electric cars and vans. The rapid move to such vehicles is necessary to tackle transport related carbon emissions in our drive to combat global warming.
4. The North East Region, with Darlington Borough Council as an active participant, has been successful in attracting match funding from Government to enable the installation of a network of 1,300 electric vehicle charging points within two years. The region will be the first in Europe to have a working infrastructure ready for the commercial availability of such vehicles in 2011. The decision to bid for government funding was made in consultation with the Cabinet Member for Transport under delegated powers of the Council constitution (D5)
5. Darlington Borough Council will be responsible for the annual maintenance of £100 per post per year to cover all maintenance costs. It is a condition of the grant that no charge may be made for parking for the duration of the stay nor for electricity used. These costs are expected to be minimal as each charge is limited to 3 hours, 3 hours x 9p kwh x 3.5kw = £0.94. Predicted costs over the 4 years:

No. posts used per day	Time	Kwh cost	Total cost per year
1	3 hours	9p	£345
4	3 hours	9p	£1,380
8	3 hours	9p	£2,760

6. The development of such a network is expected to create new skills and job opportunities, and also safeguard jobs in the region's car industry, with mass production of electric cars to take place at the Nissan plant.

Recommendation

7. It is recommended that:-
 - (a) Agreement is given to participate in the Plugged In Places programme for the North East.
 - (b) Relevant traffic regulation orders are amended to allow free parking whilst recharging.
 - (c) £20k funding from LTP2 is released to One NorthEast or the relevant lead authority to fund the works set out in the report on a matched funding basis.
 - (d) The current LTP2 programme is amended, reducing the budgets for CCTV grant scheme and monitoring.

Reasons

8. The recommendations are supported by the following reasons:
 - (a) To take advantage of the regional grant for installing charging points for electric vehicles.
 - (b) To provide the local funding contribution required as part of the North East bid.
 - (c) The objectives and output for the LTP2 programmes can be met.

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S17 Crime and Disorder	All charging points will be located in car parks covered by CCTV.
Health and Well Being	Electric vehicles have lower carbon footprint producing less pollution and increasing air quality.
Sustainability	Electric vehicles have a lower carbon footprint.
Diversity	Not applicable
Wards Affected	All
Groups Affected	All
Budget and Policy Framework	The project is consistent with the Council's policy framework.
Key Decision	This is not a key decision
Urgent Decision	This is not an urgent decision
One Darlington: Perfectly Placed	Consistent with outcomes in the Community Strategy.
Efficiency	Match funding of the scheme improves cost benefit ratio for the Council.

MAIN REPORT

Information and Analysis

Background

9. Vehicle manufacturers have made significant strides in recent years in improving the fuel efficiency of engines and in the reduction of emissions from the tail-pipe. However automotive industry experts predict that there is only scope for a further 25% improvement in fuel efficiency in the internal combustion engine. This means that major reductions in emissions from vehicles cannot be achieved without a shift to an alternative power source. Electric vehicles provide the only medium-long term option, and as a result all of the world's major car manufacturers are rapidly developing battery-electric and hybrid-electric cars.
10. Electric vehicles offer some major advantages:
 - (a) Electric motors have an efficiency of over 90%, compared to a typical 25% from an internal combustion engine.
 - (b) Electricity generation at power stations is a more efficient conversion of fossil fuel to power.
 - (c) As we move toward more renewable electricity supplies then the carbon content of electricity will reduce and overall emissions will reduce.
11. The principal shortcoming of electric cars at the current time is with existing battery technology that limits range. Although this is changing rapidly, it is necessary in the short-medium term to ensure that sufficient recharging points are available at public locations and workplaces to give the public confidence that electric vehicles have real-world practicality as well as the obvious benefits of smoothness, low-noise, economy, and ease of driving.
12. No commitment has been given to support the project and the purpose of this report is to ask Cabinet to consider agreeing to support the project. This could be done through the existing LTP allocation for 2010/11, by agreeing to add this scheme to the programme and reducing the budget allocation for CCTV and monitoring.

Plugged in Places

13. In Autumn 2009, One NorthEast signed a Memorandum of Understanding with Nissan to install a network of 640 electric vehicle charging points across the North East - this will enable the manufacture and sale of a new range of electric cars to become possible. The North East has since been designated as the UK's first Low Carbon Economic Area for Ultra-Low Carbon Vehicles, with the intention of stimulating the Region's low carbon vehicle industry.
14. Early in 2010 Government opened a funding stream called 'Plugged in Places' for the support of the development of recharging networks. This funding is available via a competitive bidding process with only three projects nationally to be taken forward in 2010/11. One NorthEast has coordinated a joint Regional bid involving all the North East Local Authorities, plus many public and private organisations. The North Eastern bid has

been successful and is now going ahead, along with similar schemes from London and Milton Keynes. Partners invest capital for charging points, and this is match-funded by Government. Additionally, One NorthEast is funding a number of rapid-charging facilities at strategic locations across the Region.

15. The North East Regional bid attracted 46 organisations (**Annex 1**) as partners, in a £7.8 million programme, with a current total of 1,300 charging points to be installed.
16. It is recommended that up to £40,000 is spent on the installation of a maximum of eight charging points. It is proposed that funding for this is taken from the second LTP (£20,000) and One NorthEast grant of £20,000 on a match funding basis. It is also a grant condition that parking is free only during the recharging period. Charging points will be installed in the Borough by March 2011, and suitable vehicles will become commercially available during the later part of 2010.

Electric Vehicles

17. The electric cars currently under development promise very high levels of efficiency and reliability, with a typical small family car able to offer fuel cost equivalents of 150-300 mpg of conventional fuel. At present, it would cost around £1 to fully recharge a car such as the Leaf. Whereas Nissan are focussing on the battery-only system, some other manufacturers are opting in the short-medium term for the hybrid system where the first 50 miles or so are delivered by battery electricity, and beyond that a petrol or diesel engine cuts in as a 'range extender'
18. The first wave of commercially available cars, such as the Nissan Leaf (due to be built at Sunderland) will come with a typical range of 80 - 120 miles. Range is expected to increase to that of conventional cars within 5-10 years. Most cars in practise will recharge at home, overnight, but there will need to be a widespread facility for both short and long opportunist recharging at car parks, workplaces, leisure and retail facilities.
19. One NorthEast has been working closely with the electricity providers to ensure that the supply network can cope with mass recharging.
20. It is a condition of the grant that for the first four years electricity is to be provided for free, with a likely pickup of the cost by one of the electricity suppliers, as usage will be low in the early years. The charging points are able to record vehicle charging data linked to individual users. During the project lifespan, a business case will be developed to attract commercial operators who will act as clearing houses in order to be able to bill customers. It is likely that this will be similar to that currently in place for mobile phone billing. As the charging posts being installed in the North East have an intelligent communication system built in, then this itemised billing system will be possible.
21. The initial use of the points is expected to be low at the beginning of the project, each charge is limited to 3 hours and is expected to be used as a 'get you home' and not a means of fully charging the vehicle. The post do not have sufficient output to fully charge a vehicle, because of this the electricity costs to the Council are expected to be low and would be taken from the existing street lighting/car parks budget.

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22. It is recognised that there are major hurdles to be overcome in terms of public perception of electric vehicles, the early high capital costs (which will need to be balanced against very low running costs), and the change in way of owner operation for this type of vehicle. Much of this will be addressed by the manufacturers in their design and marketing of attractive vehicles, but the anxieties over range will need to be countered by the provision of sufficient, available, recharging points.

Implementation

23. Proposed sites would include Lingfield Point, Morton Park and Cornmill Car Park. Initial discussions have been held with the relevant land owners and only sites that incur no extra costs to the Council will proceed. Where these are not Council owned maintenance of the posts would operate in the same way as those posts located on Council owned land. Maintenance is the responsibility of Newcastle City Council under a service level agreement with One NorthEast. It is recommended that the posts are transferred to the land owner after the four year trial period for on going use or removal.
24. Installation of the posts is in two parts:
- (a) Electricity will be from a suitable outlet to a feeder pillar close to the installation point of the post. The pillar, junction box and some cabling is included in the installation costs but the installation of the cable is not. Because of this care has been taken to select sites where cable install costs are minimal or paid by a private developer on a private site.
 - (b) Installation of the charging post and electrical connection to the feeder pillar will be carried out by Newcastle City Council and is included in the total £5,000 installation costs. The installation costs are fixed and do not vary due to site conditions.
25. Removal costs for posts are minimal, since the posts are removed from a socket that can be left on site.
26. As One NorthEast is overseeing the implementation, the Council's £20,000 would be transferred to One NorthEast to match their £20,000. One North East has appointed Newcastle City Council to oversee the roll-out of the project, and the development of all the necessary legal, contractual and operational requirements.

Financial Implications

27. The capital cost of £40,000 is 50% grant funded. The annual financing cost of the Council's LTP contribution (£20,000) is £4,600 per annum for 4 years since this money is borrowed. These financing costs would be in addition to the installed cost of each post (£2,500) and the annual maintenance charge of £100 per post. Electricity costs will vary dependant on use and location, in non-Council car parks the landowner will pay for electricity used and in Council operated car parks, the Council will. In total, it is estimated

that the annual cost to this Council is up to £8,300 (a total of £33,200 over the trial period).

28. The value for money for this proposal is doubtful in traditional financial terms, since the case for electric charging points in the region is still under development. However, one of the objectives of this regional initiative is to prove the concept and attract private sector involvement, possibly before the four year trial period is over. Thus, the Council's participation in the initiative at the moment is more to do with providing a basis for a future transport technology, rather than financial return per se.
29. At the end of the four year scheme the posts will be owned by Darlington Borough Council. The posts can be removed in 20 minutes by the maintenance contractor as part of their maintenance contact at no extra cost, leaving only a small covered socket in the ground. There would also be a small cost for the removal of any signage. There will be no other exit costs from the scheme at the end of four years.
30. Match funding of the scheme from CCTV on buses budget is now possible, due to successful match funding negotiations for CCTV systems that have resulted in savings against the original budget.

Business Case

31. Supporting the scheme will allow DBC to be a part of a North East scheme to support the roll out of electric vehicles and all the local supporting industries and employers. The scheme will give the opportunity to demonstrate electric vehicles and encourage the use of low CO₂ vehicles as part of the Council's strategy to reduce carbon emissions. Without the initial scheme the private sector could be slow to pick up on any electric vehicle business opportunities in the future making it difficult for a low carbon transport system to flourish.

Next Steps

32. The sites for the eight charging posts have been identified (**Annex 2**) and once initial site investigations have been completed it is expected installation will commence. Sites are dependant on a close proximity to a suitable power supply to minimise installation costs.

LIST OF PARTNERS

Banks Developers
Barratt Homes N E
Battlesteads Hotel Peugeot
Berwick CoRE
Berwick Garden Centre
Capital Shopping Centres
City Hospitals Sunderland
Cobalt Business Park
Darlington Borough Council
Durham County Council
Durham University
Eaga
Evolve Business Centre
Gateshead Council
Groundwork S T & Newcastle
Hartlepool Borough Council
Land Securities
Middlesbrough Borough Council
NaREC
National Trust
Newcastle City Council
Newcastle NHS F Trust
North East Business & Innovation Centre
Newcastle International Airport
Newcastle University
Nexus
Nissan Motors (GB)
Nissan Motor Manufacturing
North Tyneside Council
Northumberland County Council
Northumberland National Park
Northumbria Police
Northumbria University
Quorum Business Park
Redcar & Cleveland Borough Council
RWE Npower
Simon Bailes Peugeot
South Tyneside Council
Stockton Borough Council
Sunderland City Council
Sunderland University
Sustainable Allendale
Tees Valley Housing
Teesside University
Tesco
Wylam Green Street
Your Homes Newcastle

SITES FOR CHARGING POSTS

