Governance and policy challenges of implementing urban low carbon transport initiatives

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Abstract

Emissions from transport represent a quarter of Scotland's total. Action to significantly reduce greenhouse gas emissions from transport has been criticized for being limited, poorly integrated with other areas of policy, and focused on narrow programmes. Several funding bodies at the European level provide funding for the development of pilot initiatives to reduce carbon and to promote knowledge exchange between partner cities. Cities where strategies have been successful consider transport as being a significant part of wider urban design and urban development, thus ensuring that the potential benefits are directly related to concerns of planning, housing and behavioural change. Through research into the experience of one local authority in a European project, this paper finds that governance, cultural, economic and policy barriers inhibit the successful implementation of low carbon transport initiatives. This paper concludes that, despite these challenges, there is still value for local authorities to engage in projects that fund pilot carbon reduction initiatives and promote knowledge exchange.

Article Type

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Keywords

Local authorities; sustainable transport; public policy; low carbon; knowledge exchange

Introduction

In the coming years, urban areas across Europe will be required to respond to the challenges of climate change. To date there have been numerous European directives and initiatives to facilitate the development of low carbon transport policies and there has been a recognition that decisions made in the planning and management of our cities will have direct and often complex implications for the built environment, infrastructure, transport provision and changes in human behavior (Pederson et al, 2012).

Low carbon transport gained prominence in the UK from the mid 1990s following a report on transport by the Royal Commission on Environmental Pollution (1994). More recent reports such as the Stern Review on the economics of climate change (2006) have further influenced the debate and strategy documents such the DfT's *Door to Door* (2013) strategy for improving sustainable transport integration have been developed .

In Scotland, the sustainable transport agenda has been embraced, at least in rhetoric, as part of highly ambitious climate change targets, and has been articulated in documents such as Scotland's *National Transport Strategy* (2006) and the Scottish Government's emissions reduction *Report on Proposals and Policies* (2011a). Although the Scottish Government has ambitious aspirations for sustainable transport, the principal delivery agents are Transport Authorities, Regional Transport Partnerships and, in particular, Scotland's 32 local councils (Gray and Laing, 2012).

Without a coherent funding mechanism to compel transport authorities to deliver on the Scottish Government's sustainable transport agenda, initiatives that promote knowledge exchange between local authorities become a vital mechanism for local authorities to learn from others, to facilitate the exchange of ideas and to promote the sustainable transport agenda. Such initiatives have been investigated by researchers such as Marsden et al (2010) who suggest that local authorities can learn from one another by engaging in networks and networking activities.

The main aim of this paper is to analyse the policy and governance challenges of implementing low carbon transport initiatives by examining the participation of one Scottish local authority (Aberdeen City Council) in a European project. The project was initiated in response to concerns about climate change and a recognition of the need to reduce transport-related CO_2 and other emissions which pose a significant threat to health (Black, 2010). The project involved nice partners and four countries and a number of carbon reduction projects were developed in six areas: Malmo, Gothenburg, Fryslan, West Yorkshire, Aberdeen City and Bremen. In addition to the pilot initiatives, the project also had a remit to facilitate knowledge exchange between partners. Knowledge exchange in the context of sustainable transport does not mean the direct transfer of policies from one region to another but can be defined as the sharing of best practice ideas and findings from both successful and unsuccessful initiatives.

The northern European region is interesting in that, whilst there are partially shared climatic and cultural contexts (particularly in the Nordic and Celtic countries), the rate at which sustainable transport has been adopted across cities and regions varies

greatly. For example, Bremen and Malmo - with modal shares for cycling and walking of over 40% - are widely regarded (along with Freiburg and Copenhagen) as Municipalities that are world-leading in terms of the low carbon, sustainable transport agenda. These cities have also achieved a degree of political consensus (among politicians and the public) about the importance of sustainable transport as part of efforts to improve urban quality of life and economic competitiveness (Gray and Laing, 2012). On the other hand, Aberdeen City Council came to the project as a city with a modest track record of sustainable transport policies, were facing significant challenges to meet air quality targets, and with more political support for road building over sustainable transport solutions.

The pilot initiatives implemented by Aberdeen City Council included a Car Club scheme and planning the development of a sustainable transport master plan (subsequently winning a European mobility transport award). However, as we will demonstrate in this paper, the city still faces considerable transport challenges and these mitigate against the adoption of the more ambitious schemes implemented elsewhere. Arguably, they also failed to address a need for integration of policies dealing with environmental behavior and choice, health and sustainable economic growth (as discussed by Howarth and Polyviou, 2012).

By drawing on data from empirical research and secondary policy analysis, this paper will present findings of the local political, cultural, economic and social factors that are barriers to the implementation of low carbon sustainable transport initiatives in Aberdeen City Council. The paper concludes with a discussion about the value for local authorities to engage in knowledge exchange activities.

Literature review

Overall, transport contributes over a quarter of Scotland's total climate emissions. It is the largest sectorial source of CO_2 and generates more than industry and the domestic sector respectively (Scottish Government, 2011a). Progress on reducing emissions nationally therefore requires national and local action on reducing emissions from transport.

There are multiple layers of interconnected government in the UK which all have a bearing on transport policy and are themselves influenced by European and International treaties and laws. The low carbon transport agenda in Scotland has been strongly influenced by the European Union (particularly through its 2020 green energy and 2050 decarbonizing the transport sector objectives) and the UK Government policies. The Scottish Government set a target in 2009 to reduce greenhouse gas emissions by 42% by 2020 and 80% by 2050, compared to the 1990/1995 baseline, a more challenging target than the UK as a whole (Scottish Government, 2011a). Meeting such a target represents a significant challenge (Begley and Berkeley, 2012), and local authorities have a key role to play in doing so (Howarth and Polyviou, 2012).

When the SNP administration was elected following the 2007 Scottish Parliament elections, there was a Concordat signed between the Scottish Government and local authorities. As part of the Concordat package, all 32 local authorities agreed a Single Outcome Agreement (SOA) with the Scottish Government

in June 2008, setting out what they will achieve through the services they deliver. These are now the principle mechanism by which local authorities are encouraged to deliver on national policy objectives. Marsden & Rye (2010) identify this as a positive move in terms of carbon reduction. However, sustainable transport is generally absent from SOAs and progress on the low carbon transport agenda is patchy, varying considerably from Council to Council and relying very much on the attitude of individual local authorities and on the efforts of 'silo' departments and key individuals within those bodies (Gray and Laing, 2012).

There is something of a policy gap between national aspiration and local action. Financial restrictions place limitations on local authorities' work which has an impact on their ability to implement carbon reduction policies, especially if these involve investment in infrastructure and limitations are put on the raising of council tax charges in Scotland (Bell, 2011). National spending on the active travel (cycling and walking) represents around 1% of the transport budget and there is no coherent national funding mechanism or an effective compliance mechanism to oblige local authorities to deliver on national objectives (Gray and Laing, 2012).

As reported in the literature, there are great challenges of implementing carbon reduction initiatives including: limited resources; institutional and policy barriers; and social and cultural barriers (Banister, 2005). Further, there are challenges of public engagement. Transport policies can be very controversial, especially if they attempt to change travel behaviour by restricting access or increasing cost and it is important to understand the underlying psychology that governs travel behavior rather than simply encouraging modal shift (Howarth and Polyviou, 2012).

Local authorities have a statutory duty to consult citizens and public engagement through Community Planning Partnerships forms a core part of the SOAs in Scotland. Public participation is believed to: increase the accountability and transparency of government institutions, broaden the base of political participation and create more active and engaged citizens (Smith, 2009). Participative policy making is considered to be particularly important for contentious issues such as transport policy where there is potential for conflict with the public (Banister, 2005).

The challenges of having meaningful stakeholder participation in transport strategy development is demonstrated in the assessment of transport policy making by Vigar (2006) who identifies challenges such as: that the nature of infrastructure projects makes deliberation of their costs and benefits difficult and complex, the perpetuation of 'myths' regarding transport initiatives which are challenging to unpack, members of the public tend to rely on personal anecdote rather than evidence and the 'low level of policy process management and associated facilitatory skills in the policy sector' (Vigar, 2006: 282).

The aims of public participation go beyond policy development and have broader goals of education and public engagement which cannot be measured simply in policy outcomes (Bickertaff and Walker, 2001). In order to effect behavioural change it is argued that people must understand the impact that their choice in transport is having.

Perceptions of the quality and safety of urban spaces influence people's decisions about where to go, how to get there, and what to do when they arrive. As noted by

Adams (2005), many of the symptoms of poor quality urban spaces in the UK have a direct connection with huge increases in vehicular traffic since the 1950s. Therefore, it can also be argued that the value of our cities extends well beyond concepts of financial value, and that choices made regarding the relative positioning of the pedestrian within cities will greatly define the public realm (e.g. Gehl, 1987; Gehl and Gemzøe, 2006).

Even in cases where sustainable transport options are available, there are still challenges of changing individual's behavior due to 'locked' transport behaviours (Howarth and Polyviou, 2012) and therefore engagement and awareness- raising about the positive benefits of modal shift need to form part of sustainable transport initiatives. Howarth and Polyviou (2012:778) argue that local authorities are 'in a unique position to lead on individual targeting based on attitudes and behavior in order to overcome perceived barriers to changes in travel behavior.'

The importance of understanding the relationships between urban development, and issues of transport, user choice and human contact has been studied previously (for example, van den Berg, 2011, Marchal and Nagal, 2005). Similarly, the subject of spatial development (e.g. development of new towns) and how this can integrate with and support sustainable choice with regards to transport (Dijst et al, 2002) will become increasingly important to strategies within Europe in the coming years, as pressures increase on urban density.

There is a close relationship between the successful implementation of low carbon strategies, and a corresponding behavioural response from city residents and visitors.

Strategic spatial planning must be able to proceed on the basis that there is likely to be support for such initiatives, but that they are unlikely to reach their potential unless properly integrated into the development of new centres, and respectful of the need to reflect behaviour patterns in existing areas. This could relate, for example, to the location of new businesses within a region, and the corresponding consideration of travel to and from work (Moeckel, 2009), coupled with the needs of employees (Rodríguez, 2002).

It is important to recognise the interrelations between notions of the quality of an urban context, and how this can be affected by transport policy and initiatives, and engagement by the public. Indeed, recent research has argued that achieving CO2 reduction in urban areas is predicated on establishing such clear links (Tiwari et al, 2011), yet also highlighted the need to balance stakeholder provision, mixed use development (including housing and demographics of occupants) and, crucially, shifts in travel behaviour. Therefore, this research strove to understand how these factors impact upon the implementation of low carbon transport initiatives.

Methodology

The views of members of the public in Aberdeen were gathered via an online questionnaire which was developed and released in April 2010. The questionnaire had two main aims: to investigate public attitudes to and awareness of local air quality and transport issues in the city and to gauge public opinion on the proposed carbon reduction initiatives. The questionnaire was hosted on the Aberdeen City Council website.

The total response rate to the online questionnaire was 627. Of these responses, 57.3% were from females and 42.7% were from males. The age distribution of respondents was skewed towards working age adults with no responses from people under the age of 16, only 5% of respondents from the 16-24 age group and only 1.9% of responses from people in the 65 and over age group. The response rate may have been affected by the fact that the questionnaire was only available online which may have been a barrier to older people who are less likely to use digital technologies.

In order to gather the views of policy makers and other key local stakeholder groups, a series of three focus groups (two parallel focus groups in the morning session and one group discussion involving all participants in the afternoon session) with a total of 20 participants were held at a project workshop in Aberdeen in October 2012. The participants included project representatives from Aberdeen City Council, Bremen and Gothenburg as well as local elected members, policymakers from Aberdeen City Council (many of whom had not been directly involved in the project) and other stakeholder groups such as the Chair of Aberdeen City Centre Association (representing the business community), representatives from transport companies and the Aberdeen Harbour Board. The focus groups involved in depth discussions of strategy and policy and therefore it would not have been appropriate to have members of the public participating. The aim of the focus groups was to facilitate discussion and debate about the development of low carbon transport policies in Aberdeen City Council from a strategic/policy perspective and included discussions of the potential benefits of these policies and discussion of political, economic, social and cultural barriers to their implementation.

Due to the relatively large size of the groups and concerns about participants feeling comfortable to express themselves freely during the discussions, the focus groups were not recorded but detailed notes were taken by two facilitators in each focus group. This has meant that there are very few direct quotations from participants in the presentation of findings. However, the aim was to get a strategic overview of challenges and barriers of the adoption of sustainable transport policy and not to investigate the views of individuals and this should not be considered as a significant problem.

The findings from the questionnaire responses and focus groups have been synthesized and presented thematically along with the analysis of secondary policy documents.

Findings and Analysis

Carbon reduction initiatives piloted by Aberdeen City Council

The key policy document for understanding Aberdeen City Council's transport document is the Local Transport Strategy (LTS) which sets out the vision for the Council's strategic plan for the city's transport infrastructure and services. The plan indicates a high level vision to develop 'a sustainable transport system that is fit for the 21st Century, accessible to all, supports a vibrant economy and minimises the impact on our environment.' (Aberdeen City Council, 2012b:27). The LTS makes specific mention of carbon reduction initiatives including: reducing the need for council staff to travel, encouraging lift sharing, developing car clubs and encouraging the introduction of low emissions vehicles. The LTS is closely linked to the Air

Quality Action Plan which aims to reduce the problem of poor air quality in Aberdeen City Centre (Aberdeen City Council, 2011). The LTS is supported through the development of a sustainable urban mobility plan (SUMP), which was adopted during 2012 (Aberdeen City Council, 2012c).

Congestion from cars, buses and commercial vehicles has led to three areas of very poor air quality in Aberdeen City (Aberdeen City Council, 2011) shown in the map below.

Air quality has become so poor that there are concerns about public health. Two of these Air Quality Management Areas are in the city centre, for which harbour shipping is a contributing factor, but the third is on the inner bypass, confirming that road traffic is a substantial contributory factor to poor air quality in the city. A primary motivation for Aberdeen City Council to participate in the project was to reduce congestion and air pollution in the city centre.

Questionnaire respondents were provided with information about the air quality issues in areas of Aberdeen and were asked whether they were aware of these issues. 36.7% of respondents indicated that they were aware of air quality issues with a further 27% indicating that they were partly or possible aware. 36.2% of respondents indicated that they were not aware. In total 48.1% of respondents indicated that they were concerned or very concerned about these issues.

A number of pilot initiatives were proposed for consideration by Aberdeen City Council officers at the start of the CARE North project. These included further restrictions on parking in the city centre, residential parking charges weighted by

vehicle emissions, a Car Club, priority parking and associated infrastructure for electric cars, off-bus ticket machines, goods distribution using 'clean' vehicles and cycle rental schemes. The most ambitious initiative considered was the creation of a Low Emissions Zone (LEZ) which is a geographically defined area where the most polluting vehicles (particularly commercial HGVs and relatively old buses) are restricted, deterred or discouraged from access and use with the aim of improving local air quality. It must be noted that, while all these initiatives were included in the public engagement exercise, the majority were discarded by councilors for being potentially too unpopular with the motoring public. At the end of the project in January 2013, only the car club had been approved and established, despite it not commanding a great deal of support in the public engagement questionnaire (approximately 35% of respondents indicated support). In contrast, the Low Emissions Zone was rated much more highly by questionnaire respondents (64.7% indicating that they would support the introduction of an LEZ) but did not progress beyond a feasibility study.

From analysing which initiatives were successfully introduced, it is evident that initiatives that were piloted involved relatively low investment and were not dependent on other factors such as the broader city centre development plans. Feasibility studies were undertaken for the other carbon reduction initiatives but these were found to be either ineffective (such as the off bus ticketing) or were still under investigation at the close of the project. Initiatives such as setting up goods distribution using clean vehicles involves consideration of several options and careful planning and therefore take much longer to implement than Car Clubs. In addition, the idea of a Car Club had been mentioned in Council policy prior to the project. The

Car Club is regarded as a success, with over 400 members joining in the first year. The Club currently operates 18 vehicles of various sizes, a combination of electric vehicles and low emission petrol and diesel powered cars (Co-wheels, 2014).

The 'wealth paradox' of Aberdeen and the culture of the car

Aberdeen is the third largest city in Scotland with a population of approximately 216000 people. The economy of the city has been boosted considerably by the North Sea oil and gas industry which to a large extent has insulated Aberdeen from the global economic recession and has contributed to Aberdeen having a very low unemployment rate and a higher than average wage rate for Scotland (Aberdeen City Council, 2012a). The high rate of prosperity masks the fact that there are areas of deprivation within the city but levels of deprivation are among the lowest in Scotland (Scottish Government, 2009, 2011b).

Several participants in the focus groups believed that more affluent people move out of the city centre and into the surrounding local authority of Aberdeenshire and commute in to the city for work. Participants of focus groups 1 and 2 expressed beliefs that this compounds congestion and air quality problems in the city centre and also means that Aberdeen City Council lose out on council tax from wealthier people. Focus group participants also drew attention to challenges associated with the Scottish Government freeze on council tax rises and that Aberdeen City Council receives a lower allocation of money from central funds compared with cities such as Glasgow. Local authority financing is always controversial and contentious and it is a matter of debate as to whether Aberdeen City Council is really 'losing out' to Aberdeenshire or

the Central Belt. However, these opinions are in line with a commonly cited local narrative that, despite the oil wealth, the city is 'cash poor' and that therefore there are less funds available for initiatives such as transport infrastructure and low carbon transport initiatives.

Car use in Aberdeen City is high with 42% of residents reporting that they use a car every day compared with the Scottish average of 33% (NESTRANS 2008). The findings from the public engagement questionnaire were in keeping with this and it was found that 86.1% of respondents reported having one or more cars in their household. It was found that travel by car was the most frequently reported mode of transport used by questionnaire respondents for journeys in to the city centre across a range of activities including: travel to work/school/university, leisure activities during the day, leisure activities in the evening and shopping.

The findings from the questionnaire about air quality and transport issues indicate that, while there is a reasonable level of awareness of air quality problems in Aberdeen, car ownership and journeys made by car are still high amongst respondents. Focus group participants also indicated that there was a 'car culture' in Aberdeen City which some attributed to the dominance of the oil industry in the city.

Governance and infrastructure

During the course or the project Aberdeen City Council was initially run by a coalition of SNP and Liberal Democrats. After the 2012 election a Labour

majority took control of the council by a slim margin. The history of fragile coalitions and narrow majorities were identified by focus group participants as being barriers to innovative policy development including policies to reduce carbon emissions. In addition, participants discussed the fact that in recent years there has been a great deal of local controversy and debate regarding city centre development projects. Numerous initiatives have been proposed with the most significant being: proposals to pedestrianize Union Street (the main street of Aberdeen) and a bypass for Aberdeen City. These issues add further complexity to attempts to initiate sustainable transport initiatives including those to reduce carbon emissions.

Focus group participants from Aberdeen City Council also pointed out that the local press were traditionally very negative towards low carbon initiatives. This is largely a historical legacy (reflecting the views of individual editors) with any policy designed to increase the modal share for cycling, walking and public transport (including road space allocation or increased parking charges) inevitably being reported in terms of being ‘anti-car’. Similarly, media coverage of congestion within Aberdeen is discussed in terms of a lack of road capacity rather than a traffic management or emissions problem. Such coverage acts to undermine public engagement in the low carbon transport agenda. Understanding the prevailing policy and governance contexts are important when studying policy change and are particularly significant for policies that involve carbon reduction as they involve working across departments and require the engagement of elected members and members of the public in order to be effective.

Discussions during the focus groups were often centered around the Aberdeen Western Peripheral Route (AWPR), a bypass planned for Aberdeen which at the time of the focus groups was the subject of a legal challenge but has subsequently been approved and work has commenced. Proponents of the AWPR argue that it will remove a substantial amount of traffic from the city centre, reducing congestion and road space and allowing planners the time and space to implement low carbon transport initiatives in the city centre. Opponents argue that traffic (temporarily) and retail and commercial activity(permanently) will be displaced to the edge of the city, creating new transport problems, hastening existing decentralization and accelerating the perceived decline of Aberdeen City Centre. During the focus groups local participants frequently claimed that air quality would improve in the city as a result of the AWPR. It will be many years before the impact of the AWPR on congestion and air quality is evident. What is important to note from the discussions of the AWPR in the focus groups, however, is that the debate, delays and challenges associated with the AWPR have dominated local discussions of transport for many years including during the project period. As a senior policy maker stated during Focus Group 2, other transport policy decisions (including low carbon initiatives) were delayed until the AWPR legal dispute was resolved.

Geography and connectivity

During the focus groups, participants reflected on what they saw as being the unique characteristics of Aberdeen. There were some interesting exchanges between the local and international participants where the local stakeholders drew attention to perceived differences between Aberdeen and other project partners such as Bremen and Malmo. Some participants believed that Aberdeen was distinctive geographically, politically and culturally and therefore initiatives that worked in partner cities would not be transferrable. These reasons included: that the 'unique geography' of the city makes it particularly challenging to travel in certain directions and that business and retail developments in both the city centre and in the suburbs have compounded these problems. This could, arguably, make partial pedestrianisation difficult, but would not preclude strengthening of infrastructure to support walking, cycling and improvement of non-car routes between the main intercity transport hub and the main shopping areas. An international participant commented that Gothenberg overcame similar challenges by integrating transport planning into other forms of economic development and, for example, restrict the development of out of town shopping centres and where they exist charge them 50% of providing the public transport links.

A further challenge that was identified was public perceptions of the city centre. In focus group 1 there was a discussion about how Aberdeen city centre is perceived to be large when it is actually fairly small by city standards. These results were also reflected in the questionnaire survey where respondents were asked to rate the relative ease of travelling in to Aberdeen City Centre and it was found that respondents reported that it was easier to travel by car than by bus, train, cycling or walking. Questionnaire respondents were also asked whether they considered that Aberdeen City Council had a good active travel network including walking and cycling

(promotion of active travel is one of the ambitions of the local transport strategy). The majority of respondents (52.5%) disagreed or strongly disagreed with this statement with only 2% strongly agreeing with this statement. This finding echoes the point made above about the lack funding of cycling and walking infrastructure, not just in Aberdeen but across Scotland as a whole.

Modal shift

Questionnaire respondents indicated that the factors that were most likely to influence their choice to use public transport were reliability of the service, frequency and cost. Public transport was also an important point of discussion in all the focus groups and issues raised in the questionnaire were mirrored as focus group participants identified that modal shift to public transport was inhibited by expensive, unreliable bus services and that a near monopoly existed in Aberdeen with regards to the bus service. It was commented by an elected member in focus group 2 that it was 'impossible to reconcile the interests' of the public and the transport companies. Evidence of a clear policy difference existed between the international participants and the local participants who were surprised that the bus companies in the UK could dictate the bus routes.

Modal shift to cycling (which has been very successful in Bremen and other Care-North partners) was also discussed in rather negative terms by the Aberdeen representatives. Focus group participants identified challenges such as a lack of dedicated cycle routes and the fact that cycling is perceived to be dangerous. Several questionnaire respondents indicated that the cycle lanes in the city were fragmented

and end abruptly and so cycling in the city is dangerous. Several respondents also commented that cycle lanes were too narrow and that there were few places to secure bikes. There was further articulation of the view that Aberdeen is 'car-centric' and that the travel network was set up to accommodate cars rather than walking or cycling. The findings also indicate that respondents believed that the public transport provision in Aberdeen was expensive, unreliable and time consuming.

Future economic benefits of sustainable transport initiatives

The aim of Focus Group 3 was to get participants to think beyond barriers to implementation and to consider what a sustainable city centre would be like and the benefits of this. Dialogue between local and international participants was more positive and constructive in this focus group.

In keeping with the previous discussions, it was evident that a lot of future hopes for sustainable transport within the city centre were being placed on the AWPR development and an elected member referred to the bypass as the 'missing piece in the puzzle'.

Participants recognized that the City Council would need to take leadership on the issue but it was recognized also that public engagement and positive media reports would be necessary to facilitate this. The international representatives advised that initial successes that had been achieved through the car club could be used as launchpads for other initiatives. The representative from Gothenberg indicated that this strategy had helped overcome a cynical media in Sweden. As well as public

engagement, it was also discussed that the oil culture of the region which was identified as an issue that leads to increased car usage in the region could be overcome by engagement with the local Energy companies. Local representatives mentioned that this fitted with future economic visions for Aberdeen to move from being viewed as an ‘oil capital’ to an ‘energy capital’ with a greater focus on renewable energy.

The final discussion was around making the city more pedestrian friendly by improving public transport, lowering speed limits on roads and promoting walking and cycling routes. It was discussed that more public open spaces should be created along with better signage for walking routes with walking times included.

Discussion and conclusions

Overall, we observed that projects and initiatives such as the project discussed in this paper provide opportunities to conduct trials and preliminary research into carbon reduction initiatives and opportunities for knowledge exchange between partner cities. These can have positive benefits for cities such as Aberdeen which were significantly further behind some of the other partners in terms of carbon reduction and sustainable transport. It is also clear, however, that in order to enact carbon reduction initiatives they must go through extensive analysis, gain approval from policy makers and other local business and transport actors. Further, the public must be consulted and engaged in the process. This means that in the space of a project it can be difficult to demonstrate impact in terms of new policies far less demonstrate measurable reductions in carbon. Where the project was clearly of use to the city and region was

to demonstrate engagement with debate concerning low carbon city planning and attempting to engage with the challenges of climate change and changes in the source and use of energy.

The main finding of this paper, then, is that sharing of knowledge alone appears to be very possible, and can be demonstrated through the success of projects. However, what is perhaps harder to enact or achieve is a deeper sharing, at the implementation stage. It is arguable that sustainable city planning, certainly in terms of transport, requires to become a major lens through which the city considers all urban initiatives. It is certainly true that the most successful partners in terms of delivering major sustainable tranpsort projects (Bremen, Gotherburg and Malmo) have established a local political environment wherein sustainable urban planning has become a key and recognised driver for economic growth and improvements in the livability of cities. It is perhaps this perspective on the notion of the city which should be recognised as a key to a deeper sharing across the region, including strategic planning, urban design, and the delivery of real and significant projects in reality.

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