

A shared learning resource from the EVALOC project Carbon reduction in disadvantaged communities

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1 Introduction

1.1 Aims

Urgent and far reaching changes are needed to reduce carbon emissions in order to avoid climate change of above 2%. These involve decarbonising our energy supply, improving the efficiency of energy use, reducing energy demand, and hence making allied changes in many of our everyday (energy-consuming) behaviours or practices (Low Carbon Plan, 2011).

This paper is one of a series of working papers which aims to share emerging learning from the six Low Carbon Communities (LCCs) participating in the EVALOC research programme about their roles, contributions and limit to energy and carbon reduction.

The specific aim of this paper is to share learning about the strategies used by EVALOC LCCs' to help ensure disadvantaged individuals and communities can access and benefit from household carbon reduction policies and programmes.

1.2 Scope, focus and limitations

The paper draws out emerging lessons about the design of household carbon reduction strategies from three of the six LCCs involved in the EVALOC research project. These include Middlesbrough (Eco-Easterside), Kirklees-Greening the Gap project in Hillhouse, and Sustainable Blacon. We have also included a case study from Oxford City Council work in Barton to widen learning even though it is not strictly an EVALOC LCC (although it has links with West Oxford which is). All of the four communities (Table 1) are considered economically disadvantaged according to the Index of Multiple Deprivation which combines a number of indicators (income, employment, health deprivation and disability, education skills and training, barriers to housing and services, crime, living environment) into a single deprivation score for each area.

Learning is drawn from two EVALOC shared learning workshops (a) 'Carbon Reduction in communities of disadvantage' held in Huddersfield in February 2013 with Kirklees-Hillhouse, Eco Easterside, Sustainable Blacon, and Oxford Warming Barton, and (b) 'Community-Council Energy Partnerships' held at the Low Carbon Communities Network Conference, in January 2011 in Oxford.

Where possible the paper also draws on emerging evidence from EVALOC's wider community and household level research with the six LCCs. The community level research includes focus groups, research at community events, semi structured interviews with participants and shared learning workshops, and the household research includes interviews and energy monitoring with 88 households. However, this data was not fully analysed at the time of writing so no firm conclusions can be drawn at this stage about the effectiveness or impacts of LCCs interventions on energy use, carbon emissions or wider socio-economic benefits.

1.3 Summary of findings

Findings based on analysis of the LCCs' strategies (not outcomes or impacts) participating in the EVALOC community research and shared learning workshop suggest that the following engagement methods can help ensure access to and uptake of energy efficiency measures by disadvantaged households:

- **A supportive and equitable policy environment including:**
 - Free energy efficiency measures for disadvantaged households
 - Revenue support for the core roles of local actors (including engagement, delivery and behaviour change roles)
 - Capital grants and/or low cost loans for disadvantaged communities to invest in community renewable energy generation.
- **Local partnership or multi agency approaches to coordinate the area-wide delivery of free energy efficiency and renewable measures including:**
 - Resident engagement by trusted local actors such as local authorities, community groups, including door knocking, and engagement of local champions;

- Motivating people by helping them understand the practical personal benefits from low carbon lifestyles as well as their wider environmental and social value;
- Handholding residents through the process e.g. assessments and form filling;
- Liaising with social and private landlords on behalf of residents;
- **Complementary measures including:**
 - Related advice by, and cross referrals between, relevant front line staff and community groups regarding e.g. (a) energy behaviours including use and maintenance of technologies (b) maximising income through switching energy tariffs, benefits, jobs advice & training (c) advice on health and safety.
- **Participatory behaviour change programmes:**
 - Conditioning the provision of free technical measures on residents' participation in training or action learning groups in order to build understanding of energy technologies and behaviours, and hence maximise energy savings, create social norms and help ensure sustainable behaviours.

2 Background

The UK government has committed itself to reducing carbon emissions by a minimum of 80% below 1990 levels by 2050 (UK Climate Change Act 2008). As low income households generally emit fewer carbon emissions (Hargreaves et al, 2013), and have lower resources and capacity, than higher income households, it is not immediately obvious why and how economically disadvantaged communities and households should be expected to help contribute to the UK's carbon reduction targets. Nevertheless, it has become accepted in the UK that disadvantaged communities and individuals should be included in household energy efficiency programmes because of their significant practical benefits including reduced energy bills and improved health from warmer homes. Conversely, excluding low income households from such benefits, particularly in the context of rising energy prices, would disadvantage them economically and exacerbate inequality.

Fuel poverty has been acknowledged by campaigners and academics since at least 1975 as a serious social problem that affects the poor with its roots in the quality of the housing stock and cost of fuel. (Boardman, 2009). While political acceptance has been slower the Government has statutory targets to eradicate fuel poverty where reasonably practicable by 2016 (Warm Homes and Energy Conservation Act, 2000). The current Energy Company Obligation (ECO) obliges large energy companies to improve the energy efficiency of vulnerable groups which they are expected to achieve by subsidising measures and recouping their costs by increasing consumers' energy bills, although its size has been shrunk compared to previous schemes and the Government grant scheme, Warm Front, has been closed.

Table 1. Summary of characteristics of LCCs

LCC	Demog., Terrain	Roles	LCC strategy/ interventions
Kirklees-Hillhouse	Dis-advantaged, Urban, Low rise,	Local Authority led multi-agency approach	<p><i>Technical:</i> delivery of free energy efficiency & renewable measures to households; related advice & support on income maximization, landlords, health & safety etc; plus local handyman scheme;</p> <p><i>Behavioural:</i> provision of free energy displays</p> <p><i>Related community projects:</i> community owned solar PV on 3 community centres, community events, recycling</p>
Middlesbrough - Easterside	Dis-advantaged, Suburban	Partnership approach between Local Authority, town wide charity (MEC) and local community	<p><i>Technical:</i> delivery of free energy efficiency & renewable measures to households; plus related advice & support on income maximization, health and safety etc;</p> <p><i>Behavioural:</i> provision of free energy displays; and training of local energy champions;</p> <p><i>Related community projects:</i> 2 community wind turbines on local schools & solar PV on community centre; electric car club; LED street lights; local food growing & rain harvesting schemes; helping 3 local schools achieve Green Flag Eco-School standard</p>
Blacon	2/5 dis-advantaged & rest mixed, Suburban	Community led	<p><i>Technical:</i> small grants and practical advice and support including practical advice and support to help arrange free energy assessments and install simple energy efficient measures</p> <p><i>Behavioural:</i> free measures conditioned on residents' participation in action learning groups; free energy display monitors; 2 demonstration homes</p> <p><i>Related community projects:</i> regenerating local spaces, promoting cycling, and local recycling enterprises to create local jobs</p>
Oxford-Barton	Dis-advantaged, Urban	Partnership approach between Local Authority, Low Carbon Hub and community group	<p><i>Technical:</i> delivery of free energy assessments to households; to be followed by provision of free energy efficiency measures (under ECO)</p> <p><i>Related community projects:</i> local community group running related community projects including community renewables, low carbon living programme, swap shops, save Barton nature park</p>

There were some early concerns that it might be inefficient to include disadvantaged households in energy efficiency programmes because (a) they have lower carbon emissions than wealthier households (b) because they might use some of the financial savings from energy efficiency improvements to increase the warmth of their home (the rebound effect) (Sorrell 2007) and/or (c) because of the expense of providing free or subsidised energy efficiency measures.

However, these concerns were countered by evidence indicating that any short term efficiency costs from targeting energy efficiency measures on disadvantaged individuals and communities would be outweighed by the socio-economic benefits of doing so. For example, the introduction of low carbon measures, in particular loft and cavity wall insulation, plays a significant role in addressing fuel poverty and reducing the incidence of cold and damp-related illness such as respiratory disease. It also has positive effects on mental health, life opportunities and reduces NHS costs. (Marmot Review, 2011). The Kirklees Warm Zone insulation programme, which covered deprived areas, generated a net social benefit of £250 million from an initial investment of £20.9 million when local job creation, improved health, house value and confirmed benefit claims are taken into account (Butterworth et al, 2011; DECC (b), 2011; Eldrich et al, 2010; EST, 2005). So, in so far as the ‘rebound effect’ might reduce the energy and carbon savings from energy efficiency measures, this needs to be balanced against the benefits from improved health, reduction in health care bills, job creation and wider socio-economic benefits from addressing fuel poverty.

‘We need an automatic calculator to demonstrate to the government how much it will save down the line on benefits and health bills by investing in local energy efficiency, and other low carbon programmes’. (Mark Fishpool, Director, Middlesbrough Environment City)

Additionally, there is evidence that lower income groups frequently occupy “Hard to Treat”¹ or lower quality housing (Hargreaves et al 2013), particularly in the private sector, which can mean some low income households have relatively high carbon emissions (Ekins and Dresner, 2004) .

Thus, including such groups in energy efficiency and behaviour change programmes can help contribute to national carbon emission targets and address historic gaps in Buildings Standards and Regulation.

¹ Hard to Treat – Buildings, particularly housing stock where due to older construction techniques it is difficult to improve poor energy efficiency in the Buildings fabric, common characteristics include lofts which cannot be insulated, single shell, narrow cavity or rubble filled walls inappropriate to cavity insulation, flat roofs and so forth. See also “English Housing Stock Conditions Surveys”

2.1 Fairness

Looking beyond the issue of fuel poverty the inclusion of such groups into carbon reduction programmes can be seen as a fundamental part of achieving social and economic justice. The academic literature indicates that there are two main benchmarks of fairness, or justice, that policies and programme should meet:

- **Procedural justice:** this refers to ‘who decides’ and ‘who participates’ in decision making processes. In order to be considered ‘fair’, decision making processes need to provide affected people with:
 - relevant information in a format accessible to them,
 - the opportunity to have their views heard, and,
 - a transparent process by which to get redress if they are adversely affected by decisions.
- **Distributive justice:** this refers to whether the costs and benefits from a given policy or intervention are distributed fairly between, and within, countries and generations. The international literature on climate justice (Ikeme, 2003) suggests that following criteria should be taken into account to ensure a fair allocation of responsibilities between different countries and organisations for carbon reduction:
 - *Responsibility* to reduce emissions; based on an individuals or organisations legal duties and/or the amount of carbon emitted i.e the more an individual or organisation emits the greater their responsibility (This is sometimes known as the ‘polluter pays’ principle)
 - *Capacity* to reduce emissions; based on individual or organisations’ capacity to reduce emissions in a fair and effective way including ability to pay
 - *Rights* to health (affordable warmth) or protection from environmental harm
 - *Efficiency*; based on the cost of interventions which are often ultimately borne by tax payers or consumers.²

To be considered ‘fair’, it is also important that policies and programmes address the structural constraints which can prevent people from participating in or benefiting from

² It is important to remember that the cheapest financial option may not always be the most economically efficient once externalities and future generations are taken into account. For example, while it might cost more for a local authority to employ local installers to deliver energy efficiency measures, the benefits of such long term inward investment in terms of local jobs and economic activity might outweigh this higher initial cost. Similarly, although in the short term it might be more expensive in the short term to produce renewable energy than energy from fossil fuels, subsidies create new markets which stimulate innovation and drive down future costs.

decision making processes, policies or programmes when allocating rights and responsibilities for carbon mitigation (Bulkeley and Fuller, 2012). These might relate to economic issues (e.g. jobs and incomes), cost and availability of technologies and infrastructures, institutional practices, socio-economic inequalities, power relations, economic growth models, cultural values etc. In practice governments may give greater weight to some of these elements than others.

Ensuring just distribution of costs and benefits carbon reduction policies and programmes is also important for pragmatic and strategic reason as it helps generate political support and reduce public resistance to carbon mitigation policies and programmes (Buell, 2011).

2.2 Effectiveness

As with other policies and programmes, carbon reduction initiatives also need to be assessed in relation to benchmarks of accessibility, effectiveness and sustainability of interventions. As noted above EVALOC data had not been fully analysed at the time of writing so the data we can draw on at this time is partial.

3 The community context

We provide a brief overview of the contexts for the four case study communities, before turning to look at the design of their strategies and key learning points.

Easterside has a population of 3,250 people or 1,328 households and is located approximately three miles from Middlesbrough town centre. It is amongst the top 20% most disadvantaged areas in England. 34% of the housing stock is social housing. It is typical of many estates in Middlesbrough and northern England in terms of housing types.

Hillhouse in Kirklees is a neighbourhood of around 768 households close to Huddersfield town centre, which has a very diverse mix of residents, with over 65% from various minority ethnic groups. It is one of the most deprived areas in the UK. It has an unusually high proportion of privately owned and rented hard to treat homes (primarily rubble fill stone terraces c.1800's) and also has a relatively transient population.

'I've knocked on doors of refugees who were terrified of authority figures (the council) because of their past experiences in another country. It puts 'hard to reach' in a different category – where the sensitivities are multiple and the issues of deprivation are profound'. (Ruth Sherratt –LCCC Manager Hillhouse Kirklees Council 2010-2013)

Blacon is a suburb near Chester and was once the largest social housing estate in Europe. It has approximately 17,500 residents. Two fifths of the area is in the top 10% of disadvantaged area in the UK. At one time it contained one of the largest council housing estates in Europe. There are approximately 17,500 residents with about half of

these living in housing association accommodation, a third living in right to buy and 20% in owner occupied housing, plus a small amount of private rented stock.

Barton in Oxford is one of most disadvantaged areas in the country. The City Council's own housing stock is classed as non-traditional, prefabricated steel-frame system but already meets the Decent Homes Standard because it was over-clad a few years back. There are around 130 "right-to-buy" homes which not taken up council insulation and improvement offers, and there is a new development planned for New Barton of 800 new homes. The Council wants to upgrade existing stock and hence avoid creating a social divide.

4 LCC vision, aims and messages

4.1 Outline of LCCs vision, aims and messages

The case study LCCs see carbon reduction as offering an opportunity to build fairer, more prosperous and sustainable communities, as well as reducing their contribution to climate change. Their primary aims are to address fuel poverty and thus help residents save money on expensive fuel bills and improve their health through warmer homes, with carbon reduction seen as an important but secondary aim. The LCCs seek to achieve this by helping households reduce energy use, increase household energy efficiency, and in some cases generate renewable energy.

The case study LCCs also run other low carbon community projects to improving health and well-being. For example: Sustainable Blacon runs projects to regenerate local spaces, promote cycling, and establish local recycling enterprises to create local jobs; Kirklees runs community events for local residents which provide practical advice about state benefits and energy saving, but also help isolated people meet to build trust and relationships; and Eco-Easterside runs 'active travel' projects to increase cycling, local food growing to increase the consumption of fresh vegetables, and waste reduction projects.

In line with their aims and objectives the case study LCCs focus their primary communication messages on the practical benefits carbon reduction projects can generate for local people.

'What really matters to people is their health, the safety of the area and their income, so going in with a carbon argument is not necessarily the best approach.' (Ruth Sherratt – LCCC Manager Hillhouse Kirklees Council 2010-2013)

However, some of the LCCs also emphasise the wider social and environmental, as well as the practical, value of the interventions. Sustainable Blacon's messages focus on both their community, and climate change and the planet. The Eco-Easterside project uses the One Planet Living messages:

“Sustainability” is more than just the environment; it integrates social and economic well-being with improving the local environment and reducing the harmful impacts we have on the community’..... ‘As the country goes through a time of economic austerity, at a first glance some people might think that One Planet Living is a luxury that we can’t afford ... but One Planet Living has a lot to say about looking after household budgets and sustaining community in the hard times. We can all cut our energy consumption - and save on those energy bills. A lot of things - taking a walk, sharing time with friends, going on a community litter-pick, visiting the library, park or museum - cost little and sustain well-being and a sense of community. So, One Planet Living is good for our wallets, our households and our communities. Everyone agrees that there is only one planet Earth to live on, so the sooner we move away from a three planet lifestyle to One Planet Living the sooner we safeguard the planet for future generations’.
(Middlesbrough’s One Planet Living Sustainability Action Plan, 2011).

Carbon reduction projects, and community development, essentially involve the same approach.’ (Local resident, Oxford)

4.2 Key learning points

EVALOC shared learning workshops and wider research suggests that:

Carbon reduction policies and programmes offer an opportunity to generate practical benefits for residents as well as helping reduce carbon emissions. EVALOC data on the effectiveness and impacts of the LCCs (DECC funded) interventions had not been fully analysed at the time of writing. However, there is emerging evidence from the household interviews and household energy monitoring, with households that have received technical and/or behavioural interventions from the LCCs, of reduced energy use and fuel bills. In houses that have received fabric measures such as cavity wall and loft insulation there is also some emerging evidence of increased comfort levels and enhanced internal environmental conditions in homes.

78% of households (that had received a behavioural or technical intervention from the LCCs) state that they strongly/tend to agree with the statement: the LCC is helping people like me reduce their energy bills; 90% of the same households state that they strongly/tend to agree with the statement: the LCC is helping people like me reduce their energy consumption. (EVALOC household interviews, 2012)

Data collected from EVALOC’s carbon mapping of a wider sample of households in each LCC also suggests reductions in energy use above national trends. This suggests that LCCs may be having a wider impact than just the ‘direct beneficiaries’ of the interventions. Community level research shows evidence of wider impacts in some communities such as increased social interaction and pride and increased alternative transport measures being adopted in some communities.

'The Easterside estate has seen a reduction in local crime over recent years, and Middlesbrough has seen a 75% increase in cycle journeys over the last five years.' (Mark Fishpool, Director, Middlesbrough Environment City)

While it makes sense for LCCs to focus their primary communication and engagement messages on the positive practical benefits associated with household carbon reduction there is also a value in using secondary messages to emphasise the environmental and social benefits of saving energy and reducing carbon emissions:

'There's a judgement that poorer people don't care about climate change – but that's rubbish – they can't afford to care as they have so much else to care about. The difference is between caring and then having the time, wealth and status to then act that out.... I've also worked with wealthy communities, some of whose population care far less.....I've actually had people say why should I care when I can afford it.' (Ruth Sherratt –LCCC Manager Hillhouse Kirklees Council 2010-2013)

'When we put up the Photovoltaic in Hillhouse it was at the height of the Pakistan floods of 2010 and the community saw a relationship between the two immediately.' (Ruth Sherratt –LCCC Manager Hillhouse Kirklees Council 2010-2013).

'At the beginning people were just interested in saving money for themselves but once they are educated they begin to understand the right way of going about things and get more concerned about climate change and the environment.' (Blacon, local resident).

"You should never write off a community as not interested in climate change because it is disadvantaged. There are people who have no money and a tough life but really get the whole global message as a moral thing....and it offers a big opportunity to do something which can empower people.' (Jennifer Carr, Sustainable Environment officer, Oxford City Council)

Emerging evidence from the first wave of household interviews in Easterside where the LCC uses the One Planet Living messages shows high levels of concern among respondents about climate change, security of energy supply and energy prices and high levels of motivation to save energy in both the individual households and the wider community. Motivations include not only cost, but also environmental and social, considerations with respondents mentioning: *'Finance, environment and the future'; 'Social responsibility', 'Because it's helping the environment and I've got a young son who I want, you know, things to be nice for him'*. Evidence from research at Eco-Easterside's community events also shows that the majority of people leave feeling more motivated to reduce their energy use. When asked what was the most important thing they learnt at the event many people mentioned practical issues about saving energy but others specifically mentioned *'how the climate is changing', 'to look after the planet and yourself', 'you can still have fun while being eco-friendly', 'that everyone is*

interested in environmental matters and whether they can do more to help', and that 'community events are fun and people want change'.

5 Roles and capacities of local organisations

5.1 Outline of LCCs roles and capacities

As suggested above different organisations will have different responsibility and capacity to reduce carbon emissions. There is a range of different organisations involved in the different case study LCCs, including local authorities, city-wide not-for-profit organisations and community-led organisations. One common feature is that in each community there is either a partnership, multi-agency or collaborative approach between different local organisations. The precise approach adopted depends in part on the roles and capacities of different actors as described below.

In ***Easterside*** there is a strong community with a long history of neighbourhood action and partnership working. Although residents did not have a track record in household energy reduction/generation per se, they had a willingness to engage in energy initiatives. There is also a strong town-wide environmental charity, Middlesbrough Environment City (MEC) which works closely with the council to deliver environmental goals, and a housing association (Erimus) which owns a large part of the housing stock and has on the ground staff that are trusted by residents and can promote schemes. So in Easterside there is a partnership approach in which (a) the council plays an 'enabling role' and accesses finance, tenders for local installers, and provides legal support; (b) MEC plays the lead 'doing roles', e.g. coordinating the delivery of energy efficiency and renewable measures to residents and providing them with integrated advice, energy training, and free energy display monitors; and (c) Erimus and the community group help MEC engage and motivate households.

'What made our project work was having a community group there that was already well respected and established so you won't have to do a lot of the convincing of residents – the group can pass the message on'. (Mark Fishpool, Director, MEC, Middlesbrough.)

In ***Kirklees-Hillhouse*** there was not a formally constituted local community organisation so the project was led by the local authority, which also undertakes a range of 'doing' roles including accessing finance, writing legal and contractual documents, procurement, directly engaging the community by door knocking, negotiating with private landlords, coordinating the delivery of energy efficiency and renewable improvements by private installers, and providing a range of integrated advice and energy display monitors. A local multi-agency group (consisting of councillors, community workers, local service agencies, schools and the local family centre) communicates and champions the project, with support from residents and representatives from community groups, and faith leaders.

In **Blacon**, the project was delivered by staff and volunteers from Sustainable Blacon, a subsidiary of Blacon Community Trust (a charitable company), as the council was not running carbon reduction or fuel poverty programmes in the area. Sustainable Blacon also received some support from paid workers at Blacon Community Trust, and advice from their board which includes council officers and councillors from Cheshire West and Chester Council. The aims of the Blacon Community Trust are to build a better area by involving the community in finding solutions to local problems, and by joined-up working with local authorities, voluntary organisations and residents.

'The organisation makes it possible, residents make it happen' (Sustainable Blacon's strap line).

In **Oxford** there are a number of LCCGs in the city with a track record in encouraging and supporting households to reduce carbon emissions and install community renewables. There is also an Oxfordshire-wide community interest company, called the Low Carbon Hub, which supports communities to develop energy reduction and energy renewable projects. So in Oxford there is a partnership approach in which (a) the local authority plays an 'enabling' role in tendering for installers, helping accessing financing (b) the Low Carbon Hub, leads delivery in some areas and supports LCCGs to deliver in others, and (c) LCCGs either play a direct delivery and/or supportive role depending on their capacity. As **Oxford-Barton** is a disadvantaged area, and the local community association does not have delivery capacity, the Hub played a more active delivery role in the project than in areas of low or medium deprivation in Oxford where LCCGs might be the only delivery agent organisations.

5.2 Key learning points

EVALOC's shared learning workshops and wider research indicates that:

Local organisations play a wide range of important roles in reducing household energy use and carbon emissions, addressing fuel poverty and improving health. These include:

- **Downstream roles:** developing innovatory approaches, community engagement, empowering residents, changing energy using behaviours, encouraging the adoption of or delivering low carbon technologies, addressing fuel poverty;
- **Midstream roles:** catalysing and/or collaborating with other local actors; sharing and disseminating innovations and best practice with other LCCGs;
- **Upstream roles:** influencing the local and national policy environment.

Local organisations have varying capacities and competencies to undertake these roles, which is linked in part to funding:

- *EVALOC Local Authorities* seek to play all these roles to a greater or less extent and feel strongest in enabling the uptake of low carbon technologies and addressing fuel poverty. In addition, they also play important but often invisible process roles including: convening, leading and coordinating local partnerships or multi agency approaches (Oxford, Kirklees); helping access funds and facilitated cash flow (Middlesbrough Council, Kirklees, Oxford); coordinating city/area wide domestic carbon reduction strategies and installation of low carbon technologies (Kirklees); engaging local residents (Kirklees, Oxford); recommending/badging suppliers and installers (Middlesbrough-Easterside and Kirklees); negotiating with landlords (Kirklees); enforcing existing legislation (Health & Safety, Oxford; Private Sector Landlord obligations Kirklees); providing integrated advice on related issues such as benefits, health and safety etc. (Middlesbrough-Easterside, Kirklees); and organising energy training for front line staff (Middlesbrough-Easterside).
- *City/town wide not-for-profits and/or social enterprises* also play some of these roles in Easterside and Kirklees. Middlesbrough Council has 'sub-contracted' some of its roles to Middlesbrough Environment City (a charity), and Oxford city council has supported the setting up of the Low Carbon Hub (a community interest company) to provide support to community groups and to deliver some of these roles including coordinating the delivery of low carbon technologies. The motivations appear either to be because these organisations are thought to have a greater knowledge and experience of energy/climate change projects, an ability to engage local communities, and/or ability to attract additional sources of funding.
- *Local community groups* also seek to play all the roles identified above to a greater or lesser extent, Our research shows they feel strongest in innovating, engaging, motivating, and empowering local people to take action, encouraging the uptake of low carbon technologies (and in some cases delivering it), and helping change energy behaviours.

Local organisations have limits:

- *Local authorities* face increasing resource constraints, and lack statutory duties to reduce carbon emissions outside their own estate. Fuel poverty programmes, where they exist, are prioritised in the most deprived areas first leaving a vacuum for the pockets of low income people living in higher income areas. Also, residents may not value or use low carbon technologies effectively when they are provided free or without their active participation, yet resource constraints mean it is difficult for local authorities to prioritise the time-intensive behavioural interventions needed to maximise energy savings and hence achieve sustainable changes in energy use.
- *City-wide not-for-profits* are not representative of, or directly accountable to, the electorate, so their activities might not reflect public priorities, and might weaken local representative democracy.

- *Community groups* lack core funding and hence rely largely on volunteers to undertake their roles. This means they have an uneven spread, capacity and reach and it can be difficult for them to carry out certain roles. For example, while some of the EVALOC low carbon community groups have sought to design inclusive domestic carbon reduction strategies they lack the capacity and resources to coordinate the delivery/installation of measures to people's homes. This is important to ensure that low income and vulnerable groups can access and benefit from them but involves time intensive outreach and skills that LCCGs often do not have. Additionally, community groups are unlikely to have the mandate, resources or skills to directly address residents' related concerns/issues such as benefits, health and safety, negotiations with landlords, legal and administration issues, which are anyway arguably better carried out by the local authority and relevant agencies. Moreover, it is also difficult for locally based community groups to achieve the efficiencies and/or economies of scale that city wide organisations can e.g. in tendering for installers or coordinating delivery/installation to local households at scale (Edrich et al 2010).

Local partnership approaches can help increase the scale and reach of energy efficiency or renewable programmes by combining the strengths of Local Authorities, LCCGs and not for profit organisations. However, these benefits are not automatic and must be worked for. Participants in an EVALOC shared learning workshop on Partnership Working (LCCN, January 2011, Oxford) outlined the following ingredients as important for successful partnerships:

- a supportive and equitable policy environment (see section 8 below);
- strong community groups with a track record in energy interventions and/or willingness to engage in new initiatives and/or multi-agency approaches or investment in community development;
- councils that are motivated to act on climate change and prepared to take risks in exploring new partnership approaches;
- local organisations to support community groups and/or deliver direct interventions with households.

Participants also suggested a number of operational criteria for successful partnership working including: clear value added from working together; a credible shared vision; clarity about roles, responsibilities and lines of accountability to people not at the table; mutual understanding and respect between partners e.g. community groups funded as equal partners rather than seen as cheap delivery agents; competence and delivery; a clear structure and timetable.

Wider research on partnerships suggests that LCCGs need to be aware of and manage potential risks of partnership working e.g. not being taken seriously by the council, council being risk-averse and not being open, working to others' agendas, or being diverted from their grassroots work. (See for example Geddes, 2006).

Local organisations are constrained by structural influences on energy use. These include limitations of or gaps in the national policy framework and financial incentive structure, technologies & infrastructures, as well as socio-economic structures, cultural values, and wider economic policy.

6 Household carbon reduction strategies

'Take a risk, aim high, stop thinking of obstacles...because if you make some difference at all it's worth it'. (Ruth Sherratt –LCCC Manager Hillhouse Kirklees Council 2010-2013)

6.1 Outline of LCC household carbon reduction strategies

As noted above, the LCCs carry out a range of domestic and community carbon reduction initiatives which also involve reducing fuel poverty, improving health, and generating other local benefits.

Community Engagement: In **Easterside**, **Kirklees-Hillhouse** and **Oxford-Barton**, door knocking was an important engagement method. In each case the involvement of the council was seen as important in gaining residents' trust both by 'branding' initiatives and door knocking. Local residents and community volunteers also helped identify and contact people in some cases. In **Blacon** project workers identified 150 participants through community networks, friends and family

Gaining the support of local 'champions' –councillors, religious leaders, community organisations, and community workers – was also seen as important in all cases. Local community events, Schools, Sure Start Centres, churches, and other groups including the University of the Third Age and the Women's Institute were all mentioned as useful places to engage people. These forms of engagement were accompanied by publicity such as radio interviews, letters, leaflets and community events.

All the four LCCs offered financial incentives of one kind or another (see below) to motivate residents to engage in household energy efficiency and/or renewable projects.

Household energy saving assessments: In **Easterside** and **Kirklees-Hillhouse** the local authorities contracted local installers and the Kirklees Energy Saving Trust Advice Centre respectively to do free energy assessments for residents. In **Blacon**, the 150 participants in the Blacon Energy Management Programme (BEMP) were given free energy assessments by the project team. In **Oxford-Barton** 119 free energy assessments were carried out by community assessors from the 188 households initially recruited.

Household energy saving measures: In **Kirklees** the local authority and in **Easterside** Middlesbrough Environment City (a charity) coordinated the installation of free energy efficiency measures and renewables to residents. Kirklees Council used LCCC funding to pilot the installation of renewable measures to 54 households in Hillhouse including many privately rented properties. (It had previously provided insulation to 51,000

homes under its previous Warm Zone programme). The Eco-Easterside project used LCC funding to provide renewable measures to 20 households (MEC had previously fitted 1000 households on benefits with loft and cavity wall insulation and provided insulation measures to 354 households who were just above the benefit line). In **Blacon**, the 150 householders participating in the BEMP were offered up to £2,000 of energy efficiency improvements which may be anything from an energy efficient fridge to the installation of internal solid wall insulation with the measures coordinated by BEMP project staff (See below). In **Oxford-Barton** residents will be able offered free or subsidised energy efficiency measures under the Energy Company Obligation from an installer badged by Oxford City Council and the Low Carbon Hub.

For every person you stop going through the humiliation of not coping with their bills [through energy efficiency measures], you make their lives a bit less chaotic, and they stand more of a chance of sorting out work, looking after this kids, keeping on top of their house.. most people who are not very well off tend to shop in their local area as they can't afford big journeys so for every penny you save them it's inward investment into the local area'. (Ruth Sherratt –LCCC Manager Hillhouse Kirklees Council 2010-2013).

Table 2. Summary of technical measures provided by LCCs to households

Community	Previous measures	LCC funded measures
Kirklees-Hillhouse	Free insulation of 51,000 under Kirklees Warm Zone programme including Hillhouse	Free energy assessments and installation of free solar PV on 54 households
Middlesbrough-Easterside	Free insulation for 1000 households on benefits, and 354 households just above the benefit line	Free energy assessments and installation of free solar PV, solar hot water and/or air-source heat pumps to 20 households
Blacon	Unknown	Free energy assessments and £2,000 grants for energy efficiency improvements
Oxford -Barton	Right to buy which had not taken up previous council insulation offer	119 free energy assessments carried out (Will be followed by delivery of energy efficiency measures)

Basic energy advice: All the LCCs provided some basic advice to residents about energy saving, energy tariffs, and how to use low carbon technologies. In **Easterside**, and in Middlesbrough more widely, MEC has arranged energy saving training to all front line and council agency staff (e.g. front line health staff, community workers, liaison staff in housing associations and front line council staff, plus other workers visiting residents in their homes or in community venues). In **Blacon** a staff member of Sustainable Blacon coordinated volunteers who provided practical advice, encouragement and support to households about using their energy display monitors, arranging a home energy assessment, switching energy suppliers, and the fitting of simple measures such as

draught proofing, power-down plugs and low energy light bulbs.. In **Kirklees** all private sector homes in Hillhouse ward were initially visited by a member of staff from the local Energy Saving Trust Advice Centre (ESTAC) Team, who provided occupants with free and independent one-to-one practical advice. Some further advice then came via a Handyman scheme set up with Future Jobs Funding, which trained local long-term unemployed people to work alongside paid council and charitable sector personnel, to offer draught proofing & tailored energy advice. Kirklees Council staff also helped private tenants obtain permission from landlords for improvements. Additionally, simple basic advice about energy savings, energy bills and tariff switching is made available to residents at community events. In **Oxford-Barton** the assessors gave advice on no-cost and low-cost measures during the assessment itself – a lot of which were acted on straightaway.

‘We used energy saving games and quizzes with lots of pictures to ensure messages were simple, doable fun and not language prohibitive’ (Ruth Sherratt –LCCC Manager Hillhouse Kirklees Council 2010-2013).

‘The Sure Start Centres and local schools are a good place. The women who attended like something different and love it if anyone can save them on domestic bills –so I have given cooking demonstrations to show them how to save money by cutting vegetables smaller and using less water and a lid on the pan to both ensure they cook faster and less nutrients are lost’ (Ruth Sherratt –LCCC Manager Hillhouse Kirklees Council 2010-2013).

Joined-up working, related advice and cross referral systems: Both MEC in **Easterside** and **Kirklees** Council in Hillhouse provide integrated advice *and* a referral system to residents on a range of related issues such as benefits, health and safety, fuel bills, jobs, and training courses.

Behaviour change/social learning: In addition to providing basic energy advice, some of the LCCs involved residents in other processes to help them change (energy-using) behaviours. All the projects provided local residents with display monitors to help raise awareness of energy use although with varying uptake and support.

‘Would you believe it ... it was seeing how much energy my kettle actually used when I switched on the energy display monitor, and how much that cost, that got me hooked. I then took it [the monitor] to work to show them. ...and I’m now a volunteer.’ (Blacon, local resident).

In **Easterside**, the twenty householders who received energy efficiency and renewable measures from the DECC funding were required to attend an Open College Network training course and act as Community Environmental Champions. In **Blacon**, the free energy saving improvements were conditioned on residents participating in monthly meetings (on water, food waste, electricity, white goods, insulation) and recording monthly energy usage. The higher their participation, the higher the value of the energy

saving improvements they received at the end of the project. Residents were also taken on a visit to two local demonstration houses (1 social rented & 1 owned) and to the Centre for Alternative Technology at Machynlleth.

Community owned renewables: In **Easterside, Kirklees** and **Oxford-Barton** the LCCs all used government grant funding to install renewables on individual households and community buildings. There are agreements with householders and building owners that the FiT is donated to a community fund. This then creates an income that be invested in further carbon cutting projects in the community.

6.2 Key learning points

EVALOC learning from workshops and wider research suggests that:

The coordinated area-wide delivery of subsidised energy efficiency and renewable measures is needed help ensure that disadvantaged households can access and benefit from them. The case study LCCs felt that it was important for the Local Authority (or delegated city wide body) to coordinate the delivery of free measures to households, rather than expect households to organise and pay for them themselves, a finding which is supported by wider evidence (Boardman, 2009). As one council officer in Kirklees said:

'If we [the council] had not done this project, there was no way the householders would have installed renewable energy or likely energy efficiency measures. Many are unable to access the information and grants that are available to them primarily due to language or comprehension barriers. Because we took it straight to them it made it much easier for them' (Officer, Kirklees Council 2010-2013).

Technical measures need to be accompanied by complementary interventions to help widen access and maximise energy savings. LCCs in the shared learning workshops cited the need for the following measures to complement technical interventions (EVALOC shared learning workshop on partnership, January 2011):

- Engaging residents via door-knocking ;
- Motivating people by helping them see and access the practical benefits from low carbon lifestyles;
- Handholding through the process e.g. form filling;
- Building trust with, and getting consent from, social and private landlords;
- Provision of integrated advice from front line staff about (a) saving energy (b) maximising income through energy tariffs switching, benefits, jobs advice, training (c) advice on health and safety;
- Conditioning the provision of measures on residents participation in training or action learning groups;
- Use of multi-lingual representatives to convey messages in multi-ethnic communities.

'We tried selling the [renewables] project to people's landlords as an opportunity. We explained they did not have to agree to have them but if they do their Energy Display Certificates will improve, it will be more likely that their tenants will be able to pay their rent [because of savings on electricity bills, and it's a good way of helping tenants feel part of the community and then they might stay longer'. (Ruth Sherratt –LCCC Manager Hillhouse Kirklees Council 2010-2013).

EVALOC research suggests that in some of the disadvantaged communities the combination of resource constraints, and the time involved in coordinating the delivery of technical measures, can detract LCCs from complementary behavioural or social learning interventions. Yet wider evidence suggests that behaviour change is needed to maximise energy savings and ensure sustainable changes (Schipper et al. 1989; Janda, K, 2009).

Also, the emerging evidence from across the six LCCs data also suggests that there remains a potential gap between 'intent' and 'outcome' linked to lack of knowledge and understanding of occupants about how to use the technologies and the lack of on-going maintenance by installers and residents, among other issues. Such a gap is common to other energy interventions and highlights the need for the provision of appropriate resourcing, infrastructure, training and support for LCCs.

Resource constraints may mean there is limited support for disadvantaged people living in higher income areas. As noted above, scarce resources mean that local authorities are unlikely to be able to prioritise fuel poverty programmes in areas of medium or high income in the short to medium term, even though there may be hidden pockets of deprivation. Community groups might emerge in some communities to fill the vacuum but as noted above may not have the resources and capacity to ensure that disadvantaged residents are able to access energy efficiency measures.

'What worries me is that in areas of medium or low deprivation, where there are only community groups working we might end up with growing inequality because they are mainly voluntary they don't often have the capacity to coordinate the delivery of free energy efficient measures to people's homes or to do benefit checks etc. I don't want to take resources from deprived areas but there are also pockets of disadvantage in these communities so you need at least a minimum of joined up working between community groups and front line agencies'. (Oxford resident).

Learning from carbon reduction initiatives within communities of disadvantage suggest that a cross-referral system between the council, other front line agencies and community groups might help increase access, as well as training in basic energy advice for relevant front line agency workers and community groups. Prompted by representations from community groups working in **West Oxford**, a middle income area,

Oxford City Council has recently applied for and received funding from the Department of Health to establish a Community Connection Scheme. The scheme funds 'trusted' community groups to identify and contact vulnerable and elderly people in their neighbourhoods and link them to local authorities and other relevant agencies for advice about benefits and fuel bills, fuel vouchers, insulation, draught proofing etc. (See forthcoming briefing).

7 Community participation and development

7.1 Outline of LCC approaches

All four LCCs have sought to involve community groups and individual residents in their projects, to a greater or lesser extent. In **Easterside** there was a long relationship of trust between the council, MEC, Registered Social Landlords and the local community through the neighbourhood partnership, so local residents were able to be closely involved in project selection, design, implementation and as beneficiaries. In addition as noted above, the delivery and installation of free energy efficiency and renewable measures to households was also conditional on people becoming energy champions and undergoing an energy training course. In **Blacon**, residents were initially involved mainly as beneficiaries rather than in project design, but the £2000 energy efficiency grants offered to them were conditional on their participation in regular meetings. As a result, some have become active and are beginning to take on leadership roles. The **Oxford-Barton** Project was initially suggested at a working group meeting of Low Carbon Oxford partners, which includes community groups. A community group, Low Carbon Barton, has become a key part of the Barton project, which was launched at an annual community event - the 'Barton Bash'. In **Kirklees**, there were no formally constituted community organisations, and whilst residents were not closely involved in overall design or implementation of the projects, they were closely consulted both as potential 'beneficiaries and as 'critical friends':

'When we first sent householders the necessary paperwork to sign regarding the PV installations only a handful completed it. Although they were keen to be involved, the paperwork acted as an obstacle as they were concerned about what they were signing up to and the longer term implications. It was only after personal visits from the project manager and a local councillor who spent lots of individual time talking through all their questions that many householders felt confident enough to sign....This involved weekend and evening working... spending time dangling babies on your knees and listening to peoples thoughts and concerns about very wide ranging issues... The local councillor acted as a translators...If you get into this mind set hard to reach are not hard to reach anymore and the benefits are incredible but sadly there is rarely the resource to do this'.

(Ruth Sherratt –LCCC Manager Hillhouse Kirklees Council 2010-2013).

Kirklees Council also wants to increase residents' involvement through local community events, and plans to set up a community panel to help decide on the use of the Feed in

Tariff. However, national austerity measures mean that budgets for local authority activities that have no statutory underpinning, such as community participation (as opposed to consultation), are under threat.

7.2 Key learning points

Resident participation can strengthen understanding, motivation and capacity to reduce energy use and carbon emissions. EVALOC research suggests, people may not value low carbon interventions, or use them efficiently, if they have not been actively involved in some way, or received training. It is therefore worth investing time, effort and money in strengthening local trust, participation and involvement in local low carbon initiatives. This might require initial investment in community development and efforts to address barriers to participation (such as time, language, skills, agency, identity issue).

As a bottom line, LCCs need to ensure that they are transparent and accountable to local residents about carbon reduction programmes. This means providing clear information to all residents about eligibility and allowing opportunities for people to comment on or seek redress about the programmes.

8 Finance

8.1 LCC funding

The LCCs participating in the EVALOC research project were all fortunate to be awarded capital grant funding from DECC as part of the Low Carbon Communities Challenge. This enabled them to pilot new projects and/or accelerate the implementation of existing ones. Initially the LCCs were informed they could receive both the capital grant and the Feed in Tariff (FiT)³ but the government subsequently issued advice that they could only receive capital grants and the FiT up to the de-minimis level (circa 200,000 euros over three years) resulting in some communities having to disinvest. The government then issued advice that other communities would not be able to receive capital grants and the FiT.

The LCCs used the capital grants to pay for community and household physical energy efficiency or renewable measures including solar PVs, and solar thermal, wind turbines, energy displays, ground source heat pumps, electric car or waste-oil biodiesel fuelled cars for community car clubs etc.

³ A premium tariff paid for renewable energy generation

There was a small management fee attached to the DECC grant but the complexity of the projects and the on-going commitments to follow up meant that the time spent on the project exceeded this in most cases. The local authorities and city-wide third sector organisations have therefore drawn on revenue from existing budgets and projects to pay for staff time, and community groups and residents have given their time free sometimes at great personal cost.

As outlined above the capital projects either built on the back of, and/or were accompanied by, a range of other household and community energy efficiency and behavioural programmes which were funded from elsewhere and/or conducted voluntarily by local residents.

Some of the EVALOC communities have sought to create a self-sustaining flow of income from the renewable projects to reinvest in further community carbon or fuel poverty reduction projects. However, the complexity of the projects mean that the income has taken a long time to come through and the net revenue is smaller than predicted after subtracting costs for administration and maintenance.

'We [the council] will need to use a lot of the FiT for on-going administration and maintenance costs for the PV installed, the Council no longer has the staff resource capacity to do this for free and the initiative was in any case always set up in order to test whether it could be independently self-maintaining. Consequently, over the first 10 years – until replacement invertors are installed - the community pot will only be about half the value of the FIT income generated.' (Ruth Sherratt –LCCC Manager Hillhouse Kirklees Council 2010-2013)

Some of the EVALOC LCCs were reluctant to accept referrals fees from Green Deal providers as a source of income AS this would undermine their independence and hence local trust.

Lack of adequate revenue funding is therefore a significant constraint for some of the LCCs. Four of the LCCs have managed to sustain their activities. But funding cuts, and withdrawal of statutory obligations on local authorities, means that one local authority led LCC has severely scaled back its environmental and community projects. Lack of sustained funding in another community led LCC means that the number of active volunteers in the local community has shrunk from one hundred to six.

'By the end of March we [the local community group] will have no funding anymore – so how can we put out (our?) enthusiasm over if we have nothing to offer.' (Blacon, Local resident)

8.2 Key learning points

Learning from EVALOC shared learning workshops and wider research indicates that:

Both capital and revenue finance is needed to enable local organisations to implement carbon reduction and fuel poverty reductions at scale in a fair and effective way.

'Lack of revenue funding is one of the biggest barriers for local authorities, especially given the recent cuts to Council budgets. Capital investment alone will not secure change.' (Ruth Sherratt –LCCC Manager Hillhouse Kirklees Council 2010-2013)

'Community groups need funding for paid workers to ensure their sustainability - people get exhausted, they get burnt out'. (Oxford, Local resident)

It is not now possible for LCCs to receive capital grants and the FiT but it is possible for LCCs to raise capital for renewable energy or energy efficiency projects through local share offers or loans. It is likely to be difficult for disadvantaged communities to raise sufficient capital through local share offers so it makes sense for share offers to be aggregated and issued on an area wide basis, or for successful community renewable projects in higher income areas to donate part of their surplus to a fund for disadvantaged communities.

It is also possible for LCCs to take out a loan, or collectively agree to seek funding through the Green Deal, but the interest rate is likely to be higher than interest paid on a share offer, and the lending organisation may require some collateral, posing difficulties for disadvantaged communities. Again this might be overcome if share offers are aggregated and issued on an area wide basis.

An investment of £1 million in renewables would be needed to generate a net annual return of around £30,000 (after dividends, loan interest, maintenance etc.). This will cover the cost of a part time worker to and make a small contribution to new local projects (*Personal correspondence on recent financial modelling by the Low Carbon Hub*).

9 Policy Framework and financial incentive structure

As shown above, LCCs play vital, but often invisible and unrecognised roles in helping address climate change and fuel poverty, improve health and generate other benefits. Some of the activities have been incentivised by government policy/incentives and some via markets, but others are under-resourced or voluntary so have a limited reach and risk collapse. Participants at the EVALOC shared learning workshops and wider research suggested the following policies or measures to accelerate the pace and scale of carbon reduction:

- **Consistent messages from the Government** about the urgency of tackling climate change.

- **Capital grants and/or low cost loans** for disadvantaged communities to invest in community renewable energy generation. These could be run on an “invest to pay” low or zero interest basis whereby one third of the FIT income was used annually to reduce the investment overtime.
- **Free energy efficiency measures** for people just above the benefit line as well as those on benefits.

They [the LCC] targeted people [for insulation measures] who didn't fall into the Warm Front area of being eligible for free insulation [i.e. people on benefits] but equally couldn't necessarily afford to put the insulation in themselves.... that's a huge gap which isn't being filled nationally but for something like twenty thousand pounds we did two hundred and eighty homes.' (EVALOC focus group, 2011)

- **Revenue funding for the core roles of local organisations** (local authorities, not for profits and community groups) including community engagement, the coordinated area wide delivery of measures to households, provision of integrated advice and support, and behaviour change.
- **The introduction of a properly resourced statutory duty on local authorities to reduce carbon emissions and address fuel poverty** with flexibility about the strategies and/or partnerships used to achieve this.
- **Income maximisation policies to reduce fuel poverty** including the simplification and regulation of fuel prices; living wage policies; training and apprenticeship programmes and hiring policies from disadvantaged groups etc.

'Regulation is still needed to make Household Energy Bills easier to understand, a single common format for billing should be required' (Ruth Sherratt –LCCC Manager Hillhouse Kirklees Council 2010-2013)

- **Progressive financing of carbon reduction measures** such as Feed in Tariffs (FIT), or the new Energy Company Obligation (ECO), to ensure that their cost is placed on above-average consumers of electricity or gas, ensure that the lowest users (which includes many low income groups and the fuel poor) do not pay anything towards these policies and help reduce potential backlash to these policies. This might be achieved either through financing the measures from income tax, or by instituting escalating block energy tariffs.

'If you make everyone energy efficient you put money into people's pockets which brings money back into the local economy'. (Mark Fishpool, MEC director, Middlesbrough)

- **Simplification of procurement rules** so that councils can get local firms to undertake local insulation programmes which in turn generate local jobs, and regenerate the local economy.
- **Wider policies to address structural barriers** to reducing energy use and carbon emissions at local level e.g. relating to financial incentives, independent technical

advice, trusted supply chains, perverse market signals, product labelling, consumerist pressures, etc.

'Carbon reduction needs to be championed by iconic figures or personalities respected by a wide range of economic groups. At the same time 'carbon excess' needs to be both regulated and made as socially taboo as smoking for example. It's surely not impossible to envisage a system of taxation against fuel consumption where the more fuel used the higher the additional tax paid, after all we already do that with Council tax, salaries and so forth.' (Ruth Sherratt –LCCC Manager Hillhouse Kirklees Council 2010-2013)

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Annex 1 Check list for carbon reduction projects

Effectiveness efficiency	Fairness/Justice
<p>Effectiveness - outcomes and impacts</p> <ul style="list-style-type: none"> • Carbon reduction • Socio-economic benefits – eg assets, financial savings, dividends, interest, health, jobs, income skills, confidence • Efficiency • Value of benefits compared to value of investment 	<p>Who decides, who benefits, who pays, who decides?</p> <ul style="list-style-type: none"> • Who decides - and who is involved in the decision making process (project selection, design, implementation, evaluation?) • Who benefits - financially, economically and socially from the initiative <ul style="list-style-type: none"> - e.g. assets, financial savings, dividends, interest, health, jobs, income skills, confidence etc • Who pays - financially, economically and socially? <ul style="list-style-type: none"> - e.g. through government grants/loans or private equity/loans; higher energy bills, regressive or progressive taxes, higher priced goods and services

(Ref. The framework is adapted from Policy Link which was initially developed in relation to Federal transportation policy in the United States. See Rubin, 2009)

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