

**Consistent Area Wide Emissions Profiles and Reporting
for Scottish Local Authorities**

20th March 2008

held at The Melting Pot, Edinburgh

Workshop Summary

Contents

1. Introduction and Purpose of Workshop
2. Morning Presentations: National & Local Context for Action on Climate Change
3. Afternoon Presentations: Community-Wide Reductions: The Available Tools
4. Group Discussion - Issues Raised and Recommendations
5. Annex 1: Workshop Programme and Participants List

1. Introduction and Purpose of Workshop

Climate Change has emerged as a significant issue for Scottish local authorities over recent years, with a number of policy levers, targets and initiatives helping support action. These drivers include:

- Scotland's Climate Change Declaration, to which all local authorities are signatories
- Development of a Scottish Climate Change Bill
- The Scottish Government National Targets:
 - To reduce emissions over the period of 2011
 - To reduce emissions by 80% by 2050
- The National Outcome supported directly by national and local government:
 - To reduce the local and global environmental impact of our consumption and production.
- Establishment of the Scottish Government-COSLA Concordat and the Development of Single Outcome Agreements.
- The National Performance Framework which includes an indicator on reducing Scotland's Ecological Footprint

All Scotland's Local Authorities have made a political and corporate commitment to action through signing the Scottish Climate Change Declaration. Through the Carbon Trust Local Authority Programme many Local Authorities have measured and put in place plans to cut their corporate emissions. However, less action to date has been undertaken at a community-wide level.

One particular challenge for Local Authorities in developing community wide action is establishing a baseline for emissions and projecting the impacts of policy decisions. Research undertaken for SNIFFER in November 2007¹ found that many Scottish local authorities are

¹SNIFFER climate change tools database and guidance is available www.sustainable-scotland.net/cc06/

using one or more carbon management tools to support such work, but that there is a lack of clarity on how these tools and their data sources compare and complement each other.

To explore this issue of measuring and influencing area-wide emissions, the Sustainable Development Commission Scotland and the Improvement Service, supported by the Sustainable Scotland Network and WWF Scotland, convened a workshop in Edinburgh on the 20th March 2008. The workshop drew together Local Authority managers and staff with experts on carbon tools and representatives of the Scottish Government and other public agencies. The workshop programme and participant list is provided in Annex 1.

The workshop sought to focus on the leading area-wide emissions tools and datasets – namely the Stockholm Environment Institute’s REAP tool, the Tyndall Centre’s GRIP tool and the AEA greenhouse gas inventory and experimental localised indicators - and explore how a consistent approach could be developed for use by all Scottish local authorities.

This paper summarises the main elements of the workshop presentations and discussions. Drawing on these discussions, a guidance note will be developed on a consistent and well-informed approach for local authorities and Community Planning Partnerships to measure and influence their area-wide emissions profiles. An outline of how the three tools/inventories profiled at the event complement each other, and could be brought together for use by local authority practitioners, is also being developed.

2. Morning Presentations: National & Local Context for Action on Climate Change

Speakers: George Tarvit, Sustainable Scotland Network; Stuart Nichol, Fife Council; and Bob Christie, Improvement Service

The last year has seen significant changes in the framework supporting Local Authority action on carbon.

The Scottish Government Framework

At the national level the minority SNP administration has established a single purpose for Government, namely

‘to focus the Government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth.’

The Purpose is supported by a National Performance Framework which includes a range of direct or indirect support for action on climate change. The Framework includes 9 ‘Purpose Targets’ including both a short term and long term target on greenhouse gas emissions (Table 1).

Underpinning the Purpose Targets are a set of National Outcomes and Indicators. National Outcome 14 is that *‘We reduce the local and global environmental impact of our consumption and production’*. Relevant indicators among the 45 National Indicators are:

- **Indicator 32:** Reduce overall ecological footprint
- **Indicator 38:** 50% of electricity generated in Scotland to come from renewable sources by 2020 (interim target of 31% by 2011)

While the Performance Framework is intended to guide action by national, rather than local government, it does provide a supportive context for local action on Greenhouse Gas (GHG) emissions.

Table 1: Scottish Government National Performance Framework Purpose Targets

Economic Growth (GDP)	<ul style="list-style-type: none"> • To raise the GDP growth rate to the UK level by 2011 • To match the growth rate of small independent EU countries by 2017
Productivity	<ul style="list-style-type: none"> • To rank in the top quartile for productivity amongst our key trading partners in the OECD by 2017
Participation	<ul style="list-style-type: none"> • To maintain our position on labour market participation as the top performing country in the UK and to close the gap with the top 5 ECD economies by 2017
Population	<ul style="list-style-type: none"> • To match average European (EU15) population growth over the period from 2007 to 2017, supported by increased healthy life expectancy in Scotland over this period
Solidarity	<ul style="list-style-type: none"> • Increase overall income and the proportion of income earned by the three lowest income deciles as a group by 2017
Cohesion	<ul style="list-style-type: none"> • Narrow the gap in participation between Scotland's best and worst performing regions by 2017
Sustainability	<ul style="list-style-type: none"> • Reduce emissions over the period to 2011 • Reduce emissions by 80% by 2050

Single Outcome Agreements and the Concordat

The Scottish Government has also transformed the relationship between National and Local Government through the Concordat agreement and the development of Single Outcome Agreements (SOAs). SOAs are intended to form the basis of a new partnership between national and local government, providing greater freedom to Councils to deliver outcomes of local need through reduced ring fencing and bureaucracy and more streamlined scrutiny and inspection.

In return for these new freedoms Local Authorities are expected to contribute towards the 15 National Outcomes. However, while SOAs do cover all 15 National Outcomes, individual LAs are not expected to deliver significant action against every one – rather the main areas of action are intended to be based on an local priorities and need.

Other National initiatives

From 2009, Scottish Local Authorities using 6000 Mwh of electricity will become part of the **Carbon Reduction Commitment (CRC)**. The CRC will impose a 'cap and trade' system whereby Local Authorities will be set a target for carbon and then have to cut their emissions or buy carbon credits from elsewhere.

Recently announced, a Scottish **Climate Challenge Fund** will help support community level action on climate change. Both capital investment and education/behaviour change projects will be eligible for support with £18.8 million over three years available.

Local Authority Action on Climate Change

Scottish Local Authority action on climate change is supported directly by a range of initiatives.

Scotland's Climate Change Programme includes a commitment to work with COSLA and the SSN to develop a **Scottish Local Authority Climate Change Programme (SLACCP)**. A SLACCP development group was established in summer 2006 with representation from the

Scottish Government, COSLA, SOLACE, Improvement Service, SSN, SNIFFER, Carbon Trust, EST and the UKCIP. SEPA joined the group in mid-2007.

The SLACCP Development Group has sought to progress work on a range of issues seen as critical by SSN members, including:

- Leadership and the delivery of commitments made under the Scottish Climate Change Declaration (see below)
- Legislation, particularly the Local Government in Scotland Act and Climate Change Bill
- Developing programmes for action, improving co-ordination and filling gaps
- Culture change, communications and training
- The role of audit and scrutiny in promoting more action on climate change
- Identifying and delivering the resources required to support local action
- Linking climate change with wider work on sustainable development

The SLACCP Development Group was also responsible for the development of **Scotland's Climate Change Declaration (SCCD)**. This was launched in January 2007 and has been signed by all 32 of Scotland's Councils. The declaration commitments address:

- Emissions from signatories' own operations
- Incorporation of emission reductions and climate change adaptation into strategies, plans and programmes
- Emission reduction and climate change adaptation engagement with the local community
- Working collaboratively with others and providing an annual public statement on progress

Several members of the SLACCP Development Group offer support programmes to assist local authorities in delivering the commitments, including the Carbon Trust, the Energy Saving Trust and the SSN-hosted Local Footprints Project.

The **Carbon Trust** assists local authorities to reduce direct estate emissions, and is discussed in more detail in Section Four. The **Energy Savings Trust** offers a variety of support services to assist in raising awareness and changing behaviour. In June 2008, the EST launched the Energy Efficiency Scotland Advice Centres to provide consumers with advice on energy efficiency, micro generation and sustainable travel.

The **Local Footprints Project** is a joint project between WWF Scotland and SSN supported by the Government, Improvement Service and others to provide support to local authorities wishing to tackle area-wide emissions. A Project report '*The Right Climate for Change*' on the CO₂ aspects of the REAP tool was published in November 2007. The Project also published a briefing on using the Ecological Footprint in SOAs (available at www.localfootprints.org).

The SLACCP Development Group arrangements have recently been revised, to align them to the principles of the Concordat and the forthcoming SOAs, and to relate more formally to the political structures of COSLA. A joint SSN-COSLA proposal on new ways of working was tabled at the COSLA Climate Change Task Group meeting on 3rd June 2008. This paper was supported by the Task Group and the establishment of a new Officer Support Group will now be taken forward. The Officer Support Group will re-refresh the SLACCP Development Group, ensuring that the Group is given clear political direction from COSLA and providing a means by which the Group can make recommendations for political decisions. It is hoped that the new COSLA Climate Change Task Group and Officer Support Group structure, drawing in technical expertise and professional contributions where and when necessary, will prove an effective approach to progressing the Scottish Local Authority Climate Change Programme envisaged in the Scottish Climate Change Programme published in 2006.

3. Afternoon Presentations: Community-Wide Reductions: The Available Tools

Speakers: John Stocks, Carbon Trust; Justin Goodwin, AEA; John Barrett, SEI-Y; Sebastian Carney, Tyndall Centre

Based on the outcomes from the SNIFFER 'Climate Change Tools' research in 2007, the seminar reviewed three leading area-wide emissions 'tools', along with the Carbon Trust's Local Authority Carbon Management Programme, which is key to addressing council estate emissions. These were:

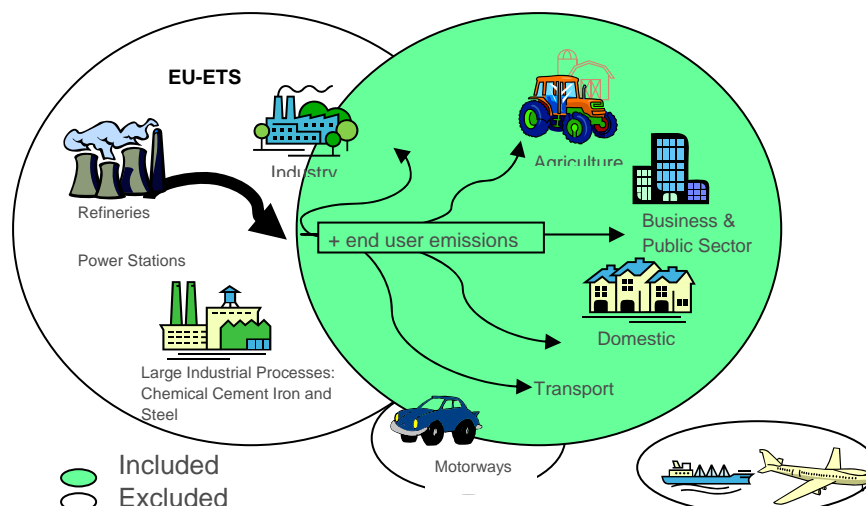
- AEA's National Atmospheric Emission Inventory (NAEI) and the related experimental local inventories and indicators
- Tyndall Centre's Greenhouse Gas Regional Inventory Project (GRIP)
- Stockholm Environment Institute's Resources and Energy Analysis Programme (REAP)

The **National Atmospheric Emission Inventory (NAEI)** is managed by AEA Energy and Environment for Defra. In strict terms it is not a software tool, rather a source of information on greenhouse gas emissions. Its main purpose is to track whether the UK is on course to meet national or international targets. At the sub-national level it can be used to show if reductions are aligned with the aims of national policy and also what are the key drivers for emissions.

Using the emissions from the NAEI database AEA estimate the area-wide emissions. An experimental dataset of area-wide LA CO₂ emissions has been produced for each year from 2003. AEA estimate the LA area-wide emissions by developing a local subset of the NAEI database and allocate emissions in sectors that can be influenced by local actions. For example, AEA allocate emissions from fuel producers to fuel users (e.g. power station emissions to users of electricity), and then use spatial datasets to allocate these emissions to local authority areas. EU-ETS emissions (energy supply industries, large processes and some other industrial/commercial operations), motorways, shipping and aviation emissions are also excluded.

This experimental dataset is one of the national indicators used by Defra to monitor local authority progress in England. Figure 1 below illustrates the boundary of the AEA area-wide emissions.

Figure 1 Boundaries for LA Area-wide CO₂ Indicator developed by AEA



GRIP (Greenhouse Gas Regional Inventory Project) was developed by Dr. Sebastian Carney of Manchester University and the Tyndall Centre. GRIP has been used at a practical level on a number of projects including the Glasgow and Clyde Valley Structure Plan and through workshops with SEPA and Scottish Enterprise. GRIP is a dynamic consensus building and communications tool that can help strategic partners understand the underlying assumptions, limits and opportunities for area wide emission reductions.

The GRIP approach is comprised of two parts: 1) a regional greenhouse gas inventory methodology, 2) an energy emissions scenario tool that allows a user to assess the carbon implications of different energy futures.

The tool (see Figure 2 below) is the front-end face of a complicated energy system model which provides the user with immediate feedback in terms of emissions, efficiency and energy consumption within the Domestic, Services, Light Industry, Heavy Industry, Energy System and Transportation sectors. The final output from the tool provides the stakeholder with an emissions estimate for the scenario, a total figure for energy consumption and an assessment of the required efficiency improvements necessary to deliver such a future.

All emissions associated with the consumption and combustion of fuel within the region are accounted for in GRIP as emissions from the Energy sector. This includes energy consumed in the home, by industry and commerce, as well as from transportation, agriculture and offshore and onshore fuel extraction. For the purposes of GRIP, emissions associated with the production of electricity are attributed to the consumer.

Figure 2 Screenshot of the GRIP Tool



REAP (Resource and Energy Analysis Programme) was developed by the Stockholm Environment Institute (SEI) at York University. It offers a consumption-focused approach inclusive of indirect emissions and enables local authorities to develop scenarios to achieve CO2 and Ecological Footprint reductions.

REAP is an interactive database allowing the user to view data by:

- Local authority area – any in UK
- A variety of indicator (including CO2, Ecological Footprint and other GHGs)
- Consumption categories (housing, food, transport, consumables, private services).

These results from REAP are region-specific, comparable, standardized and updated regularly. They take into account the direct and indirect pressures of consumption of products and services throughout the economic supply chain.

REAP relies on several modelling approaches and data inputs. Using Input Output models and material flow analysis allow SEI to map products required for UK consumption and create sub-national accounts based on data sources and modelling of consumption behaviour. REAP also allows users to input their own consumption data. Figure 3 provides an illustration material flows and impacts method used by SEI. Figure 4 is a screenshot of the REAP tool.

Figure 3 Illustrates the material flow analysis method used SEI to measure impacts

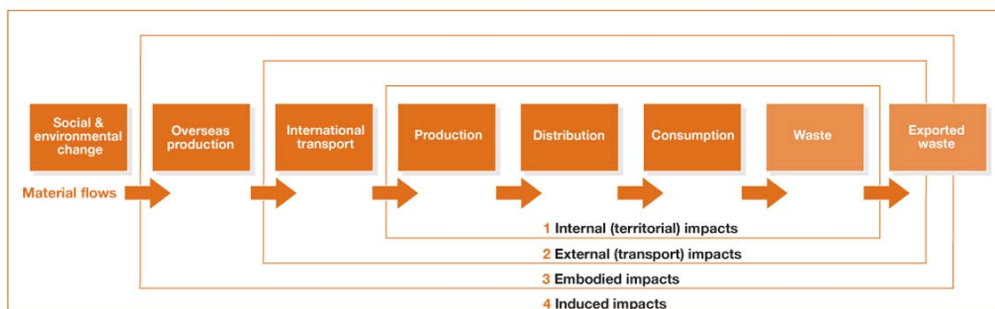
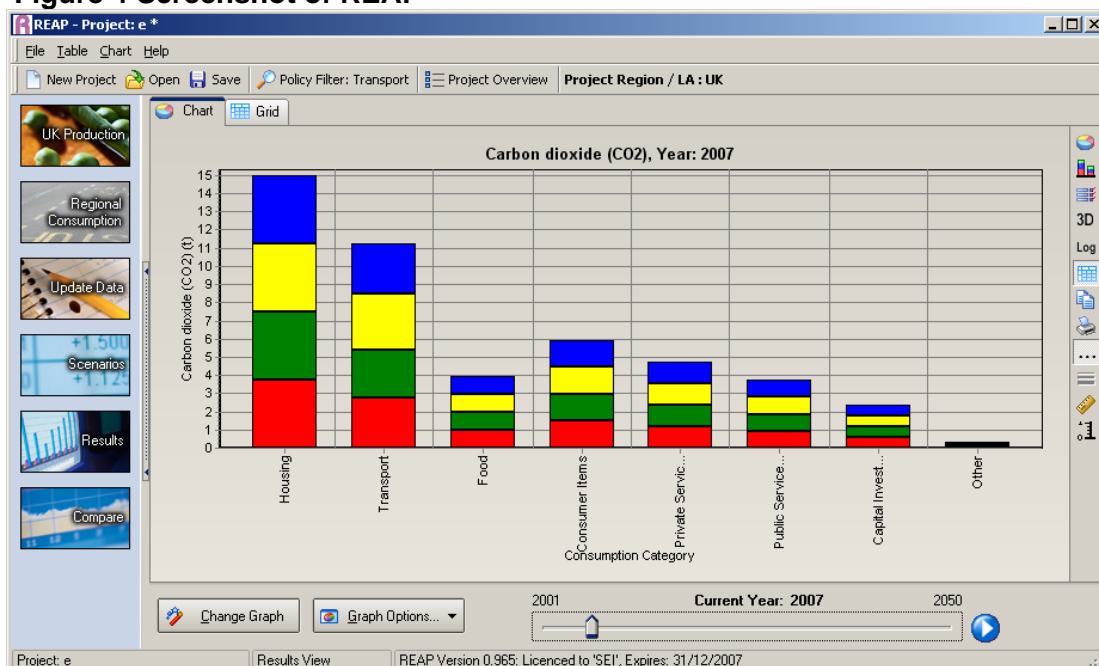


Figure 4 Screenshot of REAP



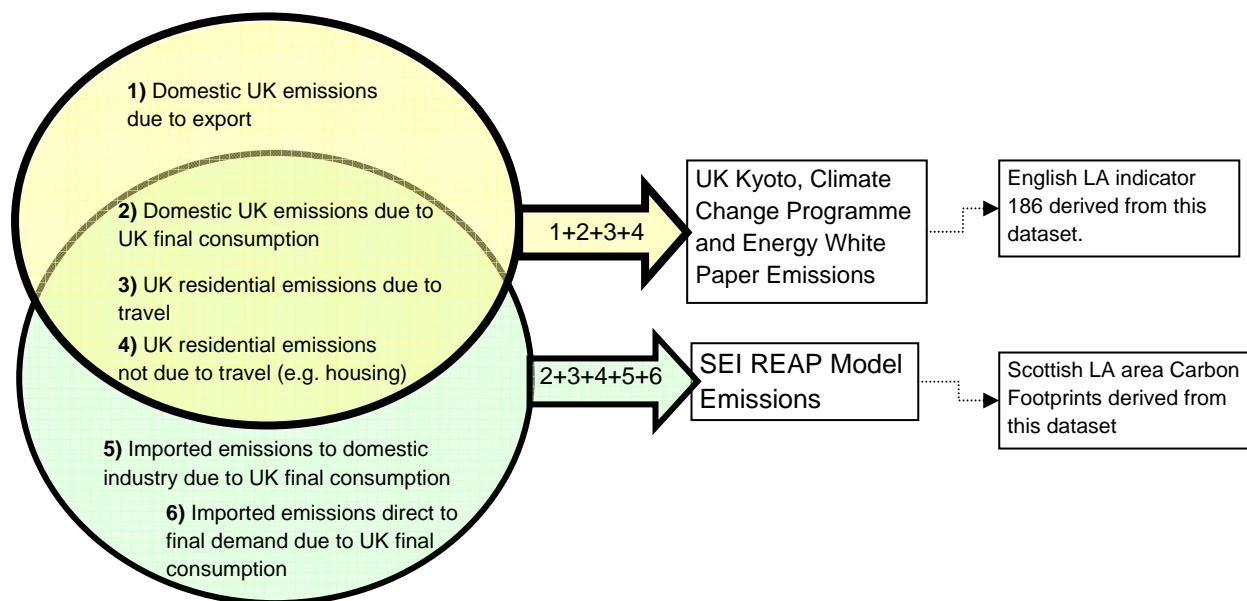
The **Carbon Trust Local Authority Carbon Management Programme (LACMP)** was profiled at the workshop, to recognise the important and on-going contribution that this approach can and has provided to Scottish local authorities in terms of measuring and managing their own, direct corporate emissions. The Carbon Trust LACMP has proved to be the main programme of support for Local Authorities aiming to assess and cut their council estate emissions. The programme uses software and outside support to help Councils quantify and cut their estate GHGs. Twenty-four of Scotland's Local Authorities have been involved in the Carbon Trust programme to date. By March 2009 all but one of Scotland's Councils is expected to have used the programme.

Discussion at the workshop indicated that the various tools should be seen as being complementary to each other rather than as being in competition. A draft proposal outlining this complementarity was outlined by SSN at the start of the seminar (see Table 2 below) and has been further developed through joint working between the Local Footprints Project, AEA, SEI-Y and the Tyndall Centre (See in Figure 5). If properly applied all these tools should have the potential to contribute to Local Authority action on greenhouse gas emissions and to make the connection between measures undertaken at the level of the individual, neighbourhood and wider community as well as by organisations.

Table 2: Presented by SSN at the Workshop as a proposed framework for using the tools in combination

	Approach	Indicator / Target
Direct, own estate/services	Carbon Trust LACMP, focusing on carbon measures and action plans for councils' own estates and services.	Each LA determines target and the areas to prioritise based on the LACMP baseline and tool.
Area-wide measures	AEA (focused on production-based emissions) REAP (focused on consumption-based emissions, also enabling scenario planning and assessment of policy interventions)	In England National Indicator 185 requires LAs to reduce their community-wide emissions.
Task specific tools	REAP 'Scottish specific' calculators, such as on housing, transport, etc. GRIP, useful for developing overarching scenario 'storylines' and projections, and effective for use with Community Planning and Strategic Land-use Planning. EST's Home Energy Efficiency Database (HEED) – focused data-gathering which filters in to REAP, etc.	One optional SOA indicator for LAs is no. 32 reduce carbon/ecological footprint
Community	REAP 'Petite' Community Calculator, which is being used and is under development	
Household / Individual	WWF Footprint Calculator Act on CO2 Calculator	
	<i>EST and others provide programmes and interventions that support action</i>	

Figure 5 Emissions Boundaries and complimentary data approaches between NAEI and REAP datasets



4. Group Discussion – Issues Raised and Recommendations

There was agreement that Scotland was in a good position to take forward local action on climate. Key positive factors included:

- That there are only 32 Local Authorities making networking and collaboration easy
- All Councils have signed the Scottish Climate Change Declaration
- The SLACCP development group can support action and build capacity
- The national framework, particularly the National Outcomes and Concordat can underpin action
- Many of the support programmes are well-established and have widespread local authority engagement and support (notably CTLACMP and LFP/REAP)

Despite this a number of broad barriers to further action were identified. These included:

- Councils only have limited powers to influence action by other organisations and individuals in their area.
- There was some confusion on which tools to use for which purpose. The technical note being prepared by the tools providers will help provide clear guidance on how tools ‘nest’ together
- It is difficult to quantify the impact of an organisation on emissions outside the direct sphere of influence (i.e. how do you quantify the impact of an organisations like Visit Scotland on tourism numbers and their carbon footprint).

Underpinning these were a range of other issues related to the **policy context** for action, **technical issues** for tool use. The following pages provide a summary of the discussion and recommendations from workshop participants on the policy context and technical issues.

Issue One: Policy Context

Single Outcome Agreements were seen as having great potential to support action on climate change, particularly given the corporate commitment to action made through the Declaration. However while some councils have included climate change in their SOA it was felt that most Agreements were not likely to include significant action on climate.

It was noted that the second round of SOAs, for Community Planning Partnerships (CPPs) were due for publication in summer 2009. CPP Outcome Agreements were felt to be more appropriate to the delivery of community-wide action on climate and it was suggested that Local Authorities begin consideration now as to how to best integrate climate change into these.

It was noted that the Sustainable Development Commission's annual review of Government will this year include an appraisal of the extent to which the Local Authority Agreements incorporated climate change.

In policy terms the establishment of the Carbon Reduction Commitment (CRC) was felt to be positive in helping increase corporate awareness of carbon management. However, concern was expressed that many public bodies will hold off from undertaking any action on carbon until the baseline year (2009) so as to maximize the savings achieved after that date.

In terms of the general approach to carbon management adopted by Local Authorities and CPPs it was agreed that all action should be undertaken on the basis of a clear hierarchy, with conservation and efficiency of use preferable to the use of renewables, which in turn is preferable to offset. It was also suggested that not all developments that lead to an increase in local emissions should be considered as equally bad (i.e. community emissions growth as the result of a new wind turbine manufacturing plant being established are preferable to those from a new road as they help promote a wider low carbon economy). Such factors need to be addressed in any community carbon plan.

Procurement was identified as an area where greater support and advice is required to help Local Authorities and communities make the best carbon decisions.

Workshop Recommendations – Policy Context

1. To better integrate climate change into SOAs, it was felt that COSLA should provide a strong steer to Councils on the need for action, with the enacting of the Scottish Climate Change Bill also helping to highlight the importance of this agenda.

The issue of indicators, audit and performance assessment of Local Authorities was also raised.

2. In terms of indicators it was argued that Local Authorities need area wide indicators that:
 - Are well aligned, consistent and clearly understood
 - Are based on easy to use, empowering tools
 - Are linked clearly to national targets, indicators and outcomes
 - Enable Scottish LAs to collectively discuss and agree targets and policy responses

With regard to performance assessment it was noted that in England the auditing framework for climate change is better supported by specific performance indicators including **NI185 is on CO₂ reduction from LA operations** and **NI186 is on per capita CO₂ emissions in the LA area**.

3. It was suggested that SLACCP work with Local Authorities to help develop useful and comparable indicators on both climate change mitigation and adaptation.

Issue Two: Technical Issues

A range of technical issues related to the tools were raised during the Workshop. As a general point it was felt that more action was required to standardize and ease understanding of the data sets and conversion factors underpinning tools, and those tools had transparency and were adaptable to the use of localised data.

It was argued that more could be done to make the various tools more user friendly, with enhanced training on their usage beneficial. It was also agreed that it was essential that tools helped linked emission modeling easily to scenario development and policy evaluation, enabling forward casting of different policy options.

Discussion was also undertaken on the scope of emissions to be included in any community inventory. At the local level the NAEI inventory excludes a range of emissions related to national power generation and major infrastructure. In contrast the REAP tool focuses on consumption and thus includes emissions that are part of the wider footprint of the community.

The group also discussed the degree of accuracy of local emissions models. With the NAEI the margin of error for data ranges from 2-5% for gas and electricity to 30% for local use of industrial solid and liquid fuels. The greatest uncertainty is thus for Local Authorities with higher usage of solid and liquid fuels and with a higher percentage of minor roads. Therefore it is largely rural areas where there is the greatest possible margin of error in quantification if using the NAEI. Other tools also have levels of accuracy inherent in them and users need to be aware of these.

Workshop Recommendations – Technical Issues

Local Footprints will facilitate further discussions with the tool providers to address the following issues.

1. Improve the usability of tools – making them more user friendly and compatible

The workshop attendees stressed that ease of use is critical to future uptake of these methods. In particular, the workshop attendees requested that AEA and SEI work together to provide results showing which portion of the Carbon Footprint can be directly related to national and international targets (e.g. Kyoto Protocol).

2. Provide further training and support for tool users

Several programmes and organisations provide support for LAs in using these tools including, SSN, Local Footprints, and Glasgow and Clyde Valley Structure Plan Team. Continued support from these organisations is critical to meaningful area-wide inventories and reductions.

3. Provide a concise guidance on using these tools, including the data inputs, and results comparability.

This paper is the first step in compiling guidance on using the tools in combination. The tool providers are currently working together to develop this guidance, facilitated by Local Footprints Project.

4. Identify a test case to use GRIP and REAP in combination in one LA region

Since the workshop, Local Footprints has worked with the tool providers to further explore data issues and comparability of results. As mentioned previously, Figure 5 provides an illustration of the way the tool providers use the same basic data to derive their inventories.

Further work is being undertaken by SEI and Tyndall Centre to test using the GRIP and REAP tools in combination. Initial thoughts indicate that using these tools together could be advantage for LAs to engage strategic partners (e.g. energy suppliers) who have wider influence than the council in reducing area-wide emissions. SEI and Tyndall Centre are currently exploring the feasibility of this recommendation.

ANNEX 1: Workshop Programme and Participants List



Consistent Area Wide Emissions Profiles and Reporting for Scottish Local Authorities 20th March 2008

- 1000 Arrivals – coffee and tea
- 1030-1050 Chair's Welcome, Introductions and Workshop Purpose
- Prof Jan Bebbington, SDC Scotland Vice Chair
- 1050-1145 Scene setting: local authorities implementing SCCD
- George Tarvit, Development Manager SSN and Chair SLACCP
 - Bob Christie, Improvement Service
 - Stuart Nichol, Executive Director Environment and Development Services Fife Council
 - John Stocks, Carbon Trust
- 1145-1200 Q&A
- 1200-1300 lunch
- 1300-1400 Tool Providers Presentations
- Dr. John Barrett, Stockholm Environment Institute
 - Justin Goodwin, AEA Technologies
 - Dr. Sebastian Carney, Tyndall Centre & Manchester University
- 1400-1430 Tool Providers Q & A
- 1430-1530 Round table discussion: Tool and Data Compatibility
- 1530-1600 Next steps – action points
- 1600 end.

	<i>First Name</i>	<i>Last Name</i>	<i>Organisation</i>
1	Justin	Goodwin	AEA Group
2	Andrew	Amato	Energy Saving Trust
3	Harry	Mayers	Energy Saving Trust
4	Stuart	Nichol	Fife Council
5	Sebastian	Carney	Tyndall Centre; Greenhouse Gas Regional Inventory Project
6	John	Barrett	Stockholm Environment Institute York University
7	Marion	Mulholland	SCCIP/SNIFFER
8	John	Landrock	Scottish Government
9	Cameron	Maxwell	Scottish Government
10	Brian	McGarry	Scottish Government
11	Alistair	Montgomery	Scottish Government
12	Claire	Wainwright	Scottish Government
13	Clive	Mitchell	Scottish Natural Heritage
14	Jan	Bebbington	Sustainable Development Commission
15	Phil	Matthews	Sustainable Development Commission
16	Charlotte	Ratcliffe	South Lanarkshire Council
17	John	Stocks	The Carbon Trust
18	Janice	Pauwels	The City of Edinburgh Council
19	David	Evans	East Lothian Council
20	Bob	Christie	Improvement Service
21	Amie	Fulton	Sustainable Scotland Network
22	George	Tarvit	Sustainable Scotland Network
23	Elizabeth	Leighton	WWF Scotland
24	Charles	Russell	Glasgow Caledonian University
25	Sheila	Scott	Glasgow Caledonian University
26	Peter	Singleton	Scottish Environmental Protection Agency
27	Doug	Flint	Health Facilities Scotland
28	John	Dunlop	Health Facilities Scotland
29	George	Eckton	Glasgow and Clyde Valley Structure Plan Team
30	Osbert	Lancaster	Footprinting Consultanting Ltd.