Energy Demand Research Project: Final Analysis

Appendix D: SSE Community Trials

Prepared by: Gary Raw and David Ross
Regional Directors

Checked by: David Ross
Regional Director

Approved by: Andrew Cripps
Regional Director

Energy Demand Research Project: Final Analysis

Rev No	Comments	Checked by	Approved by	Date
2.2	Final version	David Ross	Andrew Cripps	21/06/11

AECOM House, 63-77 Victoria Street, St Albans, Hertfordshire, AL1 3ER
Telephone: 01727 535000 Website: http://www.aecom.com

Job No 60163857 Date Created June 2011

This document has been prepared by AECOM Limited for the sole use of our client (the “Client”) and in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM Limited and the Client. Any information provided by third parties and referred to herein has not been checked or verified by AECOM Limited, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of AECOM Limited.

Capabilities on project:
Building Engineering

Appendix D: SSE community trials[1]

D1 Trial design

D1.1 Objectives

The objectives of SSE's community trials were to:

- test the effect of community involvement on behaviour and electricity demand reduction;
- gain experience of methods to reduce consumer demand of electricity;
- gain experience of methods to reduce peak demands for electricity;
- test the feasibility of making a sustained reduction in demand across a whole community;
- encourage the community to make proposals for saving energy.

D1.2 Selection of communities

Three communities were selected for SSE's community trials, in different geographic areas. Criteria for selection included:

- a village served by a limited number of electricity substations, suitable for the installation of metering equipment;
- absence of large loads that could mask changes in domestic demand;
- community organisations that are receptive to taking part in the trial.

The community projects involved customers who were not involved in the main SSE household trials. These were based in three selected villages:

- England – North Leigh, Oxfordshire (NL)
- Scotland – Alyth, Perthshire (AL)
- Wales – St Athan in the Vale of Glamorgan (SA)

Limited information is provided on how these three communities were selected but reporting suggests communities were invited to submit proposals setting out how they would go about achieving energy savings.

Both NL and AL already had established community groups with a focus on environmental issues. NL's Energy Efficiency Project had been under way for over two years and the village had an established goal of becoming the most energy-efficient village in England. EDRP built on this, providing additional resources, project management and a tangible, incentivised target. AL's Environmental Group had been working on environmental issues for several years, focusing on climate change issues through its Climate Action Town project. EDRP provided additional funding and support to broaden the community's endeavours.

In SA however, no such group existed. Therefore the trial process involved establishing a steering group of local residents to drive the project forward.

Household-level interventions were provided in some homes, including smart meters. Selection of (SSE customer only) households for smart metering was determined by their position on the electricity network in relation to the chosen substation.

[1] This appendix describes the trials according to the account provided by SSE – no further analysis has been undertaken. Communities NL, AL and SA are the villages participating in England, Scotland and Wales respectively.

D1.3 Interventions and incentives

The community trials each involved:

- real time metering of electricity substations;
- feedback of energy consumption information to the communities via a range a media (including website, local newsletters, local media, notice boards and electronic display);
- a focused campaign to provide energy efficiency information and advice to the community, backed up by grants for demand reduction measures;
- an incentive reward for the communities to save energy.

Each community had the same target and incentive: a £20,000 community project prize for achieving an average 10% reduction in electricity consumption over a three month period compared with the same three month period in 2007-8.

Other than the set of consistent interventions described above, communities were given a free rein to pursue their targets (see Section D4).

D2 Changes in energy consumption

SSE collected energy consumption data for three winters (2007-10) and two summers (2007-9).

Statistical analysis of household energy use by SSE customers showed that all three communities reduced their energy consumption to a greater degree than control groups composed of a random selection of customers from adjacent postcode areas. The decrease is estimated to be 444 kWh (with a range of between 193 and 695 kWh) over a year. The analysis included all customers with two years of meter readings prior to the project commencement; sample sizes for the three communities (and control groups) were 88 (2235), 65 (283) and 130 (3368) for NL, AL and SA respectively.

The three communities were also monitored each month using substation data as a basis for deciding whether or not they had met the target of an average of over 10% reduction for three consecutive months, December 2009 to February 2010 compared to the same period in 2007-8. The substation data do not represent each community exactly but reflect a significant proportion of the community and generally will cover the key central areas of each community. The main reasons for any divergence between substation, whole community and SSE customer data (as reported above) would be as follows.

- Some peripheral areas of the community may not be included. In substation data
- All buildings and electricity uses within the community are included, e.g. residential homes, community buildings, shops and other businesses.
- All villagers are included whether they are SSE customers or not.
- Any new housing development or new business start-up during the monitoring period will be included in the target period but not the baseline.
- The community is only measured on electricity usage.
- Smart meters and RTDs were installed for only a small subset of SSE customers.
- SSE community initiatives would almost certainly have reached SSE customers (e.g. energy advice leaflets) and, depending on the particular initiative, may have reached the wider community. Community-based events that SSE actively promoted and supported targeted the entire community.

NL and AL achieved the target. In fact, NL exceeded the target by averaging 10% over a four-month period and additionally achieved a reduction of between 1% and 9% every month from October 2008 to February 2010. NL averaged a 6% monthly reduction over the whole 18 months and AL a 4% reduction. They were each awarded a £20,000 Community Project Prize.

The third community, SA, was deemed to have achieved approximately 50% of the target and was awarded 50% of the prize, i.e. £10,000. The average monthly reduction was just 0.7% over the whole trial period, with consumption actually increasing for 9 out the 16 trial months. SA had its trial period extended by nine months in recognition of its late start, recent initiatives and the likely impact of factors outside the residents' control:

- some houses completing total refurbishment and being occupied;
- a nursing home having refurbishment work;
- a new housing estate of 16 units being completed and occupied;
- one of the local pubs increasing its opening hours.

It is difficult to disentangle the influence of EDRP from other community initiatives in these villages. However, the substantial community involvement and commitment that predated the trials in NL and AL may help to explain why these villages did so well compared to SA, where no such prior engagement existed.

D3 Market research

Market research was undertaken in the SA and NL communities from November 2009 to February 2010 to ascertain any differences between the two communities that could account for the differences in the measured energy savings. A combination of desk research, telephone depth interviews (n=7, 30-40 minutes) and face-to-face interviews (n = 660, 20 minutes) explored community organisation, socio-demographics and the level of incentives delivered by SSE.

The survey results show key differences between the two communities (Table D.1). These data suggests that there are notable differences in levels of affluence and awareness of the trials in the two communities. In particular the clip-on RTDs and recall of energy efficiency advice are much more prominent in NL. Whilst the RTDs were available in larger quantities in NL, SSE also attributes the more positive outcome to the 'doorstep presence' and provision of assistance with installation in NL.

Table D.1 Key differences between NL and SA

	NL	*SA*
Socio-economic group	57% A/B/C1, 12% E	33% A/B/C1, 27% E
Detached / terraced houses	48% / 8%	11% / 41%
Houses with 4+ bedrooms	33%	13%
Awareness of the trial	96%	59%
Awareness of trial target	88%	52%
Customers with RTD	230	37
Recall of receiving the advice leaflet	56%	29%

Out of things villagers thought SSE had done well; information, equipment, funding, and targets were all mentioned by large proportions. Over 25% mentioned the "man on the ground" in NL. The higher number of RTDs taken up in NL was said to be a result of SSE's doorstep presence in NL, larger quantities being available and provision of assistance with installation.

Just over 75% of participants thought the RTD was either useful or very useful. Of those who recalled seeing the advice booklet, over 70% had a positive view about it.

D4 Overview of each community trial

D4.1 Introduction

To assist with achieving the community challenge or objective, residents who agreed to participate were given smart meters (if SSE customers), RTDs (*Current Cost Meter* real-time displays), and a range of other interventions. SSE provided specific advice and services as well as leveraging resources and services from other specialist suppliers.

From June 2009, residents had access to the SSE Community Energy Viewer website (and a reminder letter was sent in October 2009 to all households who were SSE customers). This provided web information at community level. Access was the same as for the individual customer SSE Energy Viewer with username and password from the Reduce My Energy website hyperlink. The features and displays were also the same as SSE Energy Viewer but with two methods of display.

1. SSE Energy Viewer access. If the customer had individual SSE Energy Viewer; the community information displayed as an additional tab to the electricity and gas tabs.

2. Generic Community Access. This used a generic username and password that anyone in the community could have, even if they were not SSE customers. This gave them access to the community data only, using the community tab.

Various other initiatives were used in each community, as detailed in the following sections and summarised in Table D.2. Figures in brackets show the number of households receiving the intervention (this information was not consistently available for all communities and interventions). These interventions were not specifically measured, monitored or timelined. However, as far as feasible, estimates have been made on the number of interventions and participants in each community activity.

Table D.2 Interventions and activities in the three communities

	NL	*AL*	*SA*
Smart meters in individual households	✓ (162)	✓ (224)	✓ (140)
Smart RTD	✓	✓	✓
Clip-on RTD (self-installed)	✓ (230)	✓	✓ (37)
Clip-on RTD (assisted installation)	✓		
Public community energy display screen	✓		
Infrared imaging of homes	✓ (all)	✓ (10)	
Door-step energy advice visits	✓ (361)		✓
Energy advice leaflet	✓	✓	✓
Free CFLs and powerdown devices	✓	✓	✓
Energy-efficient appliances purchased through voucher scheme or special offer	✓		✓
Insulation measures installed	✓ (28)	✓	✓ (24)
Community energy viewer (website)	✓	✓	✓
Community group website	✓	✓	
Community events	✓	✓	✓

D4.2 North Leigh

D4.2.1 Community background and organisation of the trial

NL consists of a population of 2000 in 805-825 households, with 495-550 (61-66%) being SSE customers. The Mosaic profiling of the community is mainly groups A (Symbols of Success), B (Happy Families), C (Suburban Comfort) and H (Blue Collar Enterprise).

The local committee, Challenge North Leigh (CNL) existed prior to the start of the EDRP trial (23 June 2007) and had its own website, providing information on activities, events and achievements. Committee meetings were held each month. The Chair of the group was a retired head teacher who provided private tuition for teachers. The other members of the group were a mixture of employed and retired individuals. They held a proper AGM to nominate the position of Chair, Secretary and Treasurer.

The group remained fairly consistent with four or five of the members involved for over a year. A core group of about eight or nine attended the monthly meetings but a few dropped out for personal reasons and one or two new recruits joined, including someone who was involved with the original set-up of the group.

The District Council provided some assistance towards the end of the project and proactively supported the Give and Take sale[2] and later Green Fair, and promoting recycling. Council staff were employed on a "9-5" basis and this limited their involvement as activities took place outside the working day.

D4.2.2 Interventions employed

A member of SSE's Value on Every Visit Team (VoEVT) or Doorstep Assistance started work in the community in August 2008, calling on every home at least once to offer individual face-to-face advice.

The following specific interventions were recorded.

- 214 smart meter households served by SSE at the start of the project (189 still served at the end).
- 431 RTDs provided to both SSE and non-SSE customers (348 were set up with 82 requiring re-setting). During visits, assistance was given with installation and advice on use.
- 607 infrared surveys carried out, with the results mailed directly to the household, along with an Energy Performance Certificate rating (estimated from the infrared data) and an insulation offer. No households took up the offer of insulation.
- 409 energy advice booklets given out.
- 405 individual requests were made for the VoEVT member of staff to re-visit to provide further advice.
- 96 compact fluorescent lights (CFLs) handed out by VoEVT.
- 95 thermometer cards provided.
- 50 smart meter requests made via VoEVT.
- 30 standby savers handed out.
- 21 cavity wall and loft insulation measures were installed (47 enquiries were made and 26 jobs were cancelled).
- 1,300 CFLs were purchased utilising a £25 voucher supplied by SSE.

[2] An event at which people could bring something then did not want and take something they did.

D4.2.3 SSE initiatives generally in the community

SSE's involvement with CNL began in September 2007 with attendance at the meeting to launch the initiative. A letter was sent to all residents to introduce the project and its aims and objectives. Every month, details of the energy usage were sent to CNL to show how they were progressing. Regular press releases announced events and significant achievements.

A display unit was installed in the Village Hall which included details of the energy usage, SSE information on insulation offers and news of local community events such as the Green Picnic or Winter Fair.

During the course of the project, several letters were sent direct to the residents to remind them of the initiative and to offer further interventions such as infrared surveys, low energy lighting or insulation.

Between the smart meter installations, energy advice and re-visits to correct faulty equipment, over 470 home visits were made. This equates to 58% of the community as a whole.

D4.2.4 History of events with SSE support

21 September 2007. Launch event with a raffle prize draw to encourage attendance and community involvement.

August 2008. Summer Fair – first event held by community at which SSE attended. VoEVT was present to provide an SSE profile, answer any queries and provide free items such as CFLs, standby savers and RTDs.

November 2008. Winter Fair. Held in Village Hall with stands covering local community groups and individuals offering products. Raffle to win small prizes provided by local organisations or individuals. SSE attended with a stand to provide energy advice.

April 2009. Give and Take sale, to encourage people to recycling unwanted clothes and other items. SSE carried out its usual advice and offerings.

June 2009. Summer Fair, held on the village green with a hog roast, bouncy castle and raffle. SSE attended, providing giveaways such as CFLs and standby savers.

December 2009. Winter Fair. VoEVT attended with a stand and provided advice on energy efficiency, meter reading, billing, insulation, etc.

April 2010. Green Fair. The last event SSE was involved with as the project's objectives had been achieved. VoEVT attended as the continuing 'face' of SSE within the village over the previous 18 months.

On average these events attracted around 50 people from the local community and generally speaking it was a similar group of people who attended, despite the best efforts of the committee group to expand.

D4.2.5 Elements of the community that were involved

Several local groups had stalls at the Green Fair – the Scouts and Guides, Windmill Players (who also promoted energy saving through a spot in one of their productions), Fair Trade, British Legion, Children's Society, Transrural Trust, ClimateXchange, Master Composter, the Wychwood Project (raising awareness of local environmental issues), Friends of NL Common and the Village Church (and the WI and three local pubs provided refreshments).

ClimateXchange and Master Composter also participated in Give and Take sales, along with the village school (which also designed the logo and made links with the eco-schools group).

The Gardening society provided tables for events.

D4.2.6 Feedback from the community

“The target was realistic as it was achieved!”

“We received excellent support from SSE representatives.”

“It was difficult to draw up a project plan as we didn't feel totally in control of the project and there were times where unexpected events / decisions were made at SSE level which made forward planning an ongoing challenge!”

“The project was a huge challenge - the biggest challenge being finding people from the community, with the required mix of skills, commitment and time to actively support the project.”

“The biggest frustration was ensuring that minutes from meetings were circulated in time for actions to be taken and ensuring that delegated tasks and responsibilities were honoured, difficult when the organising group are giving of their own time.”

“Also challenging - requests for interview and information during the working day!!”

D4.2.7 Overall summary of the community approach in North Leigh

As the main objective of the trial was achieved, in that NL did reduce energy consumption by 10%, this project should be considered a success.

Having an established community group helped this project get off to a good start. The dedication of this group was judged invaluable in reaching a wide range of people and ensuring that the message was constantly visible through a range of events and outlets such as the local newspaper.

The addition of a member of SSE staff, from the Value on Every Visit Team, was successful. As a local person himself, he was able to work very well within the community and was very well received by them.

Having a member of the SSE Energy Efficiency Team, attending the regular monthly meetings was very much appreciated by the committee group as they felt it gave them an opportunity to discuss matters first hand. They also felt encouraged and enthused more by the fact that SSE were showing they were equally committed to the project.

However, this achievement has not been made without a great deal of time, money and effort being put in by a whole range of people inside and outside the community.

Trying to reach ‘new faces’ within the community proved difficult so it tended to be the same people who attended the events held over the trial period. It proved difficult to engage the wider community.

A nearby town established its own Energy Efficiency Project, inspired by CNL.

The CNL website was also accessed by the other two community groups.

D4.3 Alyth

D4.3.1 Community background and organisation of the trial

The project was launched on the 15 September 2007. The community has about 1738 residents in approximately 1250 households with 1,316 (approximately 75%) recorded as SSE customers.

Demographic profiling shows that the Top 6 Cameo profiles for AL are: Suburban Scottish Households in Small Terraces/Flats (515); Mature Households in Scottish Industrial Suburbs and Rural Communities (394); Young & Mature Couples & Families in Large Rural Dwellings (208); Council Tenants & Mortgages in Scottish Suburbia (155); Mature and Retired Singles in areas of Small Mixed Housing (129); Opulent Older & Retired Households in Spacious Rural Properties (34).

The Committee (known as either Alyth Environmental Group – AEG or Climate Action Town – CAT) consisted of Chair, Secretary/Minute Taker, Treasurer, Media and Web representatives and a regular group of three to ten individuals from the community. The group was already established, with its own website, and met once a month during the project. Previous work had brought them to the attention of SSE as a local and active group. The local authority provided support but did not attend meetings. The advice organisation, SCARF (Save Cash and Reduce Fuel) was in regular attendance.

The monthly reduction figures went into the local newsletter but this may have been read only by certain parts of the community and the group was not necessarily reaching all parts.

AL had access to various sources of funding in addition to EDRP (e.g. the Climate Challenge Fund (CCF) and the Energy Efficiency Fund from a local SSE wind farm) but was perceived as lacking cohesion and the willingness to spend money on projects and programmes that could realistically help. Unlike other communities, there appeared to be more than ample funding available from various sources. The CCF, in particular, was a source of effective advice and support to a significant percentage of the community but was used only late in the project.

D4.3.2 Interventions employed

The following interventions were recorded.

- 1400 Home Energy Checks issued (403 returned) in conjunction with CCF “Street-by-Street” project.
- 270 smart meters installed. There was a significant delay in completing the installations in AL owing to problems with sending data. This seemed to have been due in part to particularly thick walls in the area which meant that remote signals were not getting thorough. The replacement process delayed the installations and it was completed in the spring of 2008. There were 267 smart meters active at the end of the project (218 electricity and 49 gas).
- 200-250 RTDs were issued, in many cases prior to smart meter installations. Some help was provided on how to use them. Approximately 25 RTDs were handed back as not working and these were all returned to the households, having been checked as working.
- Approximately 500 energy advice leaflets. Scottish Hydro (SHE) leaflets were provided throughout the programme.
- Infrared surveys and insulation. A thermal imaging project was undertaken in May 2008, covering ten domestic properties, three shops and the local primary school. Six properties subsequently received loft insulation. The community had use of a thermal imaging camera provided by SSE.
- A further 22 lofts, five cavity walls and two hot water tanks were insulated as part of the Street by Street insulation and audit project.
- Approximately 1200 CFLs were given out to residents. These were provided for distribution throughout the programme, until they were excluded from CERT.
- 120 AL residents received light bulb vouchers (£25) for specialist lighting.
- A further £1700 was paid to allow the village to offer a light bulb library scheme, encouraging local residents to try specialist low energy lighting prior to kitting their homes.

- An SSE electrician was employed briefly to rewire properties that were unable to utilise low energy lighting.
- Approximately 400 thermometer cards were offered throughout the programme.
- 40-50 Standby devices.
- Doorstep assistance was used later in the project as part of the Street-by-Street project.
- Chimney balloons (approximately 10).
- Retail vouchers for energy efficiency appliances (£3,500) were also provided.

D4.3.3 SSE initiatives generally in the community

The SSE project team issued monthly weather-corrected energy use figures to CAT, which subsequently appeared in a local free magazine distributed to all households with the parish.

The estimated number of households visited by SSE in the village was 275 (in conjunction with CCF project). 'The Hub' was also established in the community for energy efficiency so the additional numbers of customers helped as part of the programme is difficult to estimate.

D4.3.4 SSE-supported AL events

15 Sept 2007. Launch Event.

November 2007. Community brainstorming evening to discuss how the community can use the fund provided by Scottish Hydro Electric to reach a target of 10% reduction of electricity use within 2 years.

January 2008. First 2 smart meters installed in AL.

February 2008. BBC Scotland conducted radio and TV interviews with AL residents and Scottish Hydro staff.

May 2008. 10 different property types in AL surveyed with thermal imaging camera by IRT. CAT window stickers and T-shirts available. CAT members attend Aberdeen All-Energy Exhibition. Spring Fair 1 (Thermal Imaging). Community energy event in the Village Hall with the Sensation Science Centre of Dundee, SCARF and IRT Surveys.

June 2008. CAT stall at AL Gala and two CAT committee members enter AL Hill race in CAT T-shirts.

August 2008. AEG submits an application to the CCF for a travel study and 'hot' office study project. 270 smart meters now fitted in homes in AL. TV and radio coverage.

November 2008. £11.750 awarded to AEG to implement the travel study and 'hot' office study project. AEG's application to the CCF to participate in the Street by Street Insulation Project approved and project launched at a media event. Local consultancy employed to help set up project.

January 2009. Workshop with other villages to develop CCF Insulation project ideas. Pulling beech with Conservation Volunteers and Scouts.

February 2009. AL Youth Partnership help AEG deliver the remaining travel surveys. Energy advice to businesses event.

April 2009. AEG builds bird boxes at StART festival.

May 2009. AEG AL Burn Clean.

August 2009. AL Summer Energy Fair, Age of Stupid film, cycle ride.

September 2009. Scouts and Guides competition.

D4.3.5 Elements of the community that were involved

Contributors to the project included the local primary school, Scouts and Guides, football team, ladies' church group, a small business and the Alyth Newsletter.

D4.3.6 Feedback from the community

"The target seemed impossible to achieve, 10% of your fuel bill initially seems a lot, but with the help of the smart meters it was easier than I thought to make the energy savings. It amazed me how much electricity we use!"

"The project was professionally carried out, having a drop-in hub and a door to door service by locally trainer energy advisors really helped build credibility"

"More information and help in analysing the electricity usage data would have been useful. There seemed a missed opportunity to find out why some days, weeks or streets used more energy than others, and this would have enabled a more targeted response by the community"

"More help on using the smart meters would have been useful - may be some simple community classes to get the best out of them".

D4.3.7 Overall summary of the community approach in Alyth

Success came late in the project. The addition of the CCF Street-by-Street programme provided a focus that CAT had failed to find up to that point. The group had been unwilling to spend money and was reluctant to make big changes in the first year of the EDRP. Once funding from the Scottish Government was added, the group employed energy efficiency advisors and a project co-ordinator who were more able to push the energy efficiency message.

Direct reports from those employed through the CCF project suggested that CAT and AEG were not held in the highest regard by the residents of AL. There was a general feeling of resentment to the group and this meant that community engagement was low in the initial stages of the EDRP. In contrast, the door-to-door visits, explaining energy efficiency measures, grants etc. were judged to have gone well.

Engagement is key to the success of any community programme. It is best to be able to deal with everyone in the community at a level that suits each individual and, while it is impossible to meet everyone's expectations, it is imperative that expectations are managed and problems pre-empted where possible. It is best to represent the main interests of everyone involved.

D4.4 St Athan

D4.4.1 Community background and organisation of the trial

The community population is approximately 2580 (aged 16 and over) in approximately 500 households. About 26% were SSE customers. There is an approximately 50/50 split between owners and tenants.

The initial contact with SA was via the South East Wales Energy Agency (SEWEA) and Energy Saving Trust (EST), which also liaised with SSE (Swalec). The SA Community project was the last of three such trials to be established.

The launch of the community trial was organised by SEWEA and undertaken with a formalised event on 1 March 2008. Prior to this launch the local school was approached in respect of the children taking part in a competition to give the newly formed group a name and logo. This resulted in the project name “Get Smart with St Athan” (GSWSA).

Communication between the interested parties involved with this fledgling trial (i.e. SSE, SEWEA and GSWSA) was poor and after a couple of months had reached a point whereby the feasibility of the trial was in jeopardy.

The trial had lost two months of the proposed two-year period and another SSE representative was allocated to the role of liaising with SEWEA and GSWSA. A meeting in late May 2008 between all the main interested parties and the new SSE manager had a long agenda, covering issues and problems. The meeting re-established the opportunity for the community trial to be undertaken, with the issues having an avenue to be addressed. Some antagonism towards SSE was evident at this initial consolidation meeting but in due course this was overcome with the committee fully prepared to engage with SSE in achieving the target.

The volunteers were now organised into a committee. The main roles were Chair, Secretary and Treasurer with eight other members supporting. The new structure and re-establishing of a focussed approach to the project gave the previously despondent group a new focal point to work towards and created a purpose for the group to continue. The venue for meetings was agreed as the local pub.

The committee members themselves came from a wide range of backgrounds and, with one exception (the District Council’s Energy Officer) had no prior knowledge of energy matters.

The creation of a new local committee to undertake the project had both positive and negative aspects. The committee came with a freshness and enthusiasm to achieve the target but needed time to become an effective cohesive working group and learn each other’s strengths and weaknesses.

SSE attended every project meeting and event to assist and support in whichever way the group felt appropriate, drawing in other parts of the business as applicable to offer assistance, expertise or equipment.

The following external parties were also involved in the trial.

- *District Council.* The Energy Officer volunteered to sit on the committee as a support member; his contribution was seen as having great value, both in a practical manner, attending events, and engaging with the residents by acting as an independent advisor. This independency assured the committee that some of the interventions suggested at the beginning could benefit the area. He also provided access to other departments within the Council, including street lighting, planning, education and energy schemes to compliment the work being undertaken in SA.
- *Energy Saving Trust (EST).* EST has a service level agreement with the District Council; as part of this agreement some survey work was undertaken. The results were used initially to specifically identify the SA area and then ascertain the requirements of the village. EST agreed to follow up, with the Council’s approval, a telephone response to residents who fell under GSWSA project and the interventions offered under the scheme.
- *South East Wales Energy Agency (SEWEA).* SEWEA originally worked with SSE to find a suitable area for the trial and assisted in its early development, working with the volunteers in SA and SSE in launching the trial. However, SEWEA’s role was reduced following the establishment of a specific project committee in SA.
- *Groundworks Trust.* The Groundworks Trust was suggested by the District Council as an organisation that could work with the local school and various organisations within SA in an education capacity. The Trust has designated education officers and wide experience in working with young people in the promotion of energy efficiency. A plan was drawn up in conjunction with the school and a series of interactive presentations arranged.

The education officer engaged with the children, along with the school staff, and positive reports came back to the committee.

D4.4.2 Interventions employed

A wide selection of interventions was introduced to encourage as many people as possible to engage with the trial and achieve reduction in consumption.

Smart meters. The smart meters installed in SA covered both single fuel and duel fuel types, for SSE customers only. The installations (141 in total) were complete by the end of August 2008 with the residents becoming conversant in using them correctly to assess their consumption and, where practical to consider using the information to reduce their energy usage. An event in the community hall was arranged in September 2008 to allow anyone to ask questions or express concerns around the new meters. At the end of the trial, 36 recipients had dropped out, the most common reason being a change of supplier.

RTDs. In total, 71 RTDs were distributed to the residents (separately from smart meters) along with information on use and how to save energy. Residents in the area who were not SSE customers and therefore unable to receive a smart meter were included in the offer. The fun-day held in July 2008 saw the first batch of RTDs issued to non-SSE residents. Follow-up telephone calls revealed that, in general, most residents had become more aware of their energy usage (some had not really bothered, but thought the RTDs were a good thing to have, and a few had left the units in the box).

Energy Advice leaflets. Leaflets were at various times delivered directly to every householder via a doorstep drop and were also available via the school, library, shops and chemist. The topics covered were:

- general energy efficiency tips / electrical appliances usage;
- standby information on all equipment with a standby facility;
- solar power;
- Community Energy Viewer;
- information pack covering technology (lighting, appliances, Power downs and insulation), information for vulnerable customers, information for business customers and contact details for the GSWSA project.

Insulation. This had previously been covered by insulation installers working in the area and a number of the houses had already been insulated. An insulation offer was made to the residents with additional discounts of £50 per measure and, as a result, 29 applications were received. Of these 29, 19 were from “Able to Pay” customers (resulting in eight installations and 11 cancellations) and 10 from “Priority Customers” (resulting in eight installations and two cancellations). Within the area there are social housing properties; working with the local authority, SSE received confirmation that all but 15 of these dwellings had received insulation. These 15 were allocated to an installer and a further 9 properties were insulated.

Hot water tank jackets. Six jackets were fitted by the insulation installers while working in the area.

Infrared surveys. The option of infrared surveys was discussed but it was agreed that, because so many insulation installations had already been undertaken in the area, the effectiveness of this intervention would be negligible against the cost.

Energy Performance Certificates (EPCs). Only two EPCs were produced. An opportunity was offered to the residents to receive an EPC on their homes, the report providing information relating to the energy rating of the home. Feedback on this intervention was that it added nothing to people’s understanding of their homes and was only required if a property was being sold.

Business energy audits. All businesses in the catchments area were offered an opportunity to have a basic energy audit carried out. Responses totalled four and these were done by SEWEA. In each case, very little could be done to reduce consumption, except in a local shop (the recommendation there was to upgrade refrigeration to A-rated appliances but costs were prohibitive).

Radiator panels. Ten radiator insulation panels were installed. There was some negative feedback in respect of the adhesive supplied to attach panels to the wall, which very quickly dried and the panels fell off the wall. Additional double-sided adhesive fixings were provided to resolve the matter.

Power downs. Forty “Power Down” devices were offered to the residents to assist in controlling standby equipment in particular.

CFLs. A variety of CFLs (over 2,000 in total) were provided, some free and others at a discounted cost. These were distributed via a number of avenues; events, school, businesses, churches, voluntary groups and on visits to individuals.

Energy-saving appliances. A-rated refrigeration appliances were offered for £99 and the local authority offered to collect the old appliance free of charge, to prevent old inefficient appliances being recycled in the area or used as a back-up. Three residents took up the offer. One of the most popular interventions was the Eco kettle, which was made available at the events and through committee members. The reason for its popularity (e.g. energy saving, novelty or the price) was not established but 27 were sold. The Welsh Assembly Government offered a grant of £500 to those who qualified for the Boiler Scrappage scheme and a further £400 was offered from SSE Home Services. This was a general offer for the whole of Wales, but action was taken to ensure the details of the deal were promoted in the SA area. One resident benefited from the scheme.

Street lighting. As a result of GSWSA working with the local authority, an opportunity arose to partner with the street lighting department within the District as part of a pilot of LED lighting. SA was chosen as one of the areas to take part. Replacing 40 existing 70 W lights with 36 W LED units resulted in a total annual saving of 8142 kWh and 4372 kg of CO_2.

Wind turbine. The possibility of a wind turbine positioned in the school grounds was explored in partnership with the District Council. Although feasible and most of the finance was available, planning was turned down because of the proximity of Cardiff International Airport and the risk of interference from the turbine on the airport’s radar.

Christmas lights. GSWSA also worked in conjunction with the Parish Council in respect of the Christmas lights. The lights were old and in need of replacement so GSWSA took the opportunity to assist in the purchase of new LED lights. The estimated reduction in electricity demand was 70%. The exercise also provided an opportunity to convey the message to residents to monitor the energy consumption in their homes.

Doorstep assistance. SSE visited 50 residents with doorstep assistance to look at their energy consumption and offer advice/assistance on energy bills. In the summer of 2008, some work was carried out in respect of “one to ones” with customers identified with higher than expected consumption. The doorstep support started late in March 2010. Although there was limited time spent in SA there was a great deal undertaken and the response by the residents was positive.

D4.4.3 SSE initiatives generally in the community

GEM free paper. The initial step was to make SA aware of the project and to engage villagers from the beginning. Flyers were distributed to all homes and a press release for the local GEM free paper was produced to highlight the launch. The paper was utilised nearly every month throughout the project period; this allowed updates, general information, publicity for events and offers to be advertised in the area. The monthly results at the beginning proved

popular with a small proportion of residents but in time the “novelty” aspect wore off and people became disinterested. Some would only want to know the details as a “one off” when attending events or discussing with committee members.

Community Energy Viewer. All properties received information in respect of the web-based Energy Viewer via a doorstep drop but SSE was unsure whether this facility captured the imagination of the residents as much as it should have. The general feedback when discussing with residents was that they viewed it as “something and nothing”.

Posters and flyers. Posters/flyers were also used in the locality to highlight events and offers, these were usually used in conjunction with the GEM articles and flyers, either directly posted into properties or available through the school and businesses.

D4.4.4 Events

1 March 2008. Launch of the project; 600 flyers were distributed three days before the event, with approximately 50 people attending along with nine GSWSA members. Those who did attend showed a lot of interest in the project as a whole.

July 2008. Village Funday. This event is held annually and is well attended with over 500 passing through the gates. GSWSA set up a display area where people could view data and receive information on the project and reducing their energy use. SSE also provided a display on the recently installed smart meters to help with understanding the new technology and assist in additional meters being installed.

August 2008. Flower Festival. A display incorporating “bulbs” of the electrical type was included in the event coupled with leaflets and general information. CFLs were made available for visitors.

October 2008. Coffee evening. The evening’s attendance was over 50 residents and concentrated on providing CFLs and answering any queries in relation to the newly installed smart meters.

November 2008. Christmas lights. The switching on of the Christmas lights drew over 200 people. GSWSA had a stall and provided CFLs to residents along with advice on energy consumption focussing on the additional usage generally seen at this time.

December 2008. Christmas church service. Over 60 people attended the service and all received CFLs using the theme “Light of the World”. Displays were placed at the back of the church.

March 2009. First anniversary event. The event to celebrate the first anniversary of GSWSA, a number of local groups, businesses and interested bodies took part on the day and everyone considered it a success. More people expressed their willingness to get further involved however the number of people attending from the village could have been greater.

July 2009. Village Funday. The annual event had content targeted across the age range. A display stand showed the position of SA in respect of the consumption. The main attraction was the interactive equipment, which showed how much energy people can generate by physical activity and how much effort is required to achieve a few kilowatts. This came about with the joint working of SWALEC and NPower (which operates the local power station).

October 2009. For the School Autumn Fayre. GSWSA worked in conjunction with the local primary school and Groundworks Trust in attending the event, with display stands to make offers and information available. Separately, a Welsh Assembly Member, Mick Bates, requested a visit to SA and an information evening was arranged with most

of the committee in attendance along with some residents. The visit lasted over two hours with a visit to one home for Mr Bates to see for himself the smart meter in operation and the work done to the resident's home.

November 2009. Switching on the Christmas lights drew fewer to the event than the previous year (owing to poor weather conditions). Welsh Assembly Member, Jane Hutt, switched on the lights and came to the stall enquiring how the project was going.

September 2010. Cheese and wine evening. The evening was viewed as a thank-you to residents who took part in the project and an opportunity to see what had been accomplished. Around 30 people attended and most expressed positive feedback for the project.

D4.4.5 Elements of the community that were involved

A number of organisations and groups either participated directly in supporting GSWSA or indirectly with information and offer details being passed through their membership.

- Library – allowed SSE doorstep support to use as a base on Thursday afternoons.
- Shops, pubs, chemist and surgery – allowed posters to be displayed and flyers to be given to customers.
- Parish Council – worked with GSWSA on Christmas lights project.
- School – actively engaged with GSWSA throughout the project.
- Churches – both local churches supported events and actively promoted the project.
- The Quiz Night team, WI, retired residents group and Bingo night attendees all promoted the project within their own groups.
- Youth club and Boy Scouts attended events.
- The local Brass Band, although not sited in SA, supported the events.

D4.4.6 Overall summary of the community approach in St Athan

Whilst the community did not reach the target; it achieved a 50% award. The project can be viewed as the community trying to work together to achieve a pre-set goal and in this the community succeeded at least in part. There were beneficial aspects for many within SA: higher insulation levels, awareness of energy usage and an opportunity to look at their behaviour and implement change while having the chance to access offers that could further enable additional benefits. There was some consumption reduction, but at the same time new housing developments and increased business opportunity influenced the figures, possibly in a counterproductive way.

There are always positives and negatives when a group comes together; in the case of SA they were enthusiastic and willing to try anything that might help them achieve the reduction. The group's background in the main was not energy and they had to learn during the project what could work and what did not, but their knowledge of people in the village was vital to encourage others to listen and participate.

The events on the whole, especially the Fundays, were the main opportunity of gathering the village residents together to explore what they could do to help achieve the target.

As in all projects the negative side is also evident and some of the committee members said that there is a lot of apathy in the village (in general, not just in relation to EDRP). A possible reason identified for this is that the village is within the commuter area for Cardiff and may be viewed as less of a community in its own right.

If a similar project was to be undertaken, there would be value in having an existing community group engaged already in working with residents and those associated with the community as well as established links to

organisations and influential bodies (e.g. the local authority). To expect a fledgling committee to achieve a task with little or no experience working together, coupled with confusion in the beginning, in a defined time period is expecting a lot. Clarity at the commencement of any project is also essential and cannot be stressed too much: SA shows that the key failure could have been at the very first step, due to the lack of communication and role definition.

To summarise, based on this trial, there appears to be benefit in:

- using existing groups;
- offering clarity at commencement about the terms of the trial;
- establishing good communication between all interested parties;
- ensuring everyone who can contribute has the opportunity to do so – individuals and external organisations.

D5 Conclusions drawn by SSE

The data analysis identified significant energy savings for all communities. This indicates that where a more intensive campaign is undertaken and a range of energy saving initiatives and products is provided, a positive effect can be achieved. The trials at AL and NL benefited from having local interest groups that helped stimulate a community reaction and promote positive behaviour patterns, which resulted in energy savings. The community energy savings, as measured via meters at the local substations, were achieved through both physical and educational measures. Campaigns and offers from SSE increased the number of households with low energy light bulbs, loft insulation and cavity wall insulation and a range of other products that will provide ongoing energy savings.

SSE reported that local communities both seek and expect local authorities to be in a position to support their endeavours. This can be simply to provide information or to provide resource to help facilitate activities. It will certainly be beneficial to develop support services, at local government level, prior to a national roll-out of smart metering.

The community interventions have been effective but benefit from ongoing activities and a wide range of interventions. In the nature of a community project, it is difficult to separate out the key reasons that have contributed to their success: whether it is the socio-demographic profile of the community; the community group engagement, the offers of energy savings products from SSE, doorstep assistance or other factors.

While the community approach was effective, the analysis of final project costs suggests that the additional incremental cost required to drive through energy reductions is substantial at a community level, and would be extremely costly to replicate in a national roll-out.

D6 Observations by AECOM

D6.1 Introduction

This section focuses on the main lessons, should community-level interventions be considered as part of the smart meter roll-out strategy. The aim here is not to try to relate energy savings to specific energy-saving measures – either installations or behaviours – that would be to miss the main point of community trials. There are three reasons for this.

- The energy savings from specific measures can be estimated without an expensive trial. The estimate will be wrong because the major unknown is whether the measure will be taken.
- Various energy-saving measures are recorded but the trial design and data do not allow changes in consumption to be attributed reliably to particular measures.
- The point of community trials is that the community itself decides what actions to take: it is not driven by an energy savings formula. This is not to say that potential savings are irrelevant and, for example, a community should put all its effort into switching off telephone chargers: there has to be a sense of proportion. But this leaves many actions that could sensibly be promoted, for communities to choose from. The sense of engagement comes from making that choice in a way that fits with the particular community.

Therefore, the discussion here is about the process of community trials – how best to engage with a community to deliver energy reduction – not the specific energy-saving measures they should take. In fact, the latter would be difficult to discern from the SSE trials because the contribution of particular measures was not measured.

D6.2 Baseline

Each community has a different starting point, in terms of:

- actions already taken;
- understanding of what else could be done, and why;
- motivation to act;
- resources to act – money, time, space and intellectual and social capital.

This is partly dependent on the extent to which the community is truly a community, not just a group of people who happen to live in the same area. Is there an existing sense of belonging, common culture or a community focal point? In this sense, a community does not even have to be geographically defined – it could be members of a group defined by a sports team, church, mosque or school.

All these need to be considered in setting the basic structure for a community-level action. The baselines were quite different in NL, AL and SA but the approaches taken all had the same starting point.

D6.3 Leadership

In trials such as those reported by SSE, local leadership groups were established and this is an essential part of community-level action: the leadership has to be seen as part of the community rather than imposed from the outside. It was not surprising that the local leadership teams were bound principally by their motivation to reduce energy consumption; indeed it is difficult to imagine a community succeeding without this.

But a significant weakness exposed in the SSE trials was that a group bound only by energy saving finds it difficult to engage a large proportion of the community, especially if it is newly formed for the trial and therefore has no existing identity in the community. At community meetings, for example, the same people tended to be involved each time. This is to do with the composition of the leadership groups – nothing is implied about their organisational competence.

In one sense it is a significant achievement that substantial energy savings were realised in spite of this limitation. At the same time, one can imagine how much more could have been achieved with more people being actively involved. Three approaches can be considered to address the issue, in addition to the specific points under other headings.

- Think small: the smaller the defined community, the more difficult it will be for free-riders to go unchallenged.
- Start with the community, not the environment. There will be people of local influence and reputation, whether in official positions or not. It is easier to give them an understanding of energy issues than to give energy enthusiasts a local network.
- Launch satellites. Not everything has to be done through a central committee: much can be achieved through a multiplicity of local groups, each with a highly focused aim. NL was particularly successful in this area.

At the same time, wider “community spirit” may be enhanced by an effective energy project and this can be seen as adding to the business case for such projects.

D6.4 Support

Saving energy can be a complex business, both in the application of technology and in changing behaviour. While leadership should be local, it is also important to have access to high quality advice and guidance, to make the most of the available resources. External financial support can also be a significant factor in gaining local interest, so long as there does not appear to be strings attached or ulterior motives. This seems to have been well provided in the SSE trials, with expert input, financial support and SSE participation in local meetings.

D6.5 Relevance

Many actions can be taken but not all will be relevant to a particular community.

- Some actions will physically make more sense than others (e.g. in a village consisting mainly of 18th century stone cottages, there is little point in talking about cavity way insulation).
- Some will be aesthetically or socially more acceptable than others (e.g. in that same village, talk of external wall insulation could kill the project before it starts).
- The motives that the community can relate to will also be relevant (e.g. one community may be enthused by saving the environment, another by saving money, another by taking pride in displaying the latest technology).[3]
- Actions also need to be tied to the resources available – not just the financial resources but the time that people can put into the action, the space available (e.g. for microgeneration) and the local expertise in designing, procuring or installing measures.

These are potentially complex choices and it is essential to have a fair and open way of people expressing their preferences as well as getting involved in delivery. It is also possible that one or two high profile public actions (such

[3] See Appendix C (Annex C1) for a discussion of the range of motives that may apply.

as the replacement of the Christmas lights with more energy-efficient technology in SA) will give a clear reminder of the overall project and engender a wider sense of ownership.

Where a reward is on offer for meeting a target, actions also need to take account of contribution to target. In the SSE trials, the target was based on electricity savings but many of the actions promoted were about heating and insulation, which would be relevant mainly to reducing demand on other energy sources.[4] The impact of this is unknown but it could include reducing the credibility of the leadership, taking resources away from more relevant actions and leaving people feeling aggrieved if they put effort into reducing energy use but without helping the community towards the target.

D6.6 Promotion and communication

Not just the actions but also the promotional activities need to be relevant and attractive. In the SSE trials, some of the more successful activities were part of some wider event that people would be attending for other reasons, not events specifically about saving energy (e.g. local fairs).

Websites and newsletters can be useful – if not essential – tools for coordinating and supporting activities but they are passive means of engaging people.

The biggest risk is a promotional activity that backfires because its message or style creates antagonism, embarrassment or confusion. The advice offered in the SA Christmas Poster unfortunately fits into this category, being confusing and sometimes misleading and irrelevant to the target and the motivations of most people.

D6.7 Targets and rewards

SSE set up both a target and a financial reward (as did British Gas in the well known Green Streets project). It should not be assumed that either is essential or that each requires the other. A SMARTER target can provide motivation – with or without an associated reward – but so can a competition with judging rules rather than a fixed target (e.g. between similar communities) or just an emerging sense of community pride in what is being achieved. A key factor for maintaining motivation is that any target or competition should be widely viewed as fair – at the start and throughout the project. This was a particular issue for SA, which started from a lower base of organisation and understanding and had to overcome increases in energy use because of local expansion of business and housing. This appears to have been compounded by misunderstanding among participants about the overall aim of the trial in SA.

The nature of any reward should balance relevance to the community, scale and affordability, especially if it is envisaged that a large number of communities will benefit.

The impression is given that the SSE communities decided how to use the money after it had been won; there is no way of knowing whether this was the best approach for the communities in the SSE trials but there is a case for an alternative. A financial target can be given greater substance by deciding collectively what to do with it, at the start of the project. While £20,000 may appeal as a welcome addition to the community finances, it may also seem small in the context of the whole cost of administering the community. It can seem more real if people can look forward to something specific that the money will achieve. The counter-argument is that some of the community will disagree with the use chosen for the prize money, and therefore be disinclined to support the endeavour. However, if the use is well chosen, it should retain interest from more people than an entirely unspecified use.

[4] In AL and SA, the main heating was gas central heating in 86% and 95% of homes respectively. Figures are not available for NL but it is unlikely they would be lower.

Finally, feedback on progress – at household, business and community level – is essential. This should be reliable, easy to access and digest, and regular (but at long enough intervals to create a sense of anticipation and show movement from one set of feedback figures to the next).