

# Comments about Manchester City Council's Energy Strategy.

## 1. Introduction: the overall picture

The separate issues of climate change, air quality and energy security have powerfully converged to create an all-Europe impetus to reduce primary energy consumption, to reduce carbon dioxide emissions from fossil fuels, to minimise the harm caused by the exhaust gases from the combustion of these fossil fuels, and to look ultimately beyond fossil carbon as the EU's main source of commercial energy for electricity production, transport, heating, agriculture and industrial and household use. The European Union has signed up en bloc to the Kyoto Protocol (United Nations Framework Convention on Climate Change 1997), and has taken a world lead among industrial nations in accepting carbon limitations and working for a drastic long term reduction in emissions.

British government, following the report of the Royal Commission on Environmental Pollution (June 2000) and the subsequent Energy White Paper (February 2003) has chosen a 60% reduction as a realistic, and necessary, target. Local Authorities, have produced some promising results at their local level. Several Local Authorities stand out for the imagination, skill and adroitly leveraged funding with which they have highlighted the issue of energy conservation in their areas, and actually changed the performance of parts of their built environment, and the behaviour of those who live in it. Such Authorities as Merton (ref.2), Woking (ref.3) and Leicester (ref.4) have produced exemplary plans, and continue to put them into effect. They also run excellent websites and conduct effective self-monitoring.

The following legal acts impact upon local authorities and therefore offer opportunities for social enterprises to engage in activity which helps the UK meet its Kyoto Protocol commitments:

(i) The Home Energy Conservation Act, 1995 (HECA) (ref.9), was instituted, after much lobbying by energy-conscious and environment-conscious groups, in order to give some "top down" encouragement and approval for energy-saving measures at the local level. Its most basic requirement is to expect every two years an energy efficiency report for building stock from each of the UK's local authorities. It has since been "tweaked" and strengthened, but not yet entirely superseded by stronger legislation (see (iii) above and (ii) below), in spite of a real sense of urgency engendered by the present government on the issue of climate change. An example of this tweaking is the lifting of the requirement of a detailed biannual report from councils judged to be "excellent" in their overall energy performance.

(ii) The Sustainable Energy Act, October 2003 (ref.11), was successfully promoted by many concerned and campaigning groups, such as the Association for the Conservation of Energy (ACE), and by many committed MPs (of all parties), so as partly to supersede the HECA of 1995. Its provisions have a direct relevance to all stakeholders in the energy field, perhaps especially to local authorities. The Secretary of State is *empowered* to *direct* local authorities to take measures to improve the energy efficiency of residential accommodation although the act does not mention the targeting of government tax receipts to this end. Concomitantly, the same local authorities are directed to tackle the parallel problem of fuel poverty (defined as that state of household finances where more than 10% of net income must be spent on fuel). Implied by the Act is some detailed collaboration with energy suppliers (gas and electricity) who themselves are directed to devise and pay for efficiency measures, described for the time being as a two-year commitment from April 2005, with the aim of reducing bills whilst improving thermal performance. These suppliers are further enjoined to make these improvements to properties which house "priority groups" in other words all those judged to be disadvantaged, by income or otherwise.

(iii) The Carbon Trust (ref.12) and the Energy Saving Trust (ref.13) are two official bodies, with a different political history but with the related aim of energy saving and carbon emission reduction. The more important of the two for local authorities is the EST, which has a wide range of partners and is a valuable resource for a wide range of enquirers. The EST website is particularly rich in experience, in targeted advice and useful links, and directs enquirers to a host of successful UK innovators at the local level of energy conservation and renewable energy projects.

(iv) Future Energy Solutions (FES, formerly ETSU) (ref.14) is a hugely proficient consultancy on sustainable energy, and is particularly able to offer advice to "educated" enquirers, such as must exist at the heart of any well staffed local authority. Unlike the EST, they must charge for any extended work which they

do, but they should be a first port of call when considering improvements to the energy performance of housing stock and commercial and institutional buildings.

(v) The Building Research Establishment (BRE) (ref.15) also supplies expertise in best building practice, both on a helpline and as a consultancy. It has close links with the Carbon Trust, the EST and the government, helping to manage such projects as Clear Skies (see (viii) below), and to institute "best practice" wherever it is involved.

(vi) Community Energy is a source of funds (the present reserve is £50 million) for community-based energy projects. Since the thinking behind this scheme is the conservation of energy, it is not surprising that it operates under both the EST and the Carbon Trust (ref.13). Projects could include the supply of piped heat to many homes from one central source (such *district heating* is widely practised in Denmark), or a joint scheme for homes, schools and institutions using waste heat from an industrial process. Over 40 public sector organisations have been awarded grants to enable them to launch such schemes.

(vii) Solar Grants (ref.13) (managed by the EST) was launched in 2002 for an initial period of 4 years, and subsidises by up to 50% the purchase and commissioning of photovoltaic arrays. This funding source is particularly apt for small scale applications at the local, community and voluntary level. It also offers advice to those who would wish to become qualified installers. There are hints (March 2005) that this programme may not be so generously funded in the future, so local authorities and NGOs might choose to lobby on this matter.

(viii) Clear-Skies (ref.17), like Solar Grants, is able to offer financial help in installing small renewable energy devices, including solar thermal, and moreover, through BRE, is able to offer focussed advice. At present, it will not allow DIY installations, but it is obviously a useful arm in the hands of an enterprising local authority or community group.

(ix) Energy Efficiency Advice Centres (ref.18), EST managed, function as one-stop information and advice centres for the citizen. They have reportedly had varying degrees of success. Manchester's own EEAC is in town, reasonably accessible, and passes information onto the employer of its staff, Manchester City Council itself.

## **2. Some energy efficiency programmes.**

(i) Woking Borough Council (ref.3). The awards won by this council (including, for example, the Queen's Award for Enterprise in 2001) must have alerted many of the UK's other councils to what can be achieved with focus, knowledge and commitment. From an early stage, Woking took climate and energy seriously, laid out more money than was "wise" at the time, and installed, piece by piece, all the elements of a more sustainable energy system for its council offices and for adjoining buildings. These elements include one of the UK's largest fuel cells, supplying heat and electrical power, and a thorough attention to efficiency throughout the system.

Moreover, the council is not only willing, but anxious, to share its expertise with other UK councils. If Manchester has not yet made an approach, perhaps it would be advantageous to do so before instituting large programmes of her own. Not only has Woking showed itself to be technically proficient, but it has also been adept at roping in all sorts of public, private and profit-making bodies so as to strengthen investment and financial control. An exemplary performance in the view of everyone who is acquainted with it.

(ii) Merton Local Agenda 21 Environmental Action Plan (ref.2). Besides their excellent website, Merton Council has instituted a scheme, "Merton Energy Smart", whereby residents obtain upto 25% discount rates on insulation measures (and on energy efficient heating devices). The impression conveyed to residents is that they are served by a council which is paying serious public attention to climate change and energy efficiency. With their detailed and coherent local Action Plan, and their Energy Advice Centre on hand, Merton could serve as an exemplar to many local authorities which have not moved beyond (or even as far as) their statutory requirements.

(iii) Bridge-5 Mill, Manchester (ref.19). An example of what can be achieved with the maximum commitment of local volunteers, statutory help and a vision for sustainability and energy saving. Since the beginning of 2001 much recycled material has been used by this environmentally oriented centre to ensure the maximum heat insulation and the minimum gas and electricity use.

(iv) Gambleby Ground Source Heat Pump (ref.20). A truly citizen-based project in Cumbria, where all the initiating energy came from a small group of the village's residents, in order to install a low cost and low

carbon heating system in the village hall. Outside financing and other help was found by the exertions of the committee, who launched, supervised and part-built the whole installation.

### **3. Some renewable energy programmes.**

(i) Harlock Hill, Cumbria (ref.21), a community owned wind farm; some similar projects exist in Wales and England. In Denmark, the majority of its first wind turbines were owned by co-operatives, which indeed have worked to have them planned and built (although the private sector has now taken the majority share). In the UK the pattern continues to be the implantation of wind farms by outside investors, making the task of convincing the affected population of their value more difficult than it would otherwise be. There may be a lesson here for Manchester and other authorities and groups in the Northwest of England a sense of ownership is perhaps of key importance in launching new public initiatives.

(ii) Leicester City Council, "Leicester Environment City" (ref.22). It is not possible to review the environmental "state of the art" in the UK without drawing attention to Leicester, which has seen an extraordinary concentration of effort, talent and conviction, at all levels, in creating an atmosphere where there seem to be no limits to what the city can achieve. The website (which is informative without being boastful) gives an encouraging picture of what councillors and electors can do together. As in many such cases, canny fund raising, through statutory bodies, is part of the success, but at the heart of this innovative programme lie committed and knowledgeable people. The Leicester Environment Partnership has a wide spread of members for example a residents association, a cycling group, the local Friends of the Earth and has a continually widening reach into all aspects of the city's environment, including energy conservation and energy use.

(iii) Hengoed solar water heating project, Wales (ref.23). In a region of the UK with less than the average of sunshine hours per annum, this community-based, but EU-aided aided, project exemplified the best of community/institutional mutuality. The National Assembly for Wales, the EU Thermie Programme, the BRE and many residents were all involved from the beginning. The results were impressive too: 55% reduction in hot water costs averaged through the year.

### **4. Manchester City Council's energy policy, as at March 2005 (ref.24) .**

It is difficult to record an objective assessment of the City Council's energy policy (a) without remarking that the City does not presently make energy conservation an urgent priority, and (b) without encroaching (with the necessary respect) on territory which is obviously political in nature.

No energy-conscious resident or visitor could ignore the well-lit night-life, the enormous quantity of traffic (in-town shoppers, out-of-town shoppers, football match visitors etc), the danger for cyclists (the most energy conscious of all street travellers), whose safety is not assured by an incoherent roadside "network" of cycleways, often occupied with impunity by parked or moving motorists, and the almost total absence of the "solar revolution" on Manchester's skyline. This last point demands explanation: why is it that not a single university building, in a city which was at the heart of the industrial revolution, carries a wind turbine or an obvious array of solar-heat or photovoltaic captors? Many of the City's buildings are surmounted by steeply sloping south-facing roofs, and yet almost none are equipped with the obviously appropriate solar energy capture devices. And why has such a prestigious building as the Urbis Centre (presumably built with the full approval of the Council) been allowed to feature a north-facing downsloping roof, rendering it incapable of effectively capturing solar energy? However, the Council has recently instituted an Energy Policy discussion, and in the light of past practice, and with recognition of the contribution which could be made by the Voluntary and Social Enterprise sectors, the following Summary and Review is offered.

#### **Summary:**

The Council wishes to be, and appear to be, the greenest city in the United Kingdom. Prestige and economic success are at the same time, and by the same means, to be enhanced. To this end, it aims to reduce its ecological footprint by a wide range of measures. Specifically in the field of energy, it proposes to

- (i) establish partnerships (already existing in embryonic form) so as to research the baselines upon which present and future energy performance (especially carbon-based energy performance) can fairly be judged.
- (ii) reduce the city's CO<sub>2</sub> emissions below the requirements set out for the UK nationally by the Kyoto agreement, by attention to the urgent need to improve building standards and their implementation.
- (iii) reduce CO<sub>2</sub> emissions by working for changes in the city's preferred travel mode for example, by extending the existing Metro system.

(iv) work for the widespread adoption by the city of renewable electricity production and Combined Heat and Power (CHP).

(v) (presumably) participate in the initial expenditure of £200 000 whereby Manchester will create the institutional platform from which all these ambitions can be launched.

## **Review:**

### **4.1. Data:**

In the long term it is probably unimportant that inaccuracies should appear in, for example, the draft "Manchester Energy Strategy" (presented at the Sustainable Neighbourhoods Partnership meeting 5 November 2004): the temperature rise over the last 50 years, although serious, is nearer 0.4 degrees Centigrade than the 1 degree mentioned, and the envisaged world temperature rise by 2100 will be from 1.4 to 5.8 degrees Centigrade, rather than 4 to 9 degrees. Such errors will be self-correcting over time, as the Council's new "Green Team" gets into its stride.

However, it is disconcerting that documents on the City's plans so far available do not give any facts and figures, accurate or not, on the crucial quantitative base upon which plans must be made. We do not know, for example, the total area, in square metres, of uninsulated (a) exterior cavity walls, and (b) exterior solid walls within the housing stock of the city. Is this absence of estimation due to lack of data, or a minimisation of its importance? Concerned citizens could well ask why these figures, if known, have not already been publicised, as the U-value of each type of wall is known, and hence the energy advantage of insulating them can be estimated in CO<sub>2</sub>-saving terms: provided all the relevant data is known.

Moreover, the source of data sets must be regarded with circumspection: the same "Sustainable Neighbourhoods" document quotes the University of Manchester's estimate of £17 million savings per year being available to the City's business by the adoption of energy efficiency improvements, yet the University itself is so notorious in the city for its poor energy performance that citizens have the right to ask if it is the most appropriate judge of the performance of others. Perhaps it is because of budget pressures, and by the inheritance of poor building practices in past decades, that the University features little in the way of double glazing, rooftop solar and wind capture, and the like. (Indeed, if it were to become a full partner in Manchester's plans, it could also aim profitably to improve its own performance).

### **4.2. Aims:**

It is in the context not only of the UK government's own aims, but of increasingly alarming estimates from the climate research community (see Introduction above) that the aims of the Council must be assessed. "Nibbling at the edges" of carbon use will certainly not be seen as sufficient within a few years. The next United Nations report on the climate, the Fourth Assessment Report of the IPCC due in 2007, is already known to point to the need (widely acknowledged) to reduce carbon emissions by at least an order of magnitude, and to do so rapidly. It would be fitting, therefore, for the City not to lack ambition in its new stance vis-a-vis carbon emissions.

The initial proposal, promising in itself for a repositioning of the Council on the carbon question, will need to include a framework which could assess needs and ambitions far beyond those mentioned under the Summary above. In pursuit of such aims, quantification is of the essence. For example, how within the next fifty years could Manchester (and surrounding boroughs) arrange to:

(i) improve the insulation of existing and future buildings to such a degree that they would hardly ever need to use imported commercial heating (via gas or electricity). (And how could the City cope with the loss of jobs if the present power delivery infrastructure was obliged to close down ?)

(ii) transform energy generation in the city so that maximum advantage was taken of its significant and badly underrated solar resource. (The projected photovoltaic cladding of the CIS building, eye-catching in itself, can only help the city if it leads to a wide-spread adoption of the technology throughout the city).

(iii) further transform energy production by the installing of heat-pump, solar water heating and wind turbines on a scale which goes so far beyond the symbolic that these technologies become truly important in the energy supply framework?

(iv) transform intra- and inter-city travel so that carbon expenditure becomes a thing of the past? (It is the view of many in the field that traffic reduction itself, the bicycle, and hydrogen, are keys to this carbon-free travel future).

**4.3. Other stakeholders in the field of energy in Manchester** existing "knowledge banks", the voluntary sector and social enterprise:

(i) The "knowledge banks" include the universities all of them. The four universities in our conurbation (now three with the recent union of UMIST and Manchester Victoria University) do not presently collaborate closely on climate and energy-related matters. **So far, there has not been a university-initiated forum where social planners, town planners, architects, environmentalists, educationalists, power engineers, industrial chemists, hydrogen specialists and climatologists get together to assess what they could contribute as a group to the future of our city's environment, or indeed to the future of the environment as a whole.** This longstanding and disconcerting "disconnect" needs the urgent attention of the citizens of Manchester, through its Council. "Gown" does not know "Town", "Town" does not know "Gown", and "Gown" does not even know very well "Gown".

It must be acknowledged that academic Manchester is far behind Birmingham, Loughborough, Leicester, the Scottish universities in their connection to environmental and community concerns. Of particular interest could be the joint development within Manchester of a strong renewable energy base, including the hydrogen and fuel cell nexus, so as to (a) contribute to the next generation of clean power technologies for the sake of the environment, and (b) create a whole new employment base for the City and region. It would be advantageous for the City to have a close look at some of the advanced civic/academic thinking taking place in Germany, for example in the city of Freiburg (ref.25) where solid partnerships between Town, Gown and industry are already producing technologies for the twenty first century.

(ii) The voluntary sector in Manchester is heavily oriented towards social need and the improvement of the present environment **as it is seen and experienced.** It remains to be seen whether it could find a place in the amelioration of our home insulation and energy provision needs. Even qualified environmentalists have hesitated before involving themselves in this arena, which demands technical expertise and an insurable work pattern based on an assessment of past success.

It is therefore reasonable to ask that Manchester considers finding a place in its new energy action team for qualified volunteers to take part in projects within the city. Looking (once again) outside the United Kingdom, it is possible that the solar clubs of Austria (ref.26)(where admittedly the yearly solar energy input is 1200 kWh per square metre rather than the 800 kWh of Manchester) could offer a model for the Council to emulate. Once launched, and with appropriate funding, the scene could be set for the self-generation of such clubs in our city.

(iii) The social enterprise sector is probably the most promising of the newcomers to renewable energy practitioners, as such participants would take on the full disciplines of business practice (insurance, financial probity, qualifications for the work in hand, time-keeping and guarantees), without sacrificing the environmental aims which first propelled them into this sector. There is not simply a shortage, but an almost total lack of entrepreneurs willing to take on the challenge of (a) advising householders how best to reduce their carbon emissions, without succumbing to the commercial blandishments of the first salesman on the doorstep (not only double-glazing salesmen) and (b) offering a complete package of honestly assessed measures appropriate for the householders to achieve these ends.

Social enterprise has already shown itself quick to learn in such fields as recycling, and there is no doubt that such enterprise could play (and should play) a valuable role in instituting the needed energy revolution in Manchester. The many specific tasks which social enterprise could undertake would include:

(i) energy assessments of individual houses, or housing estates, using heat detectors, air flow detectors, boiler examination and the like, marrying these results with the orientation of the dwelling, and thus assessing real heat and energy needs.

(ii) assessing the physical suitability of dwellings for individual items of technology, such as solar water heaters, double glazing, chimney draft occlusion, underfloor insulation, so that money is carefully and fruitfully spent.

(iii) fitting such technology to dwellings already assessed for suitability, with care being taken, perhaps, that the assessment and application contractors are separate entities.

(iv) special attention to a much neglected problem: the external insulation of solid walls. There is surely room here for a social enterprise to undercut, and to improve upon, the very expensive (£50 to £100 per square metre) treatments offered by mainstream firms.

(v) the creation and maintenance of a knowledge base which would allow the enterprise to keep up to date

on the most recent and promising technologies, and which would be shared by other practitioners with the same philosophy. It is noticeable that few "experts" are willing to commit themselves to an opinion where the results of their recommendations might subsequently come to be challenged: there is thus room for the social enterprise to take the risk of expertly assessing what is available (using for example the sources of information mentioned in the UNITED KINGDOM above), and thus offering to the householder what is rarely available: promise of performance.

## 5. References

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