‘Can do’ versus ‘Can’t do’: A matter of attitude

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During my career of some 40 exciting years in the energy sector I have been fortunate to visit some amazing places all around the world and to meet and talk with some very interesting people. These experiences have enriched my life beyond measure.

These opportunities have been in environments of opulent extravagance and abject poverty and I remain surprised that after so many years of scientific and technological achievement we have still only managed to provide some two thirds of the world’s people with formal energy services.

When considering rural energy poverty, especially in Africa, we have to be sensitive to the geographic and demographic context. Community villages are quite small and they are widely dispersed across this vast continent. It is very difficult to make an economic case for grid connection; either through a power line or through a pipeline. The distances are too great and the market size of the village is too small. Therefore connection by means of network extension is unlikely to happen any time soon. A potential solution is off-grid stand-alone energy supply. However, these villages are often in remote locations with difficult access. This creates difficulties during the construction phase for any supply option but will also be a challenge for maintenance and feedstock supply during the operational phase. We should also be aware that the skills available in the village will be limited. People with the ability to thrive in a more sophisticated environment will have migrated to towns and cities in search of a better life.

When I talk to business people about addressing the challenge of energy poverty I hear of so many reasons why it can’t be done. The size of these projects is too small to be interesting to financiers. The likely payback periods are too long and the returns too low to merit consideration. The risk premium associated with working in remote and developing areas is so expensive that the project can never be bankable. The size of the energy system will be orders of magnitude too small to be matched to the technologies and products in use today. The economies of scale are simply not present in these projects; neither from a financing nor from a technological point of view. Bringing energy to impoverished communities cannot be done by the private sector; this is a matter for the public sector.

When sitting down to write this article there are two specific experiences that are in the forefront of my mind and which lead me to question whether we, the so-called leaders in the energy sector, are really heading down a path towards global sustainable energy systems.

The first example is a visit to a rural community in southern China. A biomass digester had been provided to the village by the local authorities. The villages were themselves responsible for the operation and maintenance of the system. They were also responsible for the distribution of the gas and the collection of payments. The village committee elected to run the system had developed a scheme whereby consumers could pay for the gas in currency, or in kilograms of feedstock delivered to the bio-digester, or in hours of labour at the bio-digester. This innovative approach greatly extended the ability of the villagers to have access to the service. The villagers were very positive about the system and they were all committed to developing the community.

The second example is a visit to an informal settlement [squatter camp] on the outskirts of Johannesburg. The average size of these “homes” is 3m x 3m. This shanty town has electricity supply and the residents qualify for the government ‘free basic electricity’ grant of 50kWh per month. One man uses this energy almost exclusively to heat a soldering iron as he repairs mobile phones, televisions and other electrical devices. A lady supervises neighbours’ children after school and uses a small television set to show them educational programmes while they do their homework. Another uses a basic sewing machine to do all manner of repairs and alterations to threadbare clothes.

What it means to have a ‘can do’ attitude

A significant aspect of these examples is the manner in which the energy is paid for and used. The conventional wisdom is that the first priorities of any effort to alleviate energy poverty should be lighting, heating and cooking. Heating and cooking are relatively energy-intensive, demand a robust energy supply and do little, or nothing, to improve the economic sustainability of the community. In these examples what the residents valued most were television, telephone, power for tools, internet connectivity and then lighting. Heating, cooking and refrigeration were not top priorities. It seems there are more important forces at work here.

It is really a question of sustainability of the household unit and the community. The most important driver is the legitimate aspiration of people to have the means to improve their quality of life. For this to happen their priorities are economic activity, communication, education and health.

Most important, though, is the stimulus of economic activity. If economic activity does not happen then none of

the other potential benefits of commercial energy supply can be sustained.

Access to television provides a number of important benefits. Firstly it provides information which allows people to become more aware of the world around them and to identify opportunities to improve their circumstances; both social and economic. Television is also an important medium for education. This can happen informally through people watching the standard range of programmes but, and perhaps more importantly, television can be used to broadcast formal education materials as an integral part of distance education schemes. Television can contribute to health and nutrition awareness and it is also possible to provide training for first-line healthcare providers in the community.

Telephones, particularly mobile cellular phones, provide the opportunity to communicate by voice and text. Apart from the obvious social and security benefits of enhanced communication within the family and the community, mobile telephony is a significant enabler of enhanced commercial and economic activity. Wherever there is cellular telephony coverage it is also possible to deliver internet connectivity. This is the ultimate step in enabling people to become economically and socially connected.

To solve these problems we have to take a giant leap into the future and invert our thinking from “Big is Beautiful” to “Local is Lovely”. Instead of trying to extend the existing grid we need to start from the bottom with wind, solar and biomass stand-alone systems and slowly connect and enlarge these to match increasing energy demand. The challenge to the suppliers of such systems is to develop them in economic units in the 200-500 kW range. The technology has to be robust enough to require a minimum amount of maintenance and it has to be such that operation and maintenance can be carried out by the people in the village. Many will argue that such systems will not provide uninterrupted energy and that there will have to be back-up supply. My contention is that for a village that currently has no modern energy supply, an electricity or gas supply that is available 60 per cent of the time is a small miracle. An intelligent mix of wind and solar will improve the availability and the biogas system can be used for backup. Such integrated systems should certainly be capable of providing sufficient energy to power electronic services. Such services could initially be provided at a community centre facility or school and could later be dispersed to individual dwellings as economic activity increases and families are able to afford them.

I suggest it is we, the bankers and the developers, the designers and the manufacturers who are preventing universal access to energy. It is we who have all the physical and intellectual resources, but who lack the vital emotional resources of courage and faith and who are locked down in our risk-averse, protectionist and ‘can’t-do’ paradigms that are preventing global energy transformation.

In both of the above examples the people I spoke with do not concern themselves with feasibility studies; with business plans; with mission statements; with performance objectives. They are driven by a powerful belief that they can make a positive difference to those around them and then they simply roll up their sleeves and start working for change. They don’t allow themselves to be constrained by future uncertainties such as where the funds will come from. They forge ahead and tackle each obstacle as and when it arises. They demonstrate incredible courage and a willingness to work within the community, believing that if they make a positive contribution to the community they will find the necessary resources for the next step.

I have come to realise that most of the great innovators – whether social, economic, political or technical – had demonstrated a similar clarity of intent and the vaguest of plans of how to get there, but were all powered by a rock-solid ‘can do’ attitude. Think about it – please. ❑

Solar Voltaic used to pump water out the ground, Oasis Salal, Bahr el Ghazal, Chad