

# MONOPOLISATION AND THE ENERGY AFFORDABILITY CRISIS

Current issues over the affordability of household energy bills illustrate how essential but scarce natural resources and their value need to be shared. They also remind me of my experience as an engineer and manager working to provide wealth in the form of piped water in countries where extreme poverty is common. However before drawing upon those experiences and describing how they might relate to today's energy affordability crisis I would like to revisit some fundamental principles that underpin the production of *all* wealth and it's just distribution.

All wealth, i.e. the produced goods and services that people need to live a healthy and satisfying life are produced by application of the intelligence, skill and energy of people to materials and forces that nature provides. In economic terms, wealth is the product of two primary factors: *land* - the economic term for 'all that nature provides' and *labour* - the economic term for productive human activity.

While Mother Nature provides all the material resources that we need, human labour is required to extract, move, combine and transform them into vital and desirable forms of wealth. Nature levies no other charge but our socioeconomic arrangements can, and do, enable some people to charge others for her gifts. These arrangements, in the form of property laws and monetary systems, mean that some people (rentiers) are able to live without contributing to the productive process while others are obliged to pay them with the fruits of their labour as they produce the wealth that everyone needs.

In addition to the materials nature provides she also provides all the energy needed to produce wealth, i.e. both labour power itself and the energy that people are able to harvest from what nature provides, either currently or from ages past, i.e. fossil fuels. These harvestable sources of energy differ in two important respects; firstly their inherent sustainability and secondly their impact on our planet's atmosphere. Fossil fuels are exhaustible, in both senses of the word: their burning is a drain on a non-renewable natural resource and, on burning associated exhaust emissions, damage the atmosphere's vital protective and sustaining capacity. In economic terms this protective and sustaining capacity of the atmosphere along with solar, wind, tidal, water, atomic sources of power and 'fossil fuels' are all forms of *land*. Each is therefore liable to give rise to the economic phenomenon known as *the economic rent of land* or more simply *Rent*.

## RENT, MONEY AND OWNERSHIP

The phenomenon of land rent arises when a community confers on some people a duty free property right to land, in any of its forms, at the expense of other people. Vitaly important questions then arise: Who collects that rent? And how is it to be used? History shows how if the community or state does

not collect the 'economic rent of land' as public revenue (for the benefit of all people) it will accrue to private individuals or corporations. However, irrespective of who it accrues to, its value will be measured by the host state's currency, i.e. money which a sovereign government supplies and uses to fund its expenditure and collects back in taxes. Since ancient times governments have had to protect themselves against imitation of the state's money and, along with spying and fraud, the practice of counterfeiting has been nicknamed 'the world's second oldest profession'. These two functions of government - the collection and spending of public revenue, and supply and control of the sovereign currency, are therefore linked - see '*Message from the Honorary President*' in this edition of *Land&Liberty*.

An important consequence of a community failing to collect the economic rent of land is that plots of land acquire a capital value or 'sale price' based upon an *estimated* discount rate and an *estimate* of the current value, of an *estimated* future stream of land rents. Based on this fiction, land is commodified, its capital value becomes the subject of financial speculation and collateral for the creation of new privately created debt/mortgage based money. This has a profound effect on the *Ideas* that shape our worldview, on the ideas that dominate the lives of individuals, of nations and the whole world. Much as the idea that some people could be owned, bought and sold by others, rather than being properly remunerated for their labour, dominated and set the economic conditions in times past, so the idea that nature's gifts may be owned, bought and sold rather than being respected and revered, sets the conditions under which we attempt to manage the world's economy today. Little wonder then that we fail. However, as the ideas that gave rise to, and perpetuated, chattel slavery for thousands of years were changed in a few score years, so might the malign ideas that underpin the private ownership of land (in all its forms), be replaced by a more enlightened set of ideas.

## LAND - ALL THAT NATURE PROVIDES

In common parlance the term 'Land' is usually taken to refer only to the dry surface of the earth but as an economic term it refers to 'all that nature provides other than humankind'. So in addition to the dry surface of the earth it includes all space, the atmosphere, the natural animal and vegetable kingdoms, all minerals and natural resources and all natural manifestations of power and energy. I find it helpful to link the idea of land with the 'classical elements'. These were used to explain the nature and complexity of all matter in terms of five simpler substances or elements, viz. earth, water, air, fire and ether, void or space. In this context the elements of 'earth' and 'space' are clearly closely associated with what we normally think of as land or location; the element of air - with our essential need for life giving oxygen and the atmosphere, while 'fire' is closely associated with energy

issues and light, and access to 'water,' has historically been the prerequisite for all civilised settlements.

## **WATER**

This brings me to the subject of water and my experience as an engineer, manager and consultant devoted to the provision and maintenance of public water services - mostly associated with water supply, the treatment of wastewater and the safe discharge of effluents into receiving waters. That experience includes the challenges that attend meeting human wants through the whole cycle of production, i.e. from 'source' to 'sink', and includes the abstraction, movement, modification, combination, use and safe return to nature of something that it freely provides. Those challenges have not only related to engineering issues but socioeconomic concerns as well i.e. how an essential but scarce natural resource and its value need to be shared. The qualification 'scarce' is important here since as well as referring to something being insufficient to meet an essential need it may also refer to its supply being insufficient to meet the market's demand. Water is an example of how the demand for a thing that nature freely provides may be a matter of survival for some people while for others a market demand for the same water may be driven by a desire for luxury or mere convenience. In the UK this rarely proves to be a problem except during a drought, and then those responsible for its distribution are obliged to introduce restrictions to domestic water use such as a hosepipe ban. A less well known restriction to the use of water for non-domestic purposes is trade effluent control where discharge into a public sewer may be limited according to criteria related to either quantity or quality or both in order to protect the integrity of the sewers or the treatment processes or the safety of the people responsible for their operation and maintenance. Hence effluents containing some substances may be banned entirely or limited in their concentration or volume. For other substances charges may be levied according to their impact on the treatment works.

For most UK homes and businesses their water, gas and electricity is provided by a monopoly supplier as a piped or mains supply. In contrast to the current gas and electricity situation virtually everyone has affordable access to sufficient safe water and it costs a typical low earning household a small fraction of their wages to meet their water related health needs. However, in many parts of the world millions of people do not have access to safe water, (let alone adequate wastewater arrangements) and where it is available it is generally unaffordable for typical low earning households.

In the UK our piped distribution systems provide sufficient and affordable safe water for all, but in water scarce regions of the world flow is often neither sufficient, affordable, nor safe. Insufficiency means supply is intermittent so it is discharged into a household's water tank during a short supply period and drawn from that tank during the rest of the day. This gives rise to three important issues. First: contamination through seepage into leaky pipes that are empty for most of the time. Second: inequitable distribution, as more wealthy households install pumps that can rapidly extract from the network and discharge into a much larger tank. Third: corruption and inequitable water charges arise as water meters become unreliable and readings arbitrary, so 'corrupt deals are done'.

## **'SAFE WATER FOR ALL'**

The 'Safe Water For All' (SWaFA) solution that I devised to address these issues uses drip or trickle flow technology to feed the household's storage tank continuously but at a very slow rate

such that every household is able to receive sufficient safe water to meet their basic health needs (40 liters/ head/ day). Then, according to the total water resources available, a limited number and range of enhanced or multi star services can be provided and auctioned at multiples of the basic per capita flow rate, e. g. in a 1,000 household zone there might be 100, 2 star; 50, 3 star; 20, 4 star; and 5, 5 star services provided. In this way the aggregate value of discretionary water in that community is revealed and collected (in the above example from 175 households) It excludes the value of the water that *everyone* needs and is distinct from any of the system's overall supply costs. Where it exceeds those costs it eliminates the need to charge for the basic (one star) service and becomes a source of public revenue. Where it does not it would simply reduce what householders on a 'basic' service would need to pay.

Challenges that attend my SWaFA system include how many 'multistar' services to provide, how many at each 'Star' level, and their corresponding flow rates. These are political decisions and are likely to vary depending upon both the seasonal water resources available, local circumstances and the interests and powers of decision makers. The situation we face in connection with land use planning and the permitted use of land plots is similar. Plots with *permitted use* for housing, or a commercial or industrial purpose are valued more highly than those without, and how that enhanced value is shared are political decisions that have a profound effect on the health and welfare of all people. It affects where and how they live and earn a living and on the economic rent of particular land plots as well as the monetary value of the nation's land. With both water and land the integrity of the decision makers is clearly vital if economic justice is to be assured. This becomes even more problematic if those decision makers enjoy monopoly or near monopoly control of the resource in question and partial or commercial interests are in conflict with the basic needs of all.

The SWaFA system illustrates how the market, on its own, cannot be relied upon to provide an efficient or effective, (let alone just) distribution of wealth where a scarce resource is involved - irrespective of whether that scarcity is natural or artificial. An artificial scarcity of a natural resource may be created in the public sector in response to a perceived public interest, e. g. a permitted use of land, or in the private sector for a commercial interest. An artificial scarcity of a human resource can likewise be created in the public sector, e. g. by licence laws or in the private sector by institutional qualifications, trade union 'closed shop' or cartel arrangements. The SWaFA system is also an example of how an essential but scarce natural resource and its value may be efficiently, effectively and equitably shared by recognising and collecting the economic rent of land (in this case in the form of water) for the whole community without reducing the socio-economic contribution that the market makes.

## **MARKETS AND MARKET PRICE**

There was a time when there was little trade in essentials such as the fuel, food or clothing that ordinary people needed and many of these things were provided within the context of family life. Members of the family would provide for each other on the basis of love, affection and sacrifice rather than mutual gain - even though that was the natural result. A significant measure of security, if not luxury, was another result. Family heads would take this into account in the extent to which they would allow the family to become dependent on outsiders. National governments have done and do similarly, usually through the imposition of 'protective' import barriers to trade. Unfortunately these have



mostly been driven by the commercial interests of particular industries rather than the interests of the whole nation. Free trade in slaves was not in the interests of all but was in the commercial interest of some. Free trade in land, in any of its forms, might be seen similarly. Today, more and more people and nations have come to rely on international trade and imports to supply them with the fuel, food and clothing they need to the extent that they are insecure - the current energy and food crises illustrate this.

Conventional economic theory teaches that in a market where there is free and perfect competition the price of goods and services bought and sold is set by buyers, suppliers are then price takers. Conversely where supplier's access to the market is less than free and there are barriers to entry, those suppliers remaining have more control over the quantity of the given good or service that is brought to the market and so become, more or less, price setters depending upon the extent to which they enjoy monopoly, or near monopoly, control over the good or service in question. However, irrespective of whether the supplier is a monopolist or not, the market price of the commodity equates to the marginal revenue of the marginal supplier, i. e. what the marginal supplier is either able (in the free market case) or willing (in the case of a monopolist) to accept.

Again, the current price of energy illustrates this as, despite the relatively cheaper production costs of non-gas based energy supplies, the market price of UK electricity is governed by the production costs of gas fuelled electricity. In turn the wholesale market price of gas used in the UK is based on the world's market price of gas as set by monopoly, or near monopoly suppliers. But natural gas and oil are gifts of nature - 'land'!

## **UK LAND AND NORTH SEA OIL AND GAS**

The story of how the UK government managed the gift that came with the discovery of a substantial amount of oil and gas in the North Sea section of the UK Continental Shelf is interesting here.

According to the government publication's Oil and Gas Authority (OGA) website, 'the government levied a royalty at 12.5% of the value of petroleum in 1976', i. e. when oil first started to come onshore in significant amounts. It was measured at 'wellhead value', i. e. the gross value of the petroleum recovered after deducting the costs of processing, storage, and transport incurred between a defined valve at the well-head and the point of sale. Other costs, including those associated with exploration, drilling, recovery and abandonment, were not deductible. This Royalty payment was abolished for new fields in phases starting in 1983, with abolition in its entirety with effect from the end of 2002. The reason given for its abandonment is that it '*distorted investment incentives*'. In 1978/9 the 'Petrol Revenue Tax (PRT)' and the 'Ring Fenced Corporation Tax (RFCT)' were introduced. Government revenue peaked in 1983/4 by which time the split was Royalty 20%, PRT 60% and RFCT 20%. In 2008/9 a second peak at around 47% of the first peak occurred by which time Royalty had disappeared, PRT had reduced to around 20%, and the Corporation Tax portion represented 80%.

The incentive that stimulates an investment is the hope and anticipation of a profitable return. In some respects 'investment' is like credit in that it enables people and firms to work and access the materials and tools they need to add value and produce wealth. It differs, in that credit given to a producer is based on a belief that the debt incurred can be redeemed out of the value of what the producer adds whereas an investor requires, in addition, an acceptable profit. This in turn will reflect the risks

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involved and the alternative opportunities available to a financial/commercial investor. The financial viability of a venture such as that of extracting oil and gas from the North Sea section of the UK Continental Shelf depends upon the costs involved being less than the income received on sale of the finished products. Those costs are increased by taxes levied on the labour and capital employed and on the acceptable profits, meanwhile the income received from sales is reduced by taxes imposed on the sale of the products. As profits have been squeezed so the government's revenue (based on those profits) has reduced to a small fraction of the rental value of the land from which the oil and gas are abstracted. That rental value could have been collected through abstraction Licence Fees but these have hardly featured during the period since 1976, showing in only two years, i. e. when they were issued. In 1980/81 they represented less than 5% of government's revenue from the oil and gas fields and in 1984/85 they were around 1%. Here I am again reminded of a parallel in connection with water abstraction licences that do not reflect the value of the water abstracted but merely the costs of issuing and administering the licence. Where water is abundant and there is no pressing need to limit its availability or use as in the UK at present, this matters little but with oil and gas the situation is quite different. An intelligent licencing system that took into account both the national and global impact of abstraction over the long term the scope for wiser management of this form of land might be improved.

## MARKETS (AGAIN)

The key function of a market is to facilitate voluntary exchange so that people are able to exchange something that they have for something else that they value more highly. Except in the case of barter 'things' are not exchanged directly but indirectly via an intermediary or medium of exchange, usually money or credit! Money then becomes what is most frequently exchanged so it becomes the unit of account and how the market value or price of something is expressed. It is normal to speak of those providing a good or service as sellers and those giving money in exchange as buyers. A common feature of markets is that buyers compete with other buyers and sellers compete with other sellers.

The value that people attribute to things lies at the core of exchange or trade. Both parties to a voluntary exchange are consequently better off and this mode of production lies at the root of civilisation as we know it. It enables people to specialise, acquire and develop useful skills and knowledge, and increase their socio-economic contribution. It can also enable people to more fully realise their own potential.

There is a market for each of the two primary factors of production - the land market and the labour market, but the market price of each and the source of each's exchange or market value differs. People attribute value to land because they are obliged to - *they cannot live without it!* They attribute differing values to land plots because: (i) no two land plots are exactly the same and they vary in their capacity to satisfy their wants, and (ii) no two people can enjoy exclusive occupation of the same plot at the same time, so they must compete for the best plot. In contrast people are not generally obliged to attribute an exchange value to the labour of other people but they choose to. This is because, while it may be possible for small groups of people to live without trading, (supplying for all their needs directly) people understand that they can live more fully by cooperation and exchange. It follows that while the value that people attribute to the labour of others is discretionary, a community is enriched or impoverished by the extent to which it is acknowledged and enabled.



In the final analysis all that people have to give in exchange for the use of a particular plot of land or a particular form of labour (service) or product of labour (a good) is of themselves; in economic terms their labour. However it is clear that in practice some are able to acquire what they want without rendering any service in return. They may simply benefit from a licence or entitlement granted by a public authority or man-made law. This is not to say that they do not need to exert themselves, clearly even a robber or fraudster needs to do that. The duty free control or 'ownership' of 'land' and the licence to supply money in a form that is indistinguishable from that in which taxes are paid are two important examples.

### MONOPOLIES

We may identify two distinct sources of a monopoly - natural or necessary monopolies on the one hand and artificial or discretionary monopolies on the other. A natural or necessary monopoly arises when, by its own nature, enjoyment or control of something necessarily prevents another from the enjoyment or control of it. Examples include the exclusive occupation of a particular plot of the earth's surface at a particular time or the grant of a licence to provide a public utility somewhere effectively preventing another from providing a similar utility at the same time and place. An artificial or discretionary monopoly arises when a government allows an individual or group to exercise exclusive control of the provision of a good or service, which is not necessarily or by its nature exclusive. In both natural and artificial cases, however, monopolistic control has an exchange value that is distinct from that which is due to production or producers, but is due to the permissions, protections and services that the community or its government provides - it thus matters that it is collected for the common good.

### LIMITS TO THE MARKET ECONOMY

For me the story I have outlined illustrates that useful and vital as it is, the market is unable to fully meet the economic needs of a free and prosperous society. There can be little doubt that a free and perfectly competitive market is a more intelligent, effective and efficient system for serving the needs of ordinary people for most produced goods and services than a centrally controlled production and distribution system, both from an individual supplier's perspective and from that of an individual consumer. It also provides an efficient and effective mechanism by which people may access many naturally provided or 'non-produced' goods and services that people desire, want or demand. However, where the supply of a good or service that is essential for the health and well-being of all the people within a community is insufficient to meet market demand it is clear that the market is demonstrably an inadequate mechanism for its effective, or equitable, distribution and effective governmental control becomes necessary.

At a global level the energy and climate crises reflects the problem of how a scarce and vital resource and its economic value needs to be equitably shared, in this case the safe sink capacity of the atmosphere. Closer to home the energy affordability crisis has caused me to wonder if a SWaFA type approach might be useful. Smart meter technology would enable the tariffs for domestic supplies of gas and electricity to differentiate between a basic per capita rate and a progressive range of discretionary rates that would apply to households consuming more than their basic per capita amount. As with water and land there is a basic level of energy availability that is essential to a civilised life and meeting the challenge of ensuring this requires ingenuity, knowledge and devotion to the truth. This may or may not be a useful

approach with regard to supplies to end users, but addressing the wholesale price of gas and electricity requires more and relates to the primary duty of a sovereign government.

### THE PRIMARY DUTY OF A SOVEREIGN GOVERNMENT

The primary duty of a sovereign government is to protect the well-being of its people and it is able to discharge this duty by exercising its powers over the people and the land, and by supplying the money by which it both rewards those who serve it and enables everyone to contribute to the nation's protection and well-being. Today, this contribution or tribute takes the form of taxes that must be paid in government created money. As most readers of *Land&Liberty* are aware, if those taxes are levied on the work and enterprise of people they discourage work and enterprise, while if they are levied on the rental value of land in its best permitted use they do not. The permitted use qualification is important because it is how the government can responsibly use its power over the land for the benefit of all. Where the supply of land with permission to be used for a purpose for which there is a high demand is restricted, its rental value is liable to increase and advocates of land value taxation see how collecting this government created increase would boost government revenue and fund good public works.

We need to be careful here, however, because maximising public revenue may not be consistent with the well-being of the people or the best use of the land. In my SWaFA water example it is easy to see how public revenue could have been increased by reducing the basic supply from 40 to 20 litres per head per day as more water would then have been available to sell at the high price the richest fraction of the community were willing and able to pay. This would not have been either the best use of a precious and scarce natural resource or in the best interests of the people as a whole.

### CONCLUSION - NORTH SEA OIL AND GAS (AGAIN)

A parallel may be drawn in connection with how our governments have managed the oil and gas that has been taken from the North Sea section of the UK Continental Shelf since 1976. Under a 'dash for gas' policy, the government granted BP, Shell, and other multinational companies rent free access and use of the shelf. Since then these companies have made substantial profits from their activities there and the treasury has received revenue based upon those profits, and from the employment based taxes of the people involved. However, one is bound to ask if the government has really made best use of this precious and scarce natural resource, or served the best interests of the British people as a whole? As indicated earlier, government policy hinged around encouraging the private sector to invest in the development and exploitation of the 'land involved'. That investment came first in the form of privately created 'credit money' - it was financed, but again as discussed earlier, the government/parliament could have created sufficient of its own 'credit money' via the Consolidated Fund for just such a purpose. It could then have employed people or companies with the appropriate expertise to extract and deliver the gas and oil to the nation's users in a manner that maximised the long term well-being of the people, minimised the negative environment impact and avoided our subjection to the 'world market price' for energy, i. e. this form of 'land'. If it had done so, along with the fiscal reforms we advocate, it could have kept all the value added in converting the natural resource into usable products other than that needed to properly pay (tax free), the relevant people and firms for their work. It is not necessary for the government to collect the rent of land for itself if the use of that land is devoted to the public good. 🇬🇧