



Tradable Energy Quotas: A policy framework for peak oil and climate change

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This is a guest post by Shaun Chamberlin. Shaun is the co-author of the report described below, as well as the author of [The Transition Timeline](#), and founder of [Dark Optimism](#).

On the 18th January 2011, the UK's All Party Parliamentary Group on Peak Oil ([APPGOPO](#)) launched their report into the TEQs (Tradable Energy Quotas) system of energy rationing.

Speakers included two Members of Parliament – John Hemming MP, Chair of APPGOPO and Caroline Lucas MP, author of the 2006 peak oil report [Fuelling a Fuel Crisis](#). Also speaking were [Jeremy Leggett](#), convenor of the [UK Industry Taskforce on Peak Oil and Energy Security](#) and Shaun Chamberlin, co-author of the new report. Copies of the report, answers to Frequently Asked Questions, video footage of the launch event and links to the media coverage can be found at: <http://www.teqs.net/report/>

John Hemming MP, Chair of APPGOPO: *"I believe TEQs provide the fairest and most productive way to deal with the oil crisis and to simultaneously guarantee reductions in fossil fuel use to meet climate change targets"* (the UK Climate Change Act mandates 80% emissions cuts by 2050).

Political progress

APPGOPO's endorsement of TEQs comes at an interesting time in the rationing scheme's progress towards political acceptability. The inventor of TEQs, Dr. David Fleming ([who passed away in November 2010](#)), was a close friend of ASPO's Colin Campbell and one of the early whistleblowers on peak oil, and designed TEQs explicitly to address peak oil as well as climate change. He first published on the scheme in 1996, but its profile has grown in tandem with that of the challenges it was designed to address.

TEQs first received a [Ten Minute Rule Bill](#) reading at Parliament in 2004, before extensive interest from research centres led to a Government-funded scoping study in 2006. This reached positive conclusions, and was followed by expressions of interest from successive Secretaries of State for the Environment.

Accordingly, the Government commissioned a pre-feasibility study into the scheme, which concluded in May 2008. The headline finding of this was that TEQs “*has potential to engage individuals in taking action to combat climate change, but is essentially ahead of its time and expected costs for implementation are high... The Government remains interested in the concept and, although it will not be continuing its research programme at this stage, it will monitor the wealth of research focusing on this area and may introduce (TEQs) if the value of savings and cost implications change*”.

The new [APPGOPO report](#) pulls together an impressive range of research to demonstrate conclusively that this condition has now been met, with bodies such as the Institute for Public Policy Research, the Lean Economy Connection, the Centre for Sustainable Energy and the UK Parliament’s own Environmental Audit Committee all having criticised the pre-feasibility study’s methodology and the decision to delay further moves towards implementation. One of the key criticisms is that the pre-feasibility study’s cost-benefit analysis was overly focused on carbon emissions, and entirely failed to take into account the benefits of ensuring fair access to energy.

More detail on the political progress to date is in Chapter 6 of the report, and links to the various reports and articles examining TEQs have been collected on the [TEQs website here](#), including details of the world's first tradable carbon rationing scheme in a 'closed system' island environment, being run by Australia's Southern Cross University and starting in 2011.



Caroline Lucas MP, Leader of the Green Party of England and Wales, and author of *Fuelling a Food Crisis*: “*The TEQs scheme would guarantee that the UK’s targeted carbon reductions are actually achieved, while ensuring fair shares of available energy*”.

How TEQs would work

So how does TEQs work, and how does it deal with the challenges that all rationing systems face?

TEQs is an energy rationing scheme designed to cover a nation’s whole economy, within which individual adults would receive an equal per capita Entitlement of electronic TEQs units, free-of-charge. Organisations, the government and all other energy users would have to buy their units at a Tender, or auction. The number of units issued into the economy via the weekly Entitlement and Tender would be determined by either the availability of energy resources or the national carbon budget – whichever represents the tighter constraint on the national economy at any given time.

The weekly auction would also generate a price for TEQs units, and all buying and selling of units within the nation would take place at that price (which would, of course, fluctuate in line with demand).

The purchase of any fuel or electricity within the national economy would require the surrender of TEQs units, alongside the usual monetary payment. Each TEQs unit would allow for the purchase of a set quantity of fuel or electricity. If the scheme were being used to address energy resource shortages, this quantity would simply be a proportion of the total resource available. If

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used to implement a carbon budget, it would be dependent on the lifecycle emissions associated with that energy source.

The TEQs design is based on the insight that all emissions from energy use within a national economy can be measured simply and efficiently by assigning a 'carbon rating' (e.g. 0.2 units per kWh, or 2.3 units per litre) to fuels and electricity, based on the quantity of carbon dioxide and other greenhouse gases generated by their production and use. Once this is established, the total emissions attributable to a given purchase becomes implicit in the quantities listed as usual on invoices, utility bills and till receipts.

The TEQs system simply uses this information, making it unnecessary to measure carbon emissions directly, or to grapple with the endless costs, complexities and compromises of embodied emissions calculations and carbon labelling. This 'carbon rating' for fuels and energy also provides a competitive advantage to retailers of more efficiently or renewably generated energy, who would not have to require their customers to surrender so many units.

The purchase of goods other than energy would not require the surrender of TEQs units, since the producers of those goods would have already surrendered units for the energy used in the production of the goods. Producers would then pass on the cost of buying these units to consumers, who would simply find that certain goods (those produced in a more energy-intensive manner) cost more.



Lord Smith of Finsbury, Chairman of the UK Environment Agency: *"Rationing is the fairest and most effective way of meeting Britain's legally binding targets for cutting greenhouse gas emissions"*.

Rationing? Really?

Rationing has acquired a bad name with the public due to its obvious association with shortage, yet it is clearly a response to shortage, not the cause of it. It might be argued that the word rationing contains two intertwined meanings. The first is limits to what people are allowed to consume, the second is guaranteed minimum shares for all. The first of these can cause resentment, but in times of shortage populations cry out for the second.

TEQs are rationing in the second sense as they guarantee an Entitlement to minimum shares for all, but they are not rationing in the first sense as they allow individuals to exceed their basic Entitlement (if they are willing to pay those who choose not to for the privilege). The purpose of TEQs is not to limit the consumption of individuals per se, but rather to share out fairly the shrinking energy budget required by national circumstances, and to allow maximum freedom of choice within that.

In the absence of such a framework, resources in short supply would simply go to the richest ("rationing by price"), strongest or quickest, creating massive inequity and attendant resentment. With TEQs everyone is guaranteed a basic Entitlement.

The reasons for making TEQs units tradable are twofold. Firstly, prohibiting the exchange of rations in the past has always led to substantial black market activity, unnecessarily criminalising

otherwise law-abiding individuals. Secondly, energy demand differs from food demand (the most commonly quoted example of rationing, at least here in the UK); while we all require comparable amounts of food, certain vocations intrinsically require more energy. For this reason a non-tradable equal Entitlement would simply destroy many professions.

With tradable rations those who live within their TEQs Entitlement can sell their surplus onto the market, rewarding their energy-thrift and increasing the supply for those who want or need to purchase additional units. Since the poor use less energy than the rich, the scheme would also be redistributive.

The actual use of TEQs units would be very straightforward. As units are only required for direct purchases of energy, utility bills and fuel purchases are likely to be most people's main direct engagement with the scheme. Utility bills are already easily paid by direct debit, and the TEQs cost of fuel purchases could either be paid together with the cash cost via a credit card linked to an individual's TEQs account, or a separate TEQs card could be carried and swiped alongside the money transaction. If an individual had no card and needed to buy additional TEQs units the cost of these (at the current national price) would simply be added to their bill at the point of energy purchase.



Jeremy Leggett, convenor of the UK Industry Taskforce on Peak Oil and Energy Security: *“What I like about TEQs is the fairness of it. When the energy crunch hits us, it will behove government and industry to ensure equitable access to available energy, within a national budget. TEQs is a route to synergistic efforts of the kind we will need if we are to mobilise the infrastructure of a zero-carbon future fast, under pressure. It would increase the chances of working our way through the grim times to renaissance-through-resilience.”*

Popular engagement

TEQs would have a price-balancing effect that would benefit the planning of energy consumers. The price of energy and the price of TEQs units will tend to move in opposite directions. When oil prices increase, this will reduce the demand for oil (at least to some degree), therefore reducing the demand for units and thus their price, so that the net price paid by consumers (oil + units) is more stable than the price of either oil or units alone.

Since the scheme covers the entire national economy, the variations in the national price of TEQs units would be of interest to all. And since lower demand means lower prices the population would be encouraged not only to reduce their own energy use, but also to work with other individuals and organisations and urge them to do so. Additionally, the substantial income from the weekly auction of units to organisations would be accessible to communities to fund the building of new local infrastructure or otherwise support their energy transition.

It would be transparently in the collective interest to work together in finding ingenious ways to increase low-carbon energy supplies, reduce demand and move towards the shared goal of living happily within our energy and emissions constraints, with the TEQs price providing a clear indicator of how well the nation is doing.

This cooperation is essential, since the rapid transformation in infrastructures necessitated by peak oil and climate change requires collaboration between the different sectors of society, united in a single scheme easily understood by all. It is a critical feature of TEQs that it encourages constructive interaction between households, businesses, local authorities, transport providers, national government, and so on. In short, the scheme is explicitly designed to stimulate common purpose in a nation.

The public may often be tempted to hold fossil-fuel companies and governments responsible for all our ills, but it must be recognised that even if these bodies wished to, they could not solve our energy problems without the engagement of the wider public. Our individual and community lifestyles need transformation too, and this cannot be done for us.



Jonathon Porritt, Founder Director, Forum for the Future: *“This eloquently presented proposal merits very serious consideration by all political parties. There remains an undeniable gap between the current policy mix and what we actually need to do urgently both to reduce emissions of greenhouse gases and to avoid the potentially devastating consequences of declining fossil fuels. Tradable Energy Quotas offer significant policy advantages in addressing both those pressing imperatives”.*

Policy advantages

As is widely recognised, we currently have a contradiction at the heart of our energy/climate policy, with proposals for emissions caps to deal with climate change sitting alongside support for coal, tar sands and the like to address our energy challenges. It is increasingly clear that the common solution is to reduce fossil fuel usage, but the key approach to this thus far has been to focus on raising the carbon price.

Unsurprisingly, it has been hard to gain popular support for increasing the cost of fossil fuels, since people rightly perceive that this increases their cost of living. And this approach also leads us towards the self-contradictory pursuit of trying to raise the carbon price while striving to keep energy prices low.

TEQs offer a fundamentally different approach. Rather than raising the price of carbon/energy and hoping that this reduces demand sufficiently, TEQs start from a strict quantity-based budget, and allow price to find its level in response to that. This restores straightforward motivation for individuals, organisations and nations. Once you guarantee people a fair Entitlement, in line with a declining cap, society can then collectively focus its attention on finding ways to thrive on reduced demand, and thus keep the price of energy/carbon as low as possible. This is a simply-understood task that everyone can buy into with enthusiasm.

TEQs might also make a difference at the international level, where agreements are proving so elusive. Introducing national TEQs schemes would allow leaders to have confidence that the

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national emissions reductions they are discussing will actually happen, emboldening them to throw down the powerful challenge: “we are acting, so must you”.

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More detail on every aspect of TEQs, the scheme’s fit with existing UK and European policies and the energy and climate challenges it is designed to address can be found in the [APPGOPO report](#), with Chapter 2 focused entirely on TEQs’ role in assuring entitlements to energy.



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