

# How the State can make Ireland a Leader in Tackling Climate Change: **TEQs: Empowering Citizens for Radical Climate Action**

Submission to the Irish Citizens' Assembly<sup>1</sup> by:

Professor Barry McMullin  
Dublin City University<sup>2</sup>  
11th August 2017



---

<sup>1</sup> <https://www.citizensassembly.ie/>

<sup>2</sup> This is an individual (scholarly) submission. Views expressed are not endorsed by Dublin City University.

# Summary

Through ratification of the Paris Climate Agreement, Ireland has committed to limiting global average temperature increase, caused by human activities, to “well below 2°C” over pre-industrial levels, and taking actions to attempt to respect a lower limit of +1.5°C over pre-industrial. These goals are based on the best available scientific assessment of likely severe risks of dangerous climate change on a very widespread global basis as these temperature limits are approached or exceeded. Failing to hold to these temperature goals would raise very real potential for climate change impacts on a scale that could overwhelm any possibility of effective adaptation. **This is not an issue of an uncertain, distant future: climate change profoundly threatens the security and welfare of younger generations already living today, in Ireland and globally.**

For Ireland to play our “equitable” part, we would likely now require a sustained reduction in gross greenhouse gas emissions (especially, but not exclusively CO<sub>2</sub>) of at least 8-10% year on year, every year, until they have fallen effectively to zero (i.e. well below natural, background, processes of CO<sub>2</sub> removal). This represents, in effect, a “national emergency” scale response — but an emergency response that would have to be sustained for decades. Yet nothing short of such a scale of action could now represent genuine, fair, international leadership in tackling climate change.

However, **to date, Ireland’s response has been largely aspirational**: we have experienced great difficulty in achieving either political leadership or societal licence for the deep emissions cuts now required. Indeed, our projected emissions are currently expected to rise again, in line with economic “recovery”. **A fundamentally new approach is desperately needed.** This submission suggests that such a new approach is indeed possible, and has already been the subject of intensive academic study and analysis. While a variety of detailed models have been proposed, I focus here on one specific framework known as “Tradable Energy [Emissions] Quotas” or TEQs (pronounced “tex”). This combines two essential elements: a socially agreed, enforced, and declining cap on the available national emissions in the target sectors; and an allocation of this now visibly scarce national “resource” to all citizens on an open, transparent and equitable basis. All further, detailed, responses can then be ultimately delegated to citizens: citizens are empowered to choose for themselves how to best manage their activities within their available or affordable allocations.

We need decisive, committed, political leadership: but those leaders need real tools that will be effective, while still allowing citizens genuine freedom and control of how they live their lives through and beyond this unprecedented societal transformation. **The TEQs system addresses exactly these goals: but it needs some country to now take the bold step of demonstrating its successful operation. Ireland, by virtue of its size, its young population, its technological infrastructure and expertise, and its severe difficulties to date in achieving effective emission reductions, is uniquely well placed to take this leadership role.** I commend it to the consideration of the Assembly.

# Introduction: the Climate Change Threat is Real, Immediate and Potentially Overwhelming

The parties to the Paris Climate Agreement, including Ireland, have committed to the goals of limiting global average temperature increase, caused by human activities (particularly the uncontrolled release of greenhouse gases into the atmosphere) to “well below 2°C” over pre-industrial levels, and taking actions to attempt to respect a lower limit of +1.5°C over pre-industrial.

These goals are based on the best available scientific assessment of likely severe risks of dangerous climate change on a very widespread global basis as these temperature limits are approached or exceeded. Indeed, significant impacts are already clearly visible in many parts of the world, including Ireland. **Failing to hold to these temperature goals would raise very real potential for climate change impacts on a scale that could overwhelm any possibility of effective adaptation.** This analysis accurately reflects the trajectory of current (well-meaning but entirely inadequate) climate responses around the world, and it represents the outcome of the most rigorously honed scientific understanding ever achieved in human history. **This is not an issue of an uncertain, distant future: climate change profoundly threatens the security and welfare of younger generations already living today, in Ireland and globally.**

Of course, climate change is a global problem and needs a global response: but some of us contribute much more than others to the problem, and also have a much greater capacity (material wealth, infrastructure etc.) to act. Accordingly, **some must play a much bigger role in the response than others.** Given that, on a per capita basis, Ireland's total annual emissions are currently among the highest in the world, fairness and justice suggests that we have a particular obligation to work harder (and earlier!) at reducing them.

The world is in urgent need of new leadership in tackling climate change: the Citizens' Assembly can make a decisive contribution to helping the Irish State to take on such a leadership role. I welcome the opportunity to contribute to this process.

## Irish and EU Climate Action: the Story so Far

Irish climate actions to date have been largely “top-down” and driven by specific EU level policies or obligations. Within the EU policy structure, greenhouse gas emissions reductions are addressed particularly through two separate but complementary mechanisms: the “EU Emissions Trading System” (ETS), dealing with large scale industrial emissions sources (primarily fossil fueled electricity generating stations in the Irish case); and emissions from all other sources (transport, heating, agriculture), generally referred to as the “non-ETS” sector.

Emissions in the ETS sector are addressed (in principle at least) by setting a cap at the EU level, and requiring individual emitting sites to purchase “allowances” to cover their emissions. The allowances can be traded, as necessary. The cap itself declines over time in a planned way. While there are significant concerns about the ongoing design and operation of the ETS<sup>3</sup>, these emissions have been successfully constrained within set limits to date, at the EU level; and no specific additional interventions or actions have been necessary at national level to enforce this.

---

<sup>3</sup> In particular, there have been criticisms of the current large oversupply of allowances, including historical issuing of “free” allowances to “incumbent” polluters, consequent low allowance prices and an inability to drive much deeper, ongoing, emissions reductions.

By contrast, achieving reductions in non-ETS emissions are directly the responsibility of member states, at national level; and while the vast majority of member states are expected to achieve their immediately committed levels of reduction (at least up to 2020), the current EPA projections are that Ireland will fall far short of its 2020 target (at best achieving a reduction of 6% relative to 2005 levels, against a target of a 20% reduction).

While there has been some commentary suggesting that this Irish target was originally set at too ambitious a level, that seems to rather miss the point. Ambitious or not, it was voluntarily entered into by the State, on behalf of its citizens. Effective, good faith, EU-wide action would become impossible if individual member states were to arbitrarily renege on such commitments. More importantly, the current overall level of emissions reduction effort at EU level (in both ETS and non-ETS sectors) is already known to be significantly short of what is required to meet the (already very risky) temperature goals of the Paris agreement: so even if Ireland were, on some valid basis, to negotiate some moderation of our “fair share” of EU action, that would almost certainly be completely negated by the pressing need to increase aggregate effort across the EU as a whole.

It is clear, in other words, that any aspiration by Ireland to international “leadership” in tackling climate change will require us firstly to set progressively stronger targets for emissions reduction, but secondly, and much more importantly, *to actually deliver on achieving those reductions*. This is especially the case for the non-ETS emissions, which are solely a national responsibility. It is clear that our attempts to date in this respect have been wholly inadequate. This is at least suggestive that a radically different approach is needed.

However, a key barrier here is social acceptance of such necessarily radical, and potentially very disruptive, societal change. Recent experiences in relation to the implementation of water charges, and deployment of major infrastructure (Corrib gas pipeline, North-South interconnector, onshore wind farms) highlight clearly the dangers of excessive reliance on “imposed” or “top down” measures. It would be facile to dismiss opposition to such measures as so-called NIMBYism. The vast majority of citizens engage with and recognise challenges facing us at societal level, and understand perfectly well that, sometimes, effective societal responses may require difficult and unpalatable measures to be taken; but they also insist that, in such cases, the responses must be proportionate, transparent (with genuine, meaningful, involvement in decision making by all those directly affected), and, above all, *fair*. Indeed, the national response to the banking crisis demonstrated an extraordinary capacity for collective solidarity in the face of existential challenge: *provided* that it is clear that, as far as possible, the burden is being shared by all (fairly, according to needs and abilities), and that “free riding” on the efforts of others will not be tolerated.

In summary then, it might be suggested that the conundrum of Irish national climate policy to date has been that measures which might have been effective have been viewed as socially (politically) unacceptable; and measures judged to be socially (politically) acceptable have been found to be ineffective.

# TEQs: A Framework for National Climate Action that is both *Fair and Effective*

So is this simply a counsel of despair or is there any radically different approach already available that we might consider, which would simultaneously address the conflicting needs for effective, radical, emissions reduction, while still achieving the necessary high levels of societal acceptance and engagement?

I suggest that, in principle at least, such a radically different approach is indeed available; and, further, Ireland is uniquely well suited to model and demonstrate such an approach, and therefore to provide decisive international leadership in tackling this seemingly intractable global problem.

The new approach must combine two essential elements: a socially agreed, enforced, and declining cap on the available national emissions in the target sectors; and an allocation of this now visibly scarce national “resource” to all citizens on an open, transparent and equitable basis. All further, detailed, responses can then be ultimately delegated to citizens: citizens are empowered to choose for themselves, individually, in communities, or in organisations (commercial or otherwise), how to best manage their activities to be consistent with their available or affordable allocations. There is no requirement for further bureaucratic design, or imposition of detailed top down measures or incentives (generally yielding highly uncertain impacts); instead, there is fair sharing of the burden of action with no possibility of free riding; the declining cap ensures that the sum of all these distributed responses “adds up” to meeting the committed overall targets, and yields a consistent, reliable and predictable trajectory to a completely decarbonised society. We won’t know — indeed, we probably can’t know — in advance exactly what that decarbonised society will ultimately look like: it will depend on the detailed evolution of everyone’s separate behaviours, choices and preferences, as well as available technology options, as the process unfolds. But while we will all retain our autonomy and scope for choosing distinct decarbonisation pathways for ourselves, our families, and our communities, we can also all be confident that, together, in solidarity, our separate actions are collectively delivering the scale of change that is needed to ensure a liveable world for our young people, our children, and generations still to come.

Versions of this general kind of approach have already been the subject of extensive academic study and analysis under a variety of specific terms, such as “personal carbon trading”, “personal carbon allowances” or “carbon fee and dividend”. The approach has some ideas in common with the “cap and trade” system already in place, at the EU level, for the ETS sector; but it is very distinctive in operating at national level, targeting all emissions sources (not just large industrial installations), demonstrating transparent and equitable allocation, and focussing on the direct involvement and empowerment of citizens to make local decisions with local consultation and local knowledge. While there are a variety of proposals in existence, perhaps the most thoroughly worked out is the concept originally formulated by the late David Fleming, and known as “Tradable Energy [Emission] Quotas” or **TEQs** (usually pronounced “tex”).

Comprehensive information about the TEQs framework is available at the website of the Fleming Policy Centre<sup>4</sup>, and in the wider academic literature<sup>5</sup>, but in summary it operates as follows<sup>6</sup>:

1. TEQs (Tradable Energy-Emission Quotas) is an electronic system for fairly reducing consumption of emissions-intensive products (primarily energy, in the first instance) at the national scale.
2. TEQs potentially provide a reliable mechanism to guarantee achievement of any agreed national emissions reduction pathway over time.
3. TEQs are measured in specified units (typically kg of CO<sub>2</sub> or equivalent).
4. Every adult citizen is given an equal free entitlement of TEQs units each week. (Children may be additionally allocated a reduced, age-related, allowance.) Other energy users/GHG emitters (Government, industry etc.) bid for their required units at a weekly tender, or auction.
5. When you buy energy products, such as petrol for your car, units corresponding to the amount of associated emissions are deducted from your TEQs account, in addition to your money payment. This is the only time you need TEQs units, and transactions are generally automatic, using credit-card or direct-debit technology.
6. If you use less than your entitlement of units, you can sell your surplus. If you need more, you can buy them. All trading takes place at a single national price, which rises and falls in line with demand (but potentially also with a specified minimum or “floor” price, escalating over time in a predictable way). Buying and selling is as easy as topping up a mobile phone.
7. The total number of units available in the country is set out in advance in the TEQs pathway. The total available annual emissions (the “cap”) goes down year-by-year – step-by-step, like a staircase. This pathway is set (and adjusted if necessary) to ensure that we decarbonise at a rate that is consistent with the global temperature rise goals enshrined in the Paris climate agreement, doing our national “fair share” based on principles of global justice and equity. This pathway should, of course, simultaneously meet or exceed commitments entered into at EU level (since the EU as a whole is also a party to, and bound by, the Paris agreement).
8. The State itself (including government agencies and public bodies etc.) is bound by the TEQs scheme; its role is to support citizens in thriving in whatever ways they choose within the available carbon/energy.
9. Since the national TEQs price is determined by national demand, it is transparently in everyone’s interest to help each other to reduce their energy demand, and to work together, encouraging a national sense of common purpose and solidarity.
10. While the immediate focus above is on carbon-dioxide emissions associated with energy consumption, once operational the TEQs system can be progressively developed to address sources of other major greenhouse gases: especially methane and nitrous oxide, particularly linked to certain specific emissions-intensive agricultural practices and associated food products.

There are, of course, many details that have to be refined in planning full deployment of TEQs: determination of the national emissions pathway, underpinning infrastructure and supports, rolling out TEQ accounts to all citizens, dealing with potential effects on international competitiveness, interactions with the ETS system where it might overlap with TEQs (particularly electricity supply) etc. However, much analysis is already freely available on these issues. The critical missing factor is not conceptual, financial or technological: it is the need for political leadership and the public mobilisation to commit to decisive climate action — while we still have the time and capacity to do so. There is a clear opportunity and imperative to act: but time is not on our side.

---

<sup>4</sup> <http://www.teqs.net>

<sup>5</sup> For a detailed, up to date, review and summary of the TEQs literature see: Shaun Chamberlin, Larch Maxey & Victoria Hurth (2014) *Reconciling scientific reality with realpolitik: moving beyond carbon pricing to TEQs – an integrated, economy-wide emissions cap*, Carbon Management, 5:4, 411-427. <http://tinyurl.com/y8fqnrnl>

<sup>6</sup> This summary has been adapted from the TEQs website. Some details have been changed in an attempt to clarify how TEQs use energy products as, in effect, a proxy for associated greenhouse gas emissions, but can be generalised to deal with other emissions-intensive products or activities (particularly agriculture). However, in case of doubt, the TEQs website provides the authoritative explanation.

## Conclusion: A Time for Bold Action

For Ireland to play anything approaching our “equitable” part in tackling climate change, we would likely require **a sustained reduction in gross greenhouse gas emissions (especially, but not exclusively CO<sub>2</sub>) of at least 8-10% year on year<sup>7</sup>**, every year, until they have fallen effectively to zero (i.e. well below natural, background, processes of CO<sub>2</sub> removal).

This would represent, in effect, a “national emergency” scale response — but an emergency response that would have to be sustained for decades. It would require unprecedented political courage — coupled with honest, open, engagement with citizens about the scale of the predicament we now face. However, given the now rapidly closing window for effective action (i.e., consistent with reliably meeting the Paris Agreement temperature goals), nothing short of such a scale of mitigation commitment could represent genuine, fair, international leadership in tackling climate change.

So we need decisive, committed, political leadership: but those leaders need real tools that the state can deploy, that will be effective (commensurate with the emergency scale of action now needed), yet transparent and just, and deployed in a way that still allows citizens genuine freedom and control of how they live their lives through and beyond this unprecedented societal transformation. The TEQs system has already been conceived, designed, and rigorously assessed to meet exactly these goals: but it needs some country to now take the bold step of modelling and demonstrating its successful operation. Ireland, by virtue of its size, its young population, its technological infrastructure and expertise, and its severe difficulties to date in achieving effective emission reductions, is uniquely well placed to take this leadership role. I commend it to the consideration of the Assembly.

---

<sup>7</sup> See, for example, Anderson, Kevin, and Alice Bows, 2011, “Beyond ‘Dangerous’ Climate Change: Emission Scenarios for a New World.” *Philosophical Transactions of the Royal Society A* 369 (1934): 20–44.  
<http://rsta.royalsocietypublishing.org/content/369/1934/20>