



PMR TURKEY PROJECT

ASSESSMENT OF MBI POLICIES FOR TURKEY



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Assessment of Market Based Emission Reduction Policy Options for Turkey

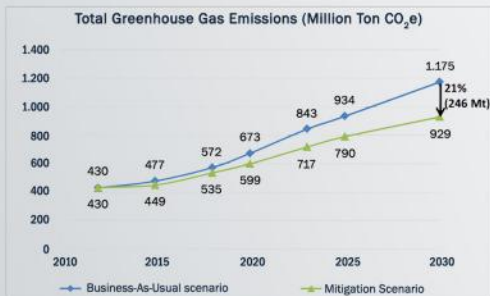
1 Introduction

1.1 The project

This 1-year project has been funded by the World Bank's Partnership for Market Readiness (PMR) and will be led by the Ministry of Environment & Urbanisation. It brings together local and international expertise in market based policy measures greenhouse gas (GHG) reduction, energy efficiency and renewable energy from Ricardo Energy & Environment and its partners, Ecofys and Lifenerji.

The project will look at the suitability of different market-based instrument (MBI) options to achieve or aid reductions in GHG emissions in Turkey

Turkey's nationally determined contribution (NDC), submitted to the UNFCCC ahead of the Paris Conference of the Parties (COP) in 2015, committed up to a 21% reduction in GHG emissions from the Business as Usual (BAU) level by 2030.



The project will assess the potential use of carbon taxes, renewable certificate trading, energy efficiency trading, scaled up crediting and results-based financing. It will assess the suitability of these MBIs in Turkey by considering the local context, national climate change and wider environmental priorities, and the existing legislative landscape.

The project will aid capacity building in Turkey amongst key ministerial, sector-level and business stakeholders and support policy decision making. This project forms part of Turkey's wider PMR activities, as outlined in its Market Readiness Proposal (MRP), and will feed into a synthesis report and recommendation to Turkey's climate change committee regarding the future direction of Turkey's climate change mitigation efforts.

1.2 Turkey in the international context

Turkey's GHG emissions account for just 0.7% of global emissions since the industrial revolution. However, rapid population growth (30% increase since 1990) and rapid increases in industrialization and urbanization has seen Turkey's energy demand increase by 6-7% per year.

1.2.1 National policies and current sectoral approaches

The MBIs will be assessed on their compatibility with Turkey's existing national policies, specifically:

- 10th National Development Plan
- National Strategy on Climate Change
- National Climate Change Action Plan

2 Market based instruments (MBIs)

The project will develop international case studies for the potential MBIs. The following sections introduce the MBIs and provide extracts from these case study examples.

2.1 Carbon tax (CT)

Carbon taxes are an explicit form of carbon pricing in which the tax is applied to the quantity of carbon dioxide emissions from a polluter. The tax is often expressed as a price per tonne of CO₂ equivalent (tCO_{2e}). In a closely related variant, the tax can also be applied per unit of fossil fuel energy consumed by a polluter (an 'energy tax'). A carbon tax provides an incentive for polluters to decrease their emissions through fuel switching, energy efficiency improvements, switching to lower carbon intensity products (substitution) or reductions in demand for emission producing activities. Tax revenues can be recycled to further target emission reductions or alleviate the effects of carbon pricing.

An example model for a carbon tax is the UK's Climate Change Levy, which was implemented in 2001 and continues to be a central part of the UK's energy efficiency tax landscape. The UK Treasury annually sets the CCL rates due on various taxable commodities, by energy content. These are:

Taxable commodity £/unit	Rate 1/4/16	Rate 1/4/17	Rate 1/4/18
Electricity (£/MWh)	5.59	5.68	5.83
Gas (£/MWh)	1.95	1.98	2.03
LPG (£/t)	12.51	12.72	13.04
Other taxable commodity (£/t)	15.26	15.51	15.91

Figure 2: CCL rates 2016 – 2018 (HMRC)

There are systems of rebates, alternative rates and exemptions to further encourage emission reductions and to minimise the impacts on vulnerable sectors, including:

- Exemptions for small energy consumers, domestic sector and some charities - Exemption
- Climate Change Agreements (CCAs) – Rebate
- Combined heat and power (CHP) - Exemption
- Carbon Price Floor (CPF) / Carbon Price Support (CPS) – Alternative rates

2.2 Energy efficiency trading scheme (EETS)

An energy savings obligation is placed on participating entities, who may either comply by undertaking EE measures, or surrender energy saving certificates, representing verified savings achieved by other participants in the system. Variations of the systems exist where obligated entities are either electricity distributors (targeting savings the residential sector for instance) or energy-intensive consumers (targeting savings in their own consumption). A market or trading facility may be created by the regulator to facilitate this trade. Policy examples include:

Energy Company Obligation, UK

ECO is an example of an EETS where electricity suppliers are obliged to make carbon and cost savings in households by implementing energy efficiency measures. There are specific obligations targeting low income and rural households. ECO1 ran from 2013-2015, however the UK has had an EETS in place since 2002, under different scheme names.

Overall targets are set by the UK Government and proportions of the target are allocated according to suppliers' market share. Carbon and costs savings are calculated on the basis of standard lifetime savings for a list of eligible measures.

Suppliers comply with the scheme by implementing eligible EE measures in target households. They can also manage compliance through trade. This takes the form of transfer requests between companies to be approved by the administrator.

Perform, Achieve, Trade, India

If participants deliver more savings than the target, they are issued EsCerts– equivalent to 1 toe of energy consumption. These can be sold to participants unable to meet their target.

Nonetheless, if a participant under-delivers on their target, they are penalized by paying a fine in addition to purchasing an amount of EsCerts proportional to their short fall.

Participants may trade EsCerts amongst themselves, or bank these for the subsequent compliance period.

2.3 Renewable energy trading system (RETS)

Under a RETS eligible renewable energy generators receive one renewable energy certificate (REC) per megawatt hour (MWh) of electricity produced. An obligation is placed on electricity suppliers to acquire a specified number of RECs each year, usually corresponding to a proportion of the electricity they supply. RECS can be traded between electricity generators, suppliers and other market participants. By establishing a value for RECs, the system provides a financial incentive for eligible renewable generation.

An example of a RETS is the UK's Renewable Obligation (RO) scheme, which was implemented in the UK in 2002. The UK's Government sets the obligation level for all UK licensed electricity suppliers according to a published methodology that ensures that there will always be demand for renewable certificates.

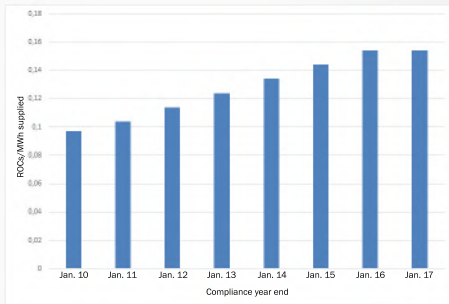


Figure 7: RO obligation level

The electricity suppliers have two compliance options for meeting their obligation; they can acquire and surrender renewable certificates (which under the RO are called Renewable Obligation Certificates or ROCs) or they can pay a buyout price, or a combination of both. Buyout payments are used to fund the administration of the system, with the remainder recycled to the suppliers in proportion to the number of ROCs they surrender. This recycle increases the value of each ROC and therefore provides an enhanced incentive for renewable generators.

Band	Rate (ROC/MWh)
Onshore wind	0.9
Energy from Waste with CHP	1.0
Solar PV (building mounted)	1.4
Offshore wind	1.8
Wave	2.0

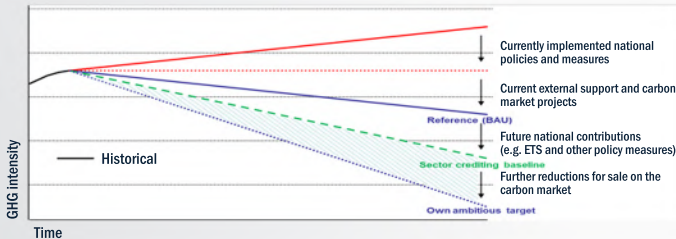
Figure 8: ROCs earned per MWh (England and Wales, 2016/17)

For full list see: https://www.ofgem.gov.uk/sites/default/files/docs/ro_guidance_for_generators.pdf

The number of ROCs earned by generators for electricity produced varies by renewable technology, with more expensive technologies tending to earn more ROCs. Some examples of rates are shown on the left.

2.4 Scaled-up crediting mechanism (SCM)

A scaled-up crediting mechanism (SCM) is a policy instrument that generates and issues credits to sectors, or installations within sectors, which reduce emissions, energy use or energy intensity below a predetermined benchmark level or “baseline”. Building on experience and insights from project-based mechanisms, such as the Clean Development Mechanism (CDM) or voluntary carbon standards, an SCM has a broader scope by applying the concept of crediting to an aggregated number of emission sources.



In case of a sector-approach, (sub-)sector-wide parameters or benchmarks are used to cover all or most activities or installations within a certain sector boundary instead of considering selected activities and installations to be subject to mitigations measures. Incentives are thus set at the sector level rather than at the facility level.

There are limited examples of scaled-up crediting mechanisms in operation, although this is likely to change as more countries look to implement flexible policies to achieve their targets. Some existing initiatives feature scaled-up crediting, such as the Programme of Activities (PoA) under the CDM.

2.5 Results based finance (RBF)

Results-based finance (RBF) is a mechanism which provides financing based on pre-defined outcomes of a project or programme. In the context of climate finance it can take the form of a carbon pricing instrument rewarding pre-defined mitigation outcomes through payments per tonne of actual achieved GHG reduction. As payments are made ex-post, entities generating the emission reduction have a strong incentive to deliver upon the agreed results while funders are attracted by the certainty of mitigation results.

RBF can be applied to national and regional activities as well as to government or private sector activities. Allocation of RBF can be through various methods, e.g. through auctions, case-by-case negotiations or fixed prices for results.

Furthermore, initiatives differ with regard to their MRV requirements and their ability to address development co-benefits that go beyond the climate change mitigation aspect as well as with regard to the form of results. For instance, within the Global Energy Transfer Feed-in Tariff Program in Uganda, payments are made in form of payments per Kilowatt-hour whereas various other RBF initiatives rely on tradable units such as the Clean Development Mechanism (CDM) Certified Emission Reductions (CERs).

3 Next steps

3.1 Project activities

The project will be undertaken through four principal tasks:

- Task 1 analysis will look at up to 10 MBI/sector pairings, highlighting the relative benefits and disadvantages of each in the Turkish context.
- Task 2 will assess the impacts and revenue recycling options of each MBI, drawing on international examples.
- Task 3 will analyse how each MBI might fit into the current / planned national and sectoral policy landscapes.
- Task 4 will take the results of the previous three tasks and make recommendations on the MBI(s) Turkey could implement.



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