

Turkish Carbon Market – Current Trends and Options for Growth



European Bank
for Reconstruction and Development



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9 April 2013

Prepared for the European Bank for
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Glossary

AAU	Assigned Amount Unit
AFOLU	Afforestation, Forestry and Land Use
ANSI	American National Standards Institute
CAR	Climate Action Reserve
CBCC	Coordination Board on Climate Change
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
COP	Conference of the Parties to the Kyoto Protocol
CSR	Corporate Social Responsibility
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EIB	European Investment Bank
ERPA	Emission Reduction Purchase Agreement
ERU	Emission Reduction Unit
ETS	Emission Trading Scheme
EUA	EU Allowances
EU ETS	EU Emission Trading Scheme
DOE	Designated Operational Entity
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	Greenhouse Gas
GS	Gold Standard
JI	Joint Implementation
NCCAP	National Climate Change Action Plan
MidSEFF	Turkish Mid-size Sustainable Energy Financing Facility
MRV	Measurement, Reporting and Verification
Mt	Million tonnes
NAMA	Nationally Appropriate Mitigation Action
NMM	New Market Mechanism
NGO	Non-governmental Organisation
OTC	Over-the-counter
PMR	Partnership for Market Readiness
tCO ₂ e	Tonnes of CO ₂ equivalents
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VER	Voluntary Emission Reduction
VERPA	Voluntary Emission Reduction Purchase Agreement
WBCSD	World Business Council for Sustainable Development



Acknowledgments

This report is drafted as part of the Carbon Finance Consultant assignment for the Mid-size Sustainable Energy Financing Facility (MidSEFF). The principal is the European Bank for Reconstruction and Development (EBRD), and the assignment is funded by the Bank's Special Shareholder Fund (SSF) – see also www.turkishcarbonmarket.com and www.midseff.com.

A number of industry and government stakeholders contributed profoundly to the study by providing their expertise and market expectations. This includes the 45 respondents to the Carbon Market Survey, carried out by the authors in the period December 2011 to January 2012 among active Turkish carbon market participants. The authors also appreciated the opportunity to meet with key staff on carbon market and climate change related topics at the Turkish Ministry of Environment and Urbanization, Ministry of Energy and Natural Resources, Ministry of Development, Ministry of Foreign Affairs, Ministry of Economics, UNDP Ankara Office, World Bank Ankara Office, EU Delegation to Turkey, Capital Markets Board of Turkey and the Istanbul Stock Exchange. Lastly, a number of London based brokerage firms active in the voluntary carbon market were interviewed. As meetings were held in confidence, the names of these companies are not disclosed.

In literature, the report benefitted heavily from the following sources of information:

- Ecosystem Marketplace (2011) Back to the Future, State of the Voluntary Carbon Markets 2011
- Ecosystem Marketplace (2012) Developing Dimension: State of the Voluntary Carbon Markets 2012
- The Gold Standard and VCS registries
- NERA, BNEF, IBF (2011) The Demand for Greenhouse Gas Emissions Reductions: An Investors' Marginal Abatement Cost Curve for Turkey – prepared for EBRD

The authors would like to express their gratitude to EBRD staff for valuable input and comments received, especially Jan-Willem van de Ven, Adonai Herrera-Martínez, Grzegorz Peszko and Angela Delfino for their valuable comments.

A number of institutions active in Turkey shared their views on the draft of this report. The authors would like to express special thanks to Ayse Yasemin Orucu - Turkish Ministry of Energy and Natural Resources, Jari Vayrynen - World Bank, Güray Vural - EU Delegation DG CLIMA, Robert Kelly - UNDP, Jerry Seager and David Antonioli - VCS, and Bahar Ubay - Gold Standard Foundation for their critical remarks and insights.

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1. Conclusions

Preparation of this report as well as the consultants' wider engagement in carbon project development under MidSEFF supports a number of conclusions about the state of play of the Turkish carbon market today, the main barriers faced by project developers and its prospects for growth. Following key conclusions emerge from the report:

1. **Turkey is an active supplier of credits to the voluntary carbon market.** Investors in climate-friendly technologies together with specialised carbon finance project developers are well versed in registering their assets under one of the voluntary standards and navigating the waters of voluntary demand for credits. This is particularly true of renewable energy. About 40% of projects financed under MidSEFF have engaged with local carbon finance project developers on commercial terms (status July 2012); thereby MidSEFF financing has a direct link to carbon market development in the country.
2. Whilst in Durban countries agreed to seek a new encompassing international climate agreement by 2015 and such to come into effect in 2020, the immediate **demand for carbon credits in the coming two – three years from the global compliance markets remains uncertain.** The low demand, will likely result in a **larger amount of carbon credits (mainly Clean Development Mechanism's CERs) entering the voluntary carbon market**, which in the absence of further creation of voluntary demand will cause downward pressure on carbon credit prices.
3. The report finds that the **key barrier to the development of the Turkish carbon market is unclear and low demand.** With this in mind, it identifies several **progressive options** for Turkish government entities and the private sector to **stimulate demand**, including (i) a domestic compliance market, (ii) a Turkey/EU-bilateral scheme involving the aviation sector (iii) a levy on fuels with proceeds dedicated to compensating for emission reductions achieved (iv) a Government sponsored Turkey Climate Certificate and (v) the development of a domestic voluntary offset market in the framework of corporate social responsibility.
4. **Undoubtedly, among the options analysed in this report, a domestic compliance market** involving government mandated emission reduction targets on Turkish emitters **would give the greatest stimulus to a Turkish carbon market.** Such domestic trading scheme could be limited to one sector (e.g. thermal power plants) or have a wider coverage of the economy. We note that Turkey is an Annex-I Party but has not yet put forward a GHG target or commitment. A meaningful emission reduction target for the capped activity/sector is a pre-condition for a domestic cap-and-trade scheme to function successfully.
5. **Carbon market incentive schemes and possibly a domestic emission trading scheme might be implemented in Turkey in the future.** The Turkish Government enactment of key parts of the EU's greenhouse gas monitoring legislation starting 2015 and e.g. Turkey's participation in the World Bank's Partnership for Market Readiness (PMR) would enable both carbon market and alternative carbon pricing schemes.



6. **The report also discusses other new and prospective avenues for credit demand from Turkey** involving foreign parties such as bilateral agreements. National Appropriate Mitigation Actions (NAMAs) or New Market Mechanisms (NMM) are presented but not expanded on in detail given that their realisation is contingent upon the actions of stakeholders outside of Turkey and depend on the progress of international climate negotiations.
7. **The private sector has a vital role to play in a carbon market.** It already plays a vital role in developing and leveraging the voluntary carbon market, be it that this market is expected to remain smaller than the global compliance carbon markets. The private sector, including financial institutions, also provides a stepping stone towards more compliance driven carbon markets. For example, in some European countries, private sector driven initiatives helped to pave the way for the regulated carbon market.
8. Hence, for a successful carbon market to develop in Turkey, the **private sector has to assume a proactive role**, not only in the supply of credits as it does today but also **in the creation of local demand and the development of a trading infrastructure.** Turkey has a dynamic and creative business community and a number of influential players well placed to assume such role. Ongoing initiatives that can lead the way include the Istanbul Financial Center Strategy and Action Plan seeking to establish Istanbul as a regional hub for the trade of carbon, the Carbon Disclosure Project in Turkey, the Istanbul Stock Exchange's development of a sustainability index for top-100 Turkish companies and the stimulation of private sector banks to participate in carbon transactions under MidSEFF. In the frame of the project the consultant would also explore the initiative of a nationwide Turkish Climate Certificate for SME and consumer sectors. The scheme would focus on triggering sustainable energy investments in these sectors, whereby an organisation can qualify for a Turkish Climate Certificate, provided there is a commitment to invest in sustainable energy and to off-set any carbon balance by purchasing carbon credits.
9. **The Turkish banks that are participants in EBRD's MidSEFF have so far not been directly involved in the carbon market.** Yet, these Banks show great interest in further understanding and receiving assistance in positioning themselves in the carbon market. Lack of carbon finance capacity at banks is among the key barriers named by project developers in the carbon market survey carried out for this report. An enhanced carbon market understanding of the financial sector can help to leverage the finance for sustainable energy in Turkey.
10. Other than lacking demand, and options to remediate, this report also identifies other barriers to further growth of the Turkish carbon market and establishes clear options for moving forward, serving as a basis for consultation.

We explicitly note that the report does not answer **why a carbon market instrument** needs to be developed in Turkey but takes that decision as a **point of departure**. The assumption is in part endorsed by stated Turkish policies. Readers that are interested in the substantiation for carbon market in Turkey are invited to read the recent study into Investors Marginal Abatement Costs Curves (IMACC) commissioned by EBRD.¹ This study reviews a number of policy instruments to

¹ See www.ebrd.com/downloads/research/transition/trsp.pdf



tackle climate change, and one of its outcomes is that carbon markets would be an essential instrument for Turkey to meet ambitious emission reduction targets.



2. Introduction

Greenhouse gas (GHG) emission reduction in Turkey forms an important component of global efforts to mitigate climate change. An upper middle-income country with a population of some 74 million, Turkey boasts a quickly-growing economy with an average annual growth rate of 7 per cent. As the country's economy grows, so do its emissions. Between 1990 and 2010, Turkey's overall emissions increased by 115 percent to a total of 402 million tCO₂e while per capita emissions rose from 3.39 to 5.51 tCO₂e according to numbers provided by the Turkish Statistical Institute.²

While its economy continues to grow, however, Turkey has demonstrated both its potential and political will for embedding this further growth in a sustainable and low-carbon infrastructure. With the adoption of the Electricity Sector Strategy in 2009 Turkey set out large-scale renewable energy and energy efficiency programmes that aim to generate 30 per cent of the country's power supply from renewable sources by the centenary of the Turkish Republic in 2023. These goals are reiterated in Turkey's National Climate Change Action Plan of 2011.

Meanwhile, there are indications that carbon markets will play an increased role in Turkey's emission mitigation strategies. In the first place, the country is slowly disengaging from its status between developed ("Annex I" to the UN Framework Convention on Climate Change (UNFCCC)) and developing country ("non-Annex I" to the UNFCCC) which, in the past, prevented Turkey from engaging in either the Clean Development Mechanism (CDM) or Joint Implementation (JI) projects.³ After receiving confirmation from the Conference of the Parties to the UNFCCC on its "special circumstances"⁴ under the Convention, Turkey is moving towards assuming an active role in the new market mechanisms that are in the process of development under the UNFCCC. Secondly, outside the regulated markets, Turkey is already deeply engaged in the voluntary carbon markets indicating strong private sector commitment and underscoring a positive attitude in favour of a shift towards a green economy. Thirdly, Turkey may adopt a cap-and-trade scheme proper in the near future. This may happen as a consequence of its accession to the EU⁵ or even in the absence of a (near-term) EU accession. The Government could explore various options, including (i) carbon taxation, (ii) NAMAs and (iii) domestic cap-and-trade system.⁶

The European Bank for Reconstruction and Development (EBRD) is supporting Turkey on its low-carbon development path and the use of carbon markets as a means to reducing GHG emissions in a cost-effective manner. The support of carbon pricing as a favourable policy option is

² <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=10829>

³ Both the CDM and JI are mechanisms under the Kyoto Protocol. They are applicable to either Annex I countries (JI) or to non-Annex I countries (CDM), for project sourcing and hosting purposes. However, Annex I countries are only eligible if they are also listed in Annex B to the Kyoto Protocol (which lays down the 2008-12 target for each country). Turkey never sought Annex B status and is not listed in the annex. On the other hand, it was never removed from Annex I of the UNFCCC either, so that it continues to be barred from engaging in the CDM. Note that when the UNFCCC had been adopted Turkey was listed not only as Annex I but also as Annex II Party (Annex II Parties have particular financial obligation towards developing countries). In 2001, however, the Conference of the Parties (COP) approved the removal of Turkey from this annex (Decision 26 CMP.7).

⁴ Decision 1 CP.16, after para 141.

⁵ Note that the accession negotiation chapter on environment (chapter 27) is still open and that the European Commission recently noted only slow progress (cf. European Commission, Communication to the European Parliament and the Council (2011) *Enlargement Strategy and Main Challenges 2010-2012, Commission Staff Working Paper, Turkey 2011 Report*, p. 101 et seq.).

⁶ Partnership for Market Readiness (2011) *Presentation on Organizing Framework for Scoping of PMR Activities, Turkey*.



confirmed by a recent EBRD commissioned study on the investor's marginal abatement cost curve for Turkey (IMACC study, see text Box 1).

Box 1: IMACC study for Turkey

The Turkish IMACC study commissioned by EBRD analyses various policy scenarios for regulating GHG emissions in Turkey (status quo, planned and enhanced policies) from an investor's point of view and finds that there is substantial emissions reduction potential in Turkey relative to the status quo scenario (244 Mt CO₂e/yr by 2030). Unlocking this potential under the enhanced policy scenario would come at only half the cost through a carbon pricing approach (flanked by other measures) compared to an approach where the government uses capital grants to subsidize climate-friendly technologies (EUR 3 billion vs. 6.6 billion by 2030). The reason is that carbon prices provide both a positive incentive (carbon revenues for reducing emissions), and a negative incentive (opportunity cost) for non-abated emissions whereas capital grants only provide positive incentives.

NERA, BNEF, IBF (2011) The Demand for Greenhouse Gas Emissions Reductions: An Investors' Marginal Abatement Cost Curve for Turkey – Prepared for EBRD (see: www.ebrd.com/downloads/research/transition/trsp.pdf).

This present report is supported by EBRD through the Turkish Mid-size Sustainable Energy Financing Facility (MidSEFF).⁷ Launched with support from the European Investment Bank (EIB) and European Commission (EC), the Facility will provide about EUR 1 billion in credit lines to finance mid-size investments in renewable energy, waste-to-energy and industrial energy efficiency. These credit lines will be provided through currently seven Turkish banks (Akbank, Denizbank, Finansbank, Garanti, Isbank, Vakifbank, Yapikredi) for on-lending to private sector borrowers.

As part of MidSEFF, a dedicated carbon finance programme seeks to develop and promote carbon markets within Turkey⁸. To stimulate low-carbon development MidSEFF's carbon finance programme aims to further strengthen domestic interest in the carbon markets by building capacity at the institutional level. This is accomplished following a three-pronged approach. In the first place, the programme assists sub-borrowers with developing and managing carbon projects. Secondly, the programme assists MidSEFF participating banks with establishing carbon finance service portfolios. Thirdly, it assists stakeholders at national level to develop overall policies to boost Turkey's market volume.

The purpose of this report is to identify options for growth in the Turkish carbon market. This requires:

- i) identifying the main barriers currently hindering the development of the market; and
- ii) setting out opportunities for overcoming current barriers while creating avenues for further unlocking the country's carbon market potential.

The report is structured as follows. Following this introduction, chapter 3 below provides an overview of the current state of the Turkish carbon market, highlighting Turkey's role in the international carbon markets and outlining the set of domestic policies that relate to climate change mitigation action. Chapter 4 presents demand- and supply-side barriers to growth of the

⁷ See also www.midseff.com.

⁸ See also www.turkishcarbonmarket.com.



domestic carbon market as identified by the respondents to the Carbon Market Survey. Chapter 5 of this report provides an assessment of how the identified barriers can be overcome, referring to a number of plausible domestic policy developments and providing tentative estimates, where possible, on the indicative level of demand these measures can leverage. Each of the estimates made comes with the *caveat* that it is by no means a robust projection and that relevant calculation factors may have been left out. Our assessment is intrinsically preliminary and is not meant to replace either structured modelling or a feasibility assessment of each measure but rather to serve as a starting point for further study.

The analysis in this report is supported by a market survey of Turkey's carbon market participants undertaken in the course of the MidSEFF carbon finance programme. A comprehensive number (45 out of 86 identified) of relevant stakeholders active in the Turkish carbon market (including project owners and developers, buyers, consultants, and validators) was surveyed through comprehensive telephone interviews. In addition to the survey, consultation meetings were held with key government and international entities, providing valuable insights into the development prospects of various carbon market initiatives in Turkey.⁹ Furthermore, a number of international broker and offsetting companies were consulted to identify barriers that limit demand for voluntary credits domestically as well as internationally.¹⁰ Chapter 6 of this report summarises the outcome of the carbon market survey and details of the methodology of the survey are provided in the annex.

⁹ Representatives of EBRD, Climate Focus and Gaia Carbon Finance met with key staff on carbon market and climate change related topics at the Turkish Ministry of Environment and Urbanization, Ministry of Development, Ministry of Foreign Affairs, Ministry of Economics, UNDP Ankara Office, World Bank Ankara Office, EU Delegation to Turkey, Capital Markets Board of Turkey and the Istanbul Stock Exchange. Meetings were held in January 2012 in Ankara and Istanbul.

¹⁰ Representatives of EBRD and Climate Focus met with a number of brokers and offset companies in London. These meetings were held in confidence and, therefore, the names of these companies will not be named in this report.



3.State of Play of the Turkish Carbon Market

The global carbon market has been growing rapidly since its inception in the early 2000s, and was valued at USD 176 billion in 2011. Most of the trading takes place in the EU Emissions Trading Scheme (EU ETS), the largest source for demand, where EU Allowances (EUA) transactions accounted for the bulk of the traded volumes. A much smaller part of USD 576 million was contributed by voluntary markets.

Table 1: Transaction Volumes and Values, Global Carbon Market, 2010 and 2011

Markets	Volume (MtCO ₂ e)		Value (US\$ million)	
	2010	2011	2010	2011
Voluntary OTC-traded	128	93	422	572
CCX (exchange-traded and OTC-cleared)	2	-	0	-
Other Exchanges	2	2	11	4
Total Voluntary Markets	133	95	433	576
Total Regulated Markets	8,702	10,094	158,777	175,451
Total Global Markets	8,835	10,189	159,210	176,027

Source: Ecosystem Marketplace (2012) p.iv. Note: Totals may not add up due to rounding.

While year-on-year transaction volumes are on the rise, the global market value of the carbon market over 2011 and 2012 are not expected to reflect the exponential growth as witnessed over the past years due to the global economic situation and related depressed carbon prices. Future price development will be shaped by economic prospects as well as the direction climate change negotiations will take.

Although not being able to tap into the market created under the Kyoto Protocol due to legislative barriers, Turkey has not been side-lined by the carbon markets. The country is a large player in the voluntary carbon market hosting primarily renewable energy projects developed under a voluntary standard (cf. Figure 1). For 2011, Ecosystem Marketplace estimates Turkey’s market share at 5 MtCO₂e - steady compared to 2010 figures - and a market value of USD 40 million.¹¹ According to the study, Turkey stayed true to its purely exporter status as survey participants did not report any domestic sales.

While the voluntary market has thus far been Turkey’s principal exposure to the carbon market, this chapter furthermore describes the increasing exposure of Turkish businesses to the EU ETS, infers that the compliance carbon markets are also gaining importance domestically and takes stock of relevant developments for Turkey at the global level.

¹¹ Ecosystem Marketplace (2012) *State of the Voluntary Carbon Markets 2012* p. 56. Estimates are based on the answers of four respondents to the survey.

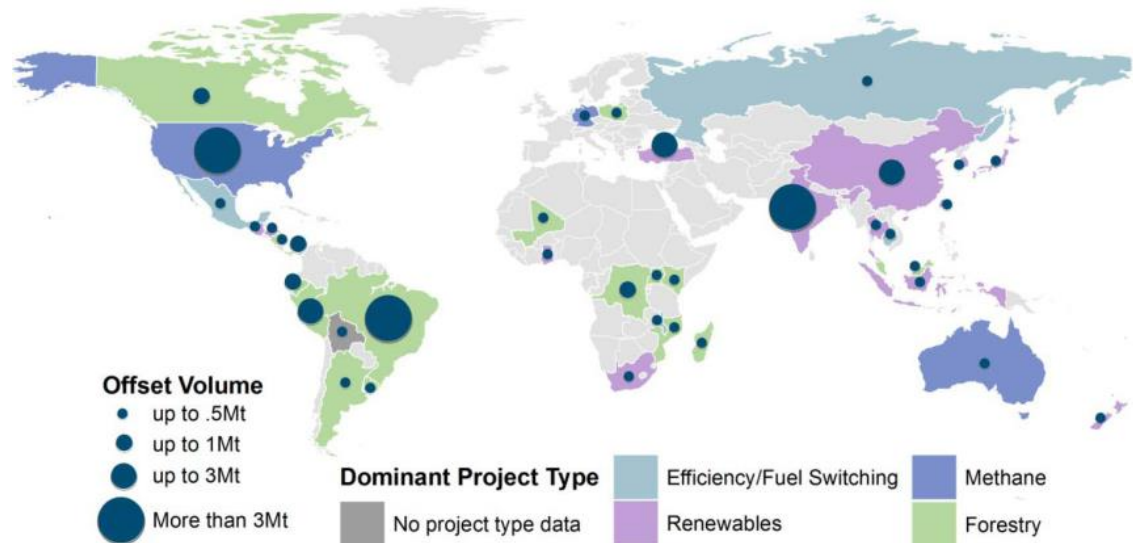


Figure 1: Global voluntary carbon offset volume by country

Source: Ecosystem Marketplace (2010) Figure extracted from report “State of the Voluntary Carbon Markets 2010”

3.1. Voluntary market

Regulated ‘compliance markets’ for carbon credits such as the EU ETS or the Kyoto Protocol have traditionally dwarfed voluntary offset markets. Yet while voluntary markets make up only a fraction of the overall globally traded volume of emission reduction credits, they have proven remarkably robust compared with compliance markets in the face of political and economic uncertainties. While the global economic crises had an impact on price and demand, voluntary trades have been largely unaffected by the slow progress in international climate change negotiations and the uncertain future of a comprehensive new global agreement on climate change. Although volumes traded were lower, the overall market value increased from USD 433 million in 2010 to USD 576 million in 2011 due to an increase in average prices.¹² The reason underlying this robustness lies in the differing factors that drive the voluntary and compliance markets. Key drivers of the voluntary market consist of:

- Emissions offsetting by corporations as part of their Corporate Social Responsibility (CSR) investments;
- Emissions offsetting by individuals concerned about their “carbon footprint”;
- Pre-compliance purchases by GHG emitters who wish to be prepared for if and when compliance occurs.

Turkey continues to be a key player in the voluntary carbon market with stable market share in 2010 and 2011.¹³ Turkish carbon projects are developed primarily under one of two standards: the Gold Standard (GS) and the Verified Carbon Standard (VCS). Both standards stand out as internationally respected frameworks for the development and implementation of emission reduction projects and credits from each enjoy strong credibility. Box 2 provides an overview of these two standards.

¹² Ecosystem Marketplace (2012) *State of the Voluntary Carbon Markets 2012* p. iv .

¹³ *Ibid.*, pp. 24 and 56.

Box 2: Review of the Gold Standard and the Verified Carbon Standard

Gold Standard



Verified Carbon Standard



General Description

The Gold Standard was established in 2003 by WWF and is endorsed by more than 80 NGOs, including Care International, Forum for the Future and Mercy Corps. It has been used by governments and multinationals such as H&M, DHL, Swiss Post, Nokia and others. It is used by UN agencies for the development of own carbon reduction projects. The Gold Standard ensures that the certified projects demonstrate real and permanent GHG reductions and sustainable development benefits in local communities that are measured, reported and verified throughout the project crediting period.

The Verified Carbon Standard (VCS) was founded in 2005 by the Climate Group, the International Emissions Trading Association, the World Economic Forum and the World Business Council for Sustainable Development. The VCS Association was later incorporated as an NGO in Washington, DC in 2009. It provides a robust quality assurance standard that projects can use to quantify greenhouse gas emissions reductions and receive voluntary carbon credits.

Scope

The Gold Standard targets renewable energy and energy efficiency carbon offset projects. Hydropower exceeding 20MW are subject to special eligibility criteria and are evaluated on a case-by-case basis.

The VCS is open to all economic sectors, including the agriculture, forestry and other land-use (AFOLU) sector.

Scale

- 10 million VERs issued
- 106 projects registered
- 87 projects with VERs issued
- 102 million VCUs issued
- 875 projects registered
- 695 projects with VCUs issued

Methodologies

Seven methodologies submitted under the Gold Standard and all CDM methodologies.

37 methodologies submitted under the VCS and all CDM and Climate Action Reserve (CAR) methodologies.

Validation and verification

Gold Standard projects are verified by UN accredited independent auditors and require the involvement of local stakeholders and NGOs.

Entities in good standing under VCS-approved GHG programs - the CDM and CAR - are approved to work under the VCS. Further, validation and verification can also be conducted by entities accredited under ISO 14065 by a member body of the International Accreditation Forum (such as ANSI).



As of June 2012, Turkey had 146 listed and registered projects, 103 of which under the Gold Standard and 43 under the VCS.¹⁴ The strong presence of Turkey in the voluntary markets is expected to continue as the market is still young. The majority of project owners have been in the business less than three years, and a quarter less than a year.¹⁵ The notable growth rate of the voluntary market appears to underscore a strong private sector appetite for exploring carbon market opportunities in Turkey.

The Gold Standard has been the preferred certification body for voluntary emission reduction projects developed in Turkey. The country hosts 39% of all Gold Standard projects under preparation as of June 2012, as indicated in Figure 2. From these, almost one-third is successfully registered and has, partly, already issued credits (see Figure 3). Small-scale hydropower and wind projects make up most of this pipeline, followed by other project types such as biogas, geothermal and energy efficiency. As illustrated in Figure 4, the average emission reduction per project is highest in the “other” category which mainly refers to landfill projects and second highest for wind projects. The latter is a significant project technology for Turkey and expected to deliver a total amount of emission reductions of around 5 million tCO₂e per year once registered. Over three-quarters (78%) of Turkish VERs transacted so far originate from wind power projects developed under the Gold Standard.¹⁶

On the VCS front, Turkey’s role is less apparent, with the country hosting 5% of the world’s VCS projects. These are almost exclusively represented by larger hydropower projects. While the average emission reduction of the small-scale hydropower projects developed under the Gold Standard are 25,000 tCO₂e per year, the average emission reduction potential of the VCS projects under development are around fivefold at 121,000 tCO₂e per year¹⁷. The reason for this is that the Gold Standard limits eligibility of hydropower projects to 20 MWe. Carbon prices differ considerably depending on project type and standard used ranging from below EUR 1 to over EUR 10 (see Box 3).

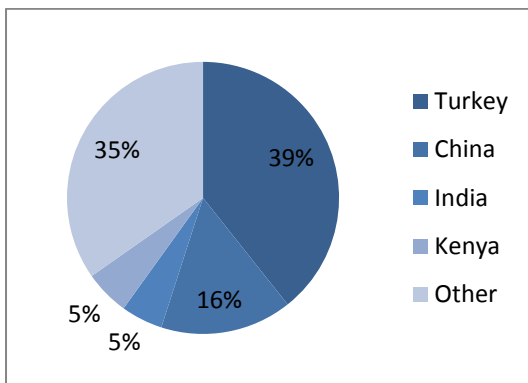


Figure 2: Overview of Gold Standard projects in the pipeline, per country (June 2012)

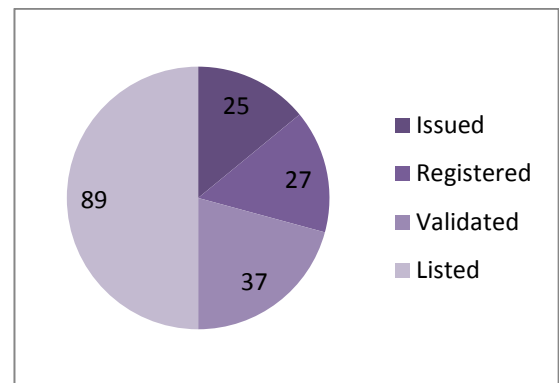


Figure 3: Number of Turkish Gold Standard projects in the pipeline, per stage (June 2012)

Source: Gold Standard Registry (June 2012)

¹⁴The Gold Standard Registry: <http://goldstandard.apx.com/> as of March 2012.

The VCS Project Database: <http://www.vcsprojectdatabase.org/> as of March 2012.

¹⁵ See results of the Carbon Market Survey in Chapter 6.

¹⁶ Ecosystem Market Place (2011) *State of the Voluntary Carbon Markets 2011*, p. 25.

¹⁷ The Gold Standard Registry and VCS Project Database (see footnote 10 above).

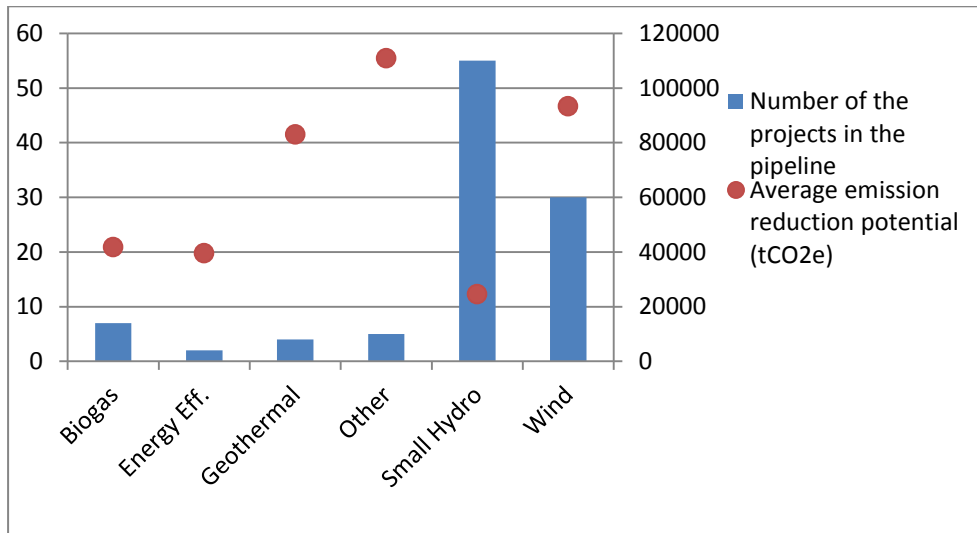


Figure 4: Overview of Gold Standard projects in the Turkish pipeline, per technology (June 2012)

Source: Gold Standard Registry (June 2012)

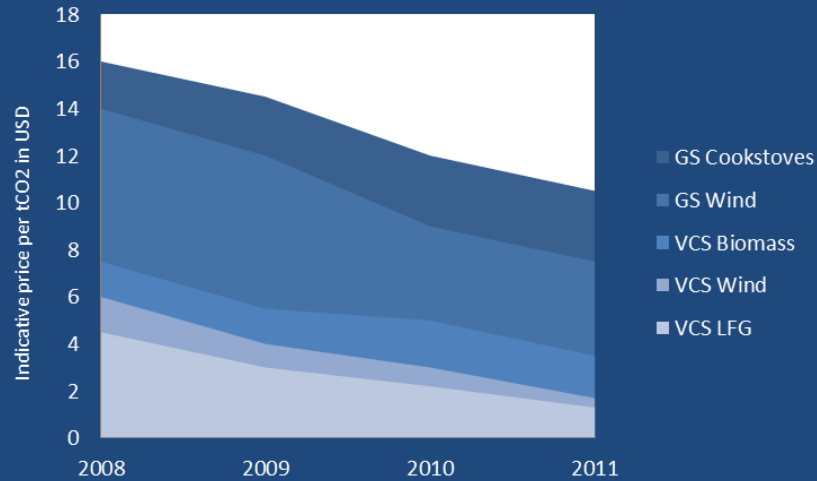
The pipeline of VERs is expected to grow via an increase in the number of renewable energy projects as the Turkish government in 2011 eased the licensing process and converted the electricity feed in tariff (off-take floor price) for renewable energy projects from 5.5 Euro cent/kWh to 7.3 USD cent/kWh for both wind and hydro projects to meet project developer's preference for a denomination in dollars. The guaranteed prices for solar and biogas are set at 13.3 USD cents per kWh and for geothermal energy at 10.5 USD cents per kWh.

A category which has not manifested itself in registered projects in Turkey but which market observers expect of having significant potential is the agriculture, forestry and other land use sector (AFOLU). AFOLU supply a great portion of credits to the voluntary market, particularly through the VCS. Yet, due to their limited uptake so far in Turkey and MidSEFF targeting energy related investments their potential is not in focus in this report.

Internationally, suppliers of voluntary carbon credits expect the transaction amounts in the voluntary market to steadily increase until at least 2020 whereby respondents surveyed in 2010 have a more optimistic outlook than respondents surveyed in earlier years by the Ecosystem Marketplace (see Figure 5). This must of course be interpreted very carefully since active market players may tend to overstate positive developments and thus raise their expectations far above what would be plausible under given conditions. While the authors potentially expect steady market growth they deem it highly unlikely that demand will pick up exponentially in 2015 as projected by the suppliers.

Box 3: Carbon prices in the voluntary market

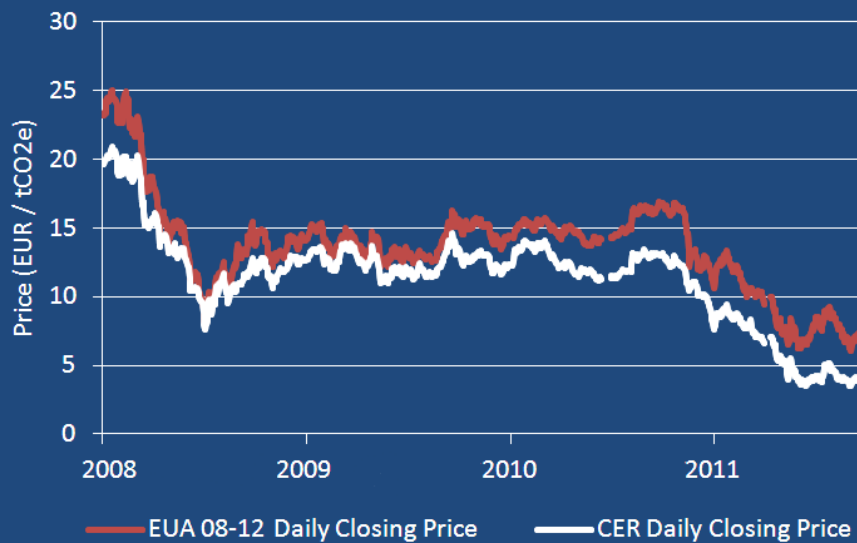
Volumes traded in the voluntary market are lighter and transacted prices are often lower in comparison to those in the compliance market. It is challenging to provide precise price estimates as transactions are often undisclosed and are highly dependent on project specifics. The figure below illustrates indicative VER price transactions for a number of project types over the past years, reflecting the premium charged to VERs developed under the Gold Standard.



Source: Armajaro Verified Emission Reduction – pricing induction (January 2012)

Given the preference of Turkish project developers to pursue GS registration, the average transaction price per tCO₂e was USD 11 in 2010, which is closely tied to the average price for Gold Standard certified wind projects. Older vintages delivered by regular VCS projects constructed in 2009 and earlier transact at a discount, sometimes at USD 1 or lower.

Price development in the mandatory carbon market EU ETS



Source: BlueNext market data (May 2012)

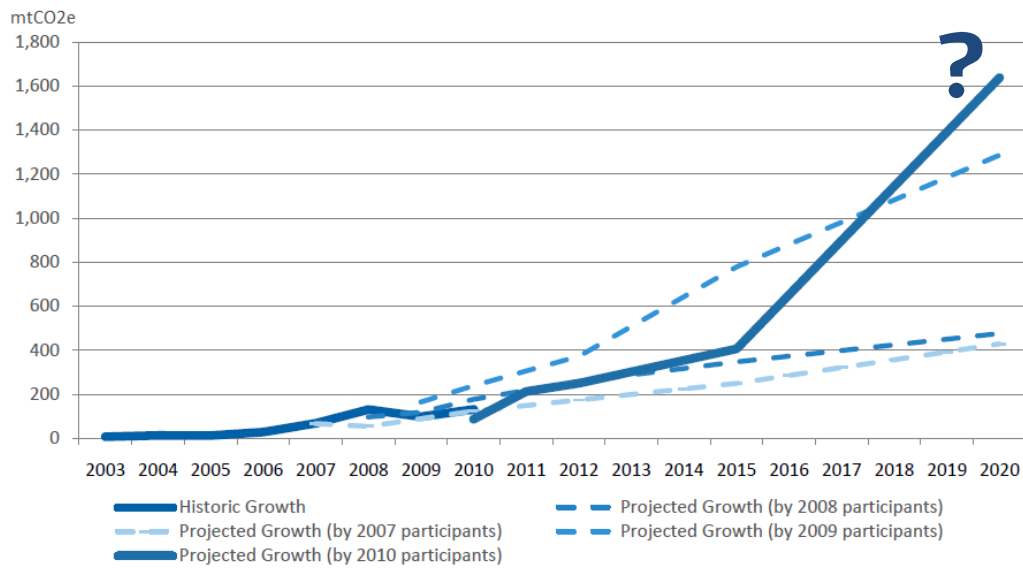


Figure 5: Supplier-Projected Growth in the Voluntary Carbon Markets in 2010 (in MtCO₂e)

Source: Ecosystem Marketplace (2011) Figure extracted from report "State of the Voluntary Carbon Markets 2011"

3.2. Exposure to the EU-ETS

Current exposure

Turkish corporations with installations in the European market are already directly affected by the cap-and-trade legislation imposed by the EU Emissions Trading Scheme (ETS). Under the current second phase of the ETS, installations eligible for and operating in the energy, ferrous metals production, cement and lime, ceramics and bricks, glass and pulp and paper industries are all covered by emission reduction targets. From January 2012 onwards, all airlines servicing Europe are also capped which also affects Turkish air carriers (see chapter 5.1 for details).¹⁸ Data on the exact impact of EU ETS regulation on Turkish enterprises is not available to the authors' knowledge and remains subject to further study.

Future exposure.

With the commencement of the third phase of the EU ETS from January 2013 onwards the coverage of the EU ETS will be expanded to include large producers of petrochemicals, ammonia, nitric, adipic and glyoxylic acid and aluminium, extending the exposure of Turkish firms operating in the EU to the scheme.

Turkish firms exporting to the EU could also be exposed to future use of the EU ETS's anti-leakage measures. Under the EU ETS Directive, the EU is empowered to include importers of products produced by sectors determined to be at a high risk of leakage within the ETS.¹⁹ A Commission report in 2010, however, indicated that this measure is not the preferred option for dealing with carbon leakage, and that other measures (e.g. free allocation and restricting offset

¹⁸ Directive of the European Union No. 2008/101/EC amending Directive No. 2003/87/EC so as to include aviation in the scheme for greenhouse gas emission allowance trading within the Community.

¹⁹ Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (as amended) [hereinafter EU ETS Directive], Section 10b(1)(b).



eligibility) would be given priority.²⁰ Given that leakage is not a major concern under current targets,²¹ the risk of these measures being invoked in the near future appears minimal.

Exposure of Turkish entities could further come from potential future EU regulation of international maritime emissions under the EU ETS. The recitals of the 2009 EU ETS Directive provide for bringing maritime emissions within the scope of the EU's emission reduction commitments where no international agreement is reached by December 2011.²² They do not state which type of regulation should be in place, either this would bring maritime emissions within the EU ETS or the Effort Sharing Decision, which covers non-ETS emissions. At the time of writing, no proposal has been made to include maritime emissions in either system, though the proposed new monitoring regulation does for the first time provide for Member States to monitor maritime emissions.²³ Given the international controversy that has surrounded the inclusion of international aviation in the EU ETS, and also given that progress on regulating maritime emissions through the International Maritime Organization has been considerably better than efforts to regulate aviation internationally, it may be that the EU will be reluctant to begin to regulate international maritime emissions in the near future.

In addition to this direct exposure, EU accession negotiations may have an indirect effect on Turkey's climate policy. The integration of EU law (the "*acquis communautaire*") within Turkey's legal system is an important aspect of accession negotiations. This is particularly so with regard to important environmental laws, such as those governing the EU ETS. While it is as yet unclear if Turkey will accede to the EU in the near term, integration of key legal frameworks serves to demonstrate accession readiness and can also offer co-benefits where it aligns with Turkey's national objectives.

An important step towards integrating the emission trading *acquis* was recently initiated through the preparation of new legislation to monitor and verify emissions in a range of sectors. The legislation, which was enacted on April 15, 2012, would implement key parts of EU GHG monitoring and verification regulation. The present bill was drafted by the Ministry of Environment and Urbanization together with the Coordination Board on Climate Change (CBCC), and covers CO₂, N₂O and PFC emissions in the energy, cement, steel and pulp and paper sectors (see Annex II for details). The starting date for monitoring is set as 2015 where the reporting enforcement is set for 2016.²⁴

²⁰ "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Analysis of options to move beyond 20% greenhouse gas emission reductions and assessing the risk of carbon leakage", COM(2010) 265 final, Brussels, 26.5.2010, p.12.

²¹ "Commission Staff Working Paper: Analysis of options beyond 20% GHG emission reductions: Member State results", SWD(2012) 5 final, Brussels, 1.2.2012. p.8.

²² EU ETS Directive, recital 3.

²³ "Proposal for a Regulation of the European Parliament and of the Council on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change", COM(2011) 789 final, Brussels, 23.11.2011.

²⁴ Turkish Ministry of Environment and Urbanization, Department of Climate Change (2011) Press Release (http://iklim.cob.gov.tr/iklim/anasayfa/tumduyuru/11-11-25/Sera_Gaz%C4%B1_Emisyonlar%C4%B1n%C4%B1n_%C4%B0zlenmesi_Do%C4%9Fulanmas%C4%B1_ve_Raporlanmas%C4%B1_Hakk%C4%B1nda_Taslak_Y%C3%B6netmelik_%C4%B0lgili_Kurum_ve_Kurulu%C5%9Flara_G%C3%B6r%C3%BC%C5%9F_j%C3%A7in_G%C3%B6nderildi.aspx?sflang=tr).

As well as readying Turkey for future EU accession, the monitoring scheme created by the legislation provides an important basis for a future:

- (i) cap-and-trade system, whether the EU ETS or a domestic system,
- (ii) carbon taxation and
- (iii) project/sector baseline and credit approaches.

While in the first place it establishes a system for data gathering and processing that is a prerequisite to a functioning ETS, it at the same time can serve to embed GHG emission consideration in market participants' business operations and create a framework for participants to quantitatively assess their emissions trends and more easily identify mitigation options.

Turkish companies will furthermore be exposed to climate change related regulation if they are or will be listed on the London Stock Exchange (LSE) – currently 4 companies are domiciled in Turkey and listed on the LSE.²⁵ As of April 2013, these companies will need to report on their carbon footprint (see Box 13 in Chapter 5 of this report).

3.3. Domestic policy

Turkey's GHG emissions more than doubled from 187 Mt CO₂e in 1990 to 402 MtCO₂e in 2010 (see Figure 6) fuelled by a steady growth in population, increasing demand for energy and growing GDP. The country's emissions profile indicates the energy sector was responsible for 58% (285Mt CO₂e, excluding transport) of the country's total emissions in 2010. This sector includes emissions from energy industries, manufacturing and construction, residential fossil fuel consumption and other sectors²⁶. The energy sector also saw the largest emissions growth since 1990 of any other activity. Other emission-intensive sectors include transport (13%), waste (9%), industrial processes (13%) and agriculture (7%) (see Figure 7).

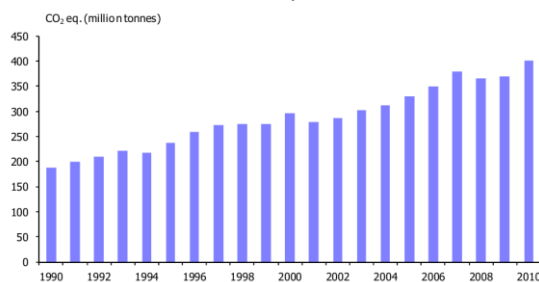


Figure 6: Turkey's greenhouse gas emissions growth between 1990 – 2010

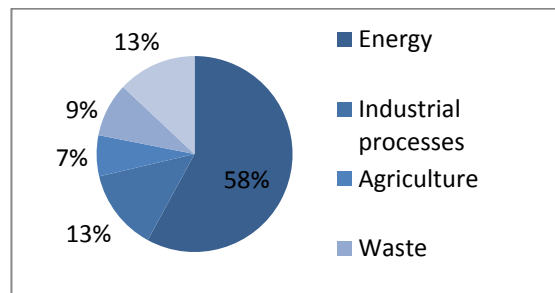


Figure 7: Turkey's sectoral distribution of greenhouse gas emissions in 2010

Source: Adapted from TURKEY Greenhouse Gas Inventory, 1990 to 2010: National Inventory Report (2012)

In reaction to the rapid increase in domestic GHG emissions and international actions to combat climate change, Turkey is working on developing new domestic policies that will facilitate the country's transition into a greener and less carbon-intense growth trajectory. In 2010, Turkey

²⁵ See: <http://www.londonstockexchange.com/statistics/companies-and-issuers/companies-and-issuers.htm>

²⁶ Other sectors include fossil fuel consumption in agricultural, fisheries and forestry vehicles, and solid fuel combustion.



adopted a National Strategy and Action Plan on Climate Change which highlights key ambitions and is based on the following vision:

“Turkey’s national vision within the scope of ‘climate change’ is to become a country fully integrating climate change-related objectives into its development policies, disseminating energy efficiency, increasing the use of clean and renewable energy resources, actively participating in the efforts for tackling climate change within its ‘special circumstances’, and providing its citizens with a high quality of life and welfare with low-carbon intensity.”²⁷

The Coordination Board on Climate Change (CBCC), composed of senior representatives from a range of Ministries²⁸, has been set up to coordinate the implementation of mitigation and adaptation activities in Turkey. The Board has been at the forefront of devising the domestic policy on the coordination of climate change related activities and is overseeing the development of a number of initiatives aimed to strengthen Turkish efforts to tackle climate change.

National Climate Change Action Plan

Turkey has produced a ‘National Climate Change Strategy’ in 2010²⁹ which lays out strategic objectives for mitigation and adaptation until 2020³⁰. To implement the strategy, Turkey has developed a ‘National Climate Change Action Plan’ published in 2011³¹ (formal adoption by the CBCC still pending) with support of the United Nations Development Program (UNDP) and the British Embassy and in consultation with a large number of stakeholders in Turkey. The plan contains a list of detailed initiatives for reaching the goals of the Climate Change Strategy in each sector and identified carbon markets as important policy tools for achieving these targets (see Box 4). Amongst others, one goal is to generate 30 per cent of the country’s power supply from renewable sources by the centenary of the Turkish Republic in 2023, which is reiterated from the country’s Electricity Sector Strategy.

Istanbul Financial Centre Strategy and Action Plan

Turkish Environmental Law also identifies carbon trading as a mechanism for environmental protection³². As part of the government’s financial strategy, the ‘Istanbul Financial Centre Strategy and Action Plan’ has proposed to set up a pilot carbon market under one of the existing exchanges within Turkey, aiming to be operational by 2015 (see Box 5). To enable this, a number of priority areas for improvement have been identified, including the need for a registry system, capacity building, installation level MRV and the development of sectoral baselines.³³

²⁷ From: Republic of Turkey (2010) *National Climate Change Strategy 2010 – 2020*, see footnote 27 below.

²⁸ Including the Ministry of Environment and Urbanization (heading the board), Ministry of Science, Industry and Technology, Ministry of Foreign Affairs, Ministry of Energy and Natural Resources, Ministry of Food, Agriculture and Livestock, Ministry of Development, Ministry of Finance, Ministry of Forest and Water Works, Ministry of Health, Ministry of Transportation, Marine and Communication, Undersecretariat of Treasury, The Union of Chambers and Commodity Exchanges of Turkey and the Turkish Industry and Business Association (Prime Ministry Circular no. 28165 on the set-up of the Climate Change Coordination Board, issued in February 2012).

²⁹ Republic of Turkey (2010) *National Climate Change Strategy 2010 – 2020*.

Available at http://www2.dsi.gov.tr/iklim/dokumanlar/national_climate_change_strategy.pdf.

³⁰ Targeted sectors for mitigation include energy, land use, agriculture and forestry, industry, waste and transportation.

³¹ Republic of Turkey (2011) *İKLİM DEĞİŞİKLİĞİ: ULUSAL EYLEM PLANI*.

³² Partnership for Market Readiness (2011) Presentation on Organizing Framework for Scoping of PMR Activities, Turkey.

³³ Republic of Turkey (2010) *National Climate Change Strategy 2010 – 2020*, see Footnote 27 above.



Box 4: National Climate Change Action Plan

The 2011 National Climate Change Action Plan (NCCAP) aims at reducing the carbon intensity of the Turkish economy by setting out large-scale renewable energy and energy efficiency programs. The Plan was coordinated by the Department of Climate under the Ministry of Environment and Urbanization. The sectors covered are energy, buildings, transportation, industry, waste, agriculture, land use and forestry. The Plan covers both mitigation and adaptation actions to be carried out to reach the targets and goals for each sector.

Sector	Targets
Energy	<ul style="list-style-type: none"> • Reduce primary energy intensity by 10% compared to 2008 by 2015 as a result of implemented and planned policies and measures • Generate 30% of power supply from renewable sources by 2023 • Develop capacity by 2015 so as to increase utilization of renewable energy resources • Reduce nationwide electricity distribution losses to 8% by 2023
Buildings	<ul style="list-style-type: none"> • Decrease annual energy consumption in the buildings and premises of public institutions by 10% until 2015 and by 20% until 2023 • At least 20% of the annual energy demand of new buildings met via renewable energy resources as of 2017
Transportation	<ul style="list-style-type: none"> • Increasing the share of railroads in freight transportation to 10% by 2023 • Increasing the share of seaways in cabotage freight transportation to 10% as of 2023 • Decreasing the share of highways in freight transportation to 72% as of 2023
Industry	<ul style="list-style-type: none"> • Limiting GHG emissions originating from energy usage (including electrical energy share) in the industry sector through development and use of new technologies until 2023
Waste	<ul style="list-style-type: none"> • Reduce the quantity of biodegradable wastes admitted to landfill sites, taking year 2005 as a basis, by 35% till 2025 • Dispose 100% of municipal wastes in integrated facilities, until end of 2023
Agriculture	<ul style="list-style-type: none"> • Identify the potential GHG emissions limitation in agriculture sector
Land use and forestry	<ul style="list-style-type: none"> • Increase the amount of carbon sequestered in forests by 15% of the 2007 value by 2020 (16,700 Gg in 2020) • Reduce deforestation and forest damage by 20% of the 2007 values by 2020

Box 5: Feasibility of a carbon trading platform under the Istanbul Stock Exchange

Action number 33 of the governmental action plan for the Istanbul International Financial Center, aims at establishing the Istanbul Stock Exchange (ISE) as the carbon exchange for Turkey (and possibly the region) by 2015. The current amount of Turkish voluntary carbon credits is probably not sufficient to support such a trading platform. Action 33 therefore signals governmental intention or expectation of the implementation of a carbon market in Turkey. While apparently the political will is there, little is known in the literature about the volumes necessary to reach breakeven of such a trading platform and assumptions would be very controversial. First, trading of carbon cannot be seen as a single activity. Typically, carbon offsets and allowances are traded in association with derivatives trades (i.e. futures, options, and other hedging products) or even – as is the case in Europe – linked to power trading. Second, most of the existing infrastructure, which probably will be used, is already there as other commodities are traded at the Istanbul Gold Exchange and the Istanbul Stock Exchange.

It is therefore difficult to calculate the additional infrastructure investments needed and even more difficult to calculate the additional returns. It would, however, be reasonable to presume that the marginal cost for implementation and operation of a carbon exchange at the ISE, would be limited. The key with establishing a trading platform is a good regulated environment and in case of futures a clearing house, contract specifications and a rule book.

The largest trading platform for carbon spots and derivatives, the ECX/ICE Europe Futures traded 7,570 million tCO₂e in 2011, the smaller ones BlueNext and EEX exchanged just over 80 million tCO₂e each (including spots, monthly forwards and options of EUAs, CERs and ERUs).¹

Source: Strategy and Action Plan for Istanbul International Financial Center (2009)

¹ ECX/ICE Europe Futures and BlueNext market data (www.theice.com; <http://www.blunext.eu>; May 2012)

3.4. Activities at the global and UNFCCC level

Several new mechanisms have already been created by Parties to the UNFCCC that provide a regulatory basis for future carbon markets. While these are not yet in operation, some of their working principles have been agreed and they are firmly integrated in the decision package adopted at the Durban Conference of the Parties (COP 17) in 2011. Nationally Appropriate Mitigation Actions (NAMAs), New Market Mechanisms and the Green Climate Fund all constitute potential funding sources for emission reductions in Turkey subject to further policies and rules as they may develop.³⁴

Nationally Appropriate Mitigation Actions and New Market Mechanisms

Ways of stepping up Turkey's carbon efforts could be through future engagement in Nationally Appropriate Mitigation Actions (NAMAs – see Box 6) or international New Market Mechanisms.

NAMAs are voluntary actions where a country decides on its own appropriate mitigation actions and reports them to the UNFCCC. Based on the UNFCCC texts, NAMAs fall into two categories,

³⁴ Turkey wishes to be considered a developing country for the purpose of new market mechanisms, see Turkey's submission to the UNFCCC of 2011 in preparation of COP 17. Available at http://unfccc.int/files/meetings/ad_hoc_working_groups/lca/application/pdf/sumission_by_turkish_republic_on_new_market_mechanisms_22_subat.pdf.



according to different sources of funding, unilateral NAMAs financed with (public) funds originating exclusively from the host country and supported NAMAs financed with international (public or private) support. Since the Durban negotiations Parties and stakeholders to the debate have moved away from the concept of *credited* NAMAs that would generate compliance-grade credits that can be sold on the carbon market.³⁵ Even without the possibility to generate offsets – which will likely still remain subject to discussion – the international finance for NAMAs will still be result- or performance-based and tied to the Measurement, Reporting and Verification (MRV) of GHG emission reductions. The generation of tradable and internationally recognized carbon offsets, however, is now nested within the New Market Mechanisms (NMM) conceptualized at the Durban conference. The Durban decision defines two variants of NMMs, one bottom-up approach (“*various approaches, including opportunities for using markets*”³⁶ open to interpretation and testing in bilateral agreements and one top-down approach (“*Defines a new market-based mechanism*”³⁷ which operates under the guidance and authority of the Conference of the Parties to the Kyoto Protocol (COP). Turkey has started engaging actively in this debate and in its submission to the UNFCCC of 2011, embraces the design of “new market based mechanisms” which should employ common methodologies, transparency “as well as properly set benchmarks for emission reductions”.³⁸

Given that Turkey has ambitious targets to increase the share of renewable energy by 2023, the sector could be a potential candidate for NAMAs or NMMs, further strengthening Turkey’s role as a key supplier of emission reductions. Furthermore, the housing or transport sector may be suitable candidates.

Box 6: Nationally Appropriate Mitigation Actions (NAMAs)

Nationally Appropriate Mitigation Actions (NAMAs) refer to voluntary emission reduction measures undertaken by developing countries that are reported by its governments to the UNFCCC. At COP 16 in Cancun, NAMAs emerged as a key mechanism to recognize and support emission reduction efforts in developing countries within the UNFCCC framework. Technically, there are few limitations to what a NAMA can be as long as it can undergo effective Measurement, Reporting and Verification (MRV). A robust international framework for NAMAs is still in the making; the NAMA registry to be established in accordance with the Cancun Agreements suggests that, at a minimum, there will be different accounting frameworks applicable to different types of NAMAs. What is certain about NAMAs is that they bear the possibility to scale up emission reductions, capacity building, deployment of technology and access to climate finance in developing countries.

³⁵ For studies on “credited” or “market-based” NAMAs see: UNEP Risoe (2009) NAMAs and the Carbon Market, *Nationally Appropriate Mitigation Actions of developing countries*; Ecofys (2010) *Scoping study for innovative climate finance facilities for testing scaled-up mitigation programmes*; Ecofys (2010) *Nationally Appropriate Mitigation Actions, Insights from example development*; Yuri Okubo et al. (2011) *NAMA crediting: how to assess offsets from and additionality of policy-based mitigation actions in developing countries*; Climate Focus (2011) Briefing Note, *Design options for NAMAs and their regulatory framework*; Climate Focus (2011) *Nationally Appropriate Mitigation Actions in Developing Countries, Emerging opportunities for private sector engagement*; Wang-Helmreich et al. (2011) *Current Developments in Pilot Nationally Appropriate Mitigation Actions of Developing Countries (NAMAs)*, JIKO Policy Paper; South Pole (2011) *How to develop a NAMA by scaling-up on-going CDM activities on the road from PoAs to NAMAs*.

³⁶ LCA text, see footnote 28 above, paras 79–82.

³⁷ LCA text, see footnote 28 above, paras 83–86.

³⁸ Turkey’s submission to the UNFCCC of 2011 in preparation of COP 17, see footnote 25 above.



Turkey's participation in any of the internationally discussed mechanisms is subject to political negotiations and raises the questions of positioning Turkey closer to the group of developed or developing countries when it comes to the type of domestic commitment that could be expected from Turkey. We note a recent communication of the European Commission to the European Parliament and the Council, which speaks to the lack of clarity of a Turkish emission reduction target (see box 7).

Box 7: Communication from the European Commission to the European Parliament and the Council on Turkey's progress on climate change

Regarding climate change, limited progress was made on general policy development. Turkey adopted a national climate change action plan (NCCAP) covering the period up to 2023. Although the NCCAP provides for major emissions reductions in primary energy intensity and energy savings in buildings, industry, transport, waste, agriculture and forestry sectors, no overall domestic target was adopted. Significant need for awareness-raising on opportunities and challenges of climate action is needed at all levels. At international level, Turkey, while listed among developed countries in Annex I to the United Nations Framework Convention on Climate Change (UNFCCC), continued to claim that it is in a situation different from that of Annex I Parties. This was recognised by COP17 in Durban in December 2011. Turkey is one of the largest emitters that has not yet put forward a greenhouse gas emissions reduction target for 2020. Turkey has not yet submitted its fifth national communication under the UNFCCC. However, the country submits greenhouse gas inventories on an annual basis as required. Turkey associated itself with some formal EU positions. Turkey no longer participated regularly in the climate work under the Regional Environmental Network for Accession (RENA). A successful high-level conference was organised in April 2012 under the RENA on EU–Turkey Climate Change Cooperation. Turkey adopted a bylaw on Monitoring of Greenhouse Gas Emissions. The country took some steps to raise awareness on emissions trading. However, Turkey's status as an Annex I Party without a target continues to hold back progress. No steps were taken to promote convergence with the EU Effort-Sharing Decision. No progress was made as regards other legislation in the field of climate change and Turkey needs to take further steps to align with and implement EU legislation.

Conclusion: A more ambitious and coordinated climate policy still needs to be established and implemented, both domestically and internationally, in particular as a critical mass of countries are putting forward commitments internationally and taking action domestically."

Source: Turkey 2012 Progress Report 2012, SWD(2012) 336, Brussels 10.10.2012, chapter 27, p.83f.
http://ec.europa.eu/enlargement/pdf/key_documents/2012/package/tr_rapport_2012_en.pdf

International co-operation

In the development of carbon finance mechanisms Turkey is co-operating with international and bilateral partners. The projects relevant to carbon markets are:

- The Carbon Finance Consultancy under EBRD's MidSEFF
- The Partnership for Market Readiness (PMR) facilitated by the World Bank
- Potentially the Instrument for Pre-Accession Assistance (IPA) for Turkey from the EU
- Capacity Building For Climate Change Management In Turkey under the UNDP
- Several climate change projects carried out in Turkey financed by the Global Environment Facility (GEF)



As part of **MidSEFF** the **Carbon Finance Consultancy** seeks to develop and promote carbon markets within Turkey. It aims to further strengthen domestic interest in the carbon markets by building capacity at the institutional level. The programme assists sub-borrowers with developing and managing carbon projects, MidSEFF participating banks with establishing carbon finance service portfolios, and thirdly the Government of Turkey to develop overall policies to boost Turkey's market volume.

Turkey is one of 15 countries to have been allocated a grant of USD 350,000 to prepare a Market Readiness Proposal (MRP) that sets out a plan for the pioneering of new market approaches to mitigate greenhouse gas emissions under the **Partnership for Market Readiness (PMR)**. This Partnership has been especially set up to promote the testing and innovation of market-based instruments for controlling GHG emissions in developing countries. Turkey intends to use further grant funding from the PMR to help build monitoring capacity related to the recent bill of the Ministry of Environment and Urbanisation (see section 3.2). After the initial conceptual phase, Turkey will present its MRP to the PMR for consideration of a larger grant - between USD 3 and 8 million - to be used for implementation of the identified measures. In October 2011, Turkey hosted a PMR event in Istanbul.

The Instrument for **Pre-Accession Assistance for Turkey**, among other things, promotes low carbon growth³⁹. Representatives of the European Commission and Turkey have very recently been discussing to intensify co-operation in the energy sector⁴⁰. However, up to now, no bilateral projects related to carbon markets have been carried out by EU institutions and Turkey.

Turkey also works closely with the UNDP, e.g. through the finalised "**Capacity Building For Climate Change Management In Turkey Project**", which included "Developing The Capacity of Turkey to Participate Efficiently in the (...) Voluntary Carbon Markets" that has been financed by national budget⁴¹. Besides, the UNDP, World Bank, the Turkish Ministry of Environment and Urbanization and the Republic of Turkey Prime Ministry Undersecretariat of Treasury conducted a workshop on "Opportunities in Carbon Trade" on 17th and 19th of June 2009 in Ankara and Istanbul, respectively.

Turkey has a successful track record in attracting **GEF financing**, another UNFCCC-based financing facility. Turkey has one climate change related project under implementation (Market Transformation of Energy Efficient Appliances in Turkey) and several others in the pipeline. These UNDP and World Bank implemented projects can provide vital cues towards Turkey's future engagement with the Green Climate Fund.

Table 2 below gives an overview of the international cooperation in Turkey to develop carbon markets.

Table 2: International Cooperation to Develop Carbon Markets in Turkey

Project	Organisation	Amount	Description	Period
MidSEFF Carbon	EBRD	EUR 2 MM	Capacity building for carbon	2011 – 2014

³⁹ EC Instrument for Pre-Accession Assistance (IPA) Multi-Annual Indicative Planning Document (MIPD) 2011-2013 Multi-Beneficiary Available at http://ec.europa.eu/enlargement/pdf/mipd_multibeneficiary_2011_2013_en.pdf.

⁴⁰ EC (2012) MEMO/12/92.

⁴¹ UNDP CAPACITY BUILDING FOR CLIMATE CHANGE MANAGEMENT IN TURKEY PROJECT, Information available at <http://www.undp.org.tr/Gozlem2.aspx?WebSayfaNo=1892>.



Finance Consultant

market services at the national and the banking sector level

Partnership for Market Readiness (PMR)	World Bank	USD 350 k for preparation phase (received) USD 3-8 million for implementation (tbd)	Prepare for building market readiness capacity for Turkey to scale up climate change mitigation efforts	2012 –
Emission Ceiling Directive Project	EU	EUR 2 MM	Capacity building to transpose and implement National Emission Ceilings Directive (2001/81/EC) in Turkey	2011 – 2013
Support to Mechanism for Monitoring Turkey's Greenhouse Gas Emissions	EU	EUR 3 MM	Monitoring mechanism for GHG in Turkey	2013 – 2015
Capacity Building in the field of Climate Change in Turkey	EU	EUR 13 MM	Capacity building for climate change related problems by developing road map for low carbon development based on scenario modelling on housing, waste and land use	2015 – 2018
Capacity Building for Climate Change Management in Turkey	UNDP	USD 400 k (Donors: Ministry of Development)	Capacity building of Turkey to participate efficiently in the international climate change negotiations and support participation in Kyoto's flexible mechanisms and the voluntary market.	2009 – 2010



4. Barriers to Growth

Despite the robust performance of the carbon market in Turkey, there remain substantial barriers to its development. Firstly, and most importantly, both domestic and international demand for voluntary carbon credits remains modest.⁴² While further growth of the market, in Turkey and elsewhere, necessarily depends on the capacity of the market to absorb emerging supply, Turkey's market participants are notably positive about an increase in demand.⁴³ More than half of respondents surveyed foresee a "substantial" increase in growth over the next two years. Of course, this is an expectation only, and strong demand is far from certain.

4.1. Demand

The current state of play in the international market for regulated credits – Carbon Emission Reductions (CERs) from the CDM and Emission Reduction Units (ERUs) from JI – would suggest an over-supplied market. The EU ETS market for its part, provided the regulator does not intervene with limiting ('setting aside') the number of available credits,⁴⁴ is not expected to generate significant demand for compliance credits at least into 2017 or 2018. While this does not directly impact on demand for voluntary credits, it does have the effect of lowering the price of compliance credits to levels comparable to voluntary credits. This creates an incentive for buyers of voluntary credits to switch to compliance credits, in turn diminishing appetite in the voluntary market.

Box 8: Who is buying?

Demand for voluntary carbon credits predominantly originates from European and American organisations that source offsets with purely voluntary intentions, and domestic demand for Turkish VERs is currently virtually non-existent. In 2010, European buyers purchased 21 MtCO₂e while American businesses sourced just over 19 MtCO₂e. For-profit businesses represented almost all of the demand as increasingly more large corporate institutions are incorporating climate neutrality or lower carbon intensity targets into their Corporate Social Responsibility (CSR) actions. The PPR group, News Corp, NedBank Group and Timberland are some of the brands that sourced large volumes of voluntary credits to claim climate neutrality over 2010. Other corporates, such as Google or Jaguar Land Rover, continued sourcing credits as part of their long-term purchase commitments. A certain amount of 'pre-compliance' buying is also observed, although this demand source is not expected to grow considerably given continued regulatory uncertainty in the United States. The role of individuals is still scarce and limited to offsetting the CO₂ emissions from air travel or other personal engagements that lead to significant GHG emissions.

Source: *Ecosystem Market Place (2011) State of the Voluntary Carbon Markets 2011*

⁴² Transaction volumes doubled but remained overall modest at 125 million cCO₂e. The single exception were credits from Reduced Emissions from Deforestation and forest Degradation (REDD) whose market share from 2009-2010 grew by 500%. See World Bank (2011) *State and Trends of the Carbon Market*, pp. 53 et seqq.

⁴³ See the survey in Chapter 6 below.

⁴⁴ Law makers are currently discussing such a move as part of an amendment of the Energy Efficiency Directive (see *Proposal for a Directive of the European Parliament and the Council on energy efficiency and repealing Directives 2004/8/EC and 2006/32/EC, COM(2011) 370 final (22 June 2011)*).



Further to this, while the Turkish share in the voluntary market itself is currently strong, the level of voluntary credits available globally is increasing. The majority of demand comes from large US or European corporations wishing to offset their emissions within their general CSR strategies, whereas domestic demand remains almost absent (see Box 8 above).

Domestically, there is similarly little to suggest on the basis of the current policy framework that a substantial increase in demand will materialise in the immediate future. While a cap-and-trade scheme may eventually be established, this is not likely to materialise until 2017 or later. At present, no domestic offsetting mechanism exists, and the Turkish industry has so far proved only modestly interested in voluntarily offsetting its carbon footprint. Out of the surveyed project developers only three have sold VERs to Turkish buyers amounting to around 3,000 tCO₂e.

4.2. Supply

On the supply side, the barriers perceived by market participants are of another sort. The primary barriers the market is currently confronted with are a weak financial infrastructure, lack of relevant local expertise, complex and sometimes cumbersome procedures and project assessment needs, regulatory hurdles, and other drivers of transaction costs. Box 9 provides an overview of companies active in the Turkish carbon market and points out missing financial and legal intermediary institutions.

Box 9: Companies offering carbon market services in Turkey

Activity in the Turkish carbon market started in 2008 when the first voluntary carbon projects entered the pipeline. The first domestic carbon advisory firm was Gaia Carbon Finance, which set up operations in the same year to assist the early starters with getting projects registered under the Gold Standard and VCS. Today there are at least 22 carbon market service providers, many of which have international shareholders or have established partnerships with foreign counterparts. Certain firms specialise exclusively in delivering carbon market services, while others extend their business to other activities such as investing in renewable energy generation or technical advisory. There are no Turkish financial institutions, brokerage/trading firms or specialised law firms specifically operating in the carbon markets.

All companies supplying carbon market services in Turkey are invited to register themselves at www.Turkishcarbonmarket.org. A full list of service provider will appear on the website in due course.

Among the key issues identified by survey participants is the availability and accessibility of carbon finance. In the first place, the general awareness of carbon finance and the opportunities presented by the carbon markets is low in Turkey. Secondly, the very mechanics of carbon project finance, both at the project and financial institution level are ill-developed.

At the financial institution level, the carbon market does not play a significant role in current operations, and the range of carbon related financial services many banks offer in other countries are virtually absent from the portfolio of banking services available to project owners in Turkey. The unavailability of such services presents significant barriers to project owners in reaching financial closure for their projects and sees banks generally disregarding the carbon component of a renewable energy or energy efficiency investment. At the same time, this may also make it difficult for project owners to access the global trading market, as banks in other countries often play an important role in the commercialisation of carbon credits.



At project level, project owners face difficulties in understanding and implementing the various operational, financial and contractual aspects of a typical project cycle. A major hurdle is the perceived level of complexity project development demands. A case in point, in this respect, is the calculation of the electricity grid emission factor, a necessary component for any renewable energy factor. Due to lack of publicly available data, the calculation of the grid emission factor has become a cumbersome task for the project owners and developers with inconsistencies between the factors estimated by different parties based on data from different institutions (see table below). The calculation needed is difficult, cost-intensive and sometimes holds unpredicted results. An example of a project’s cost estimation that also illustrates the considerable transaction costs involved is provided in Box 9.

Table 3: Minimum, maximum and average grid emission factor used in 20 hydropower and geothermal projects developed under the VCS 2009-2012

	Min	Max	Average	Difference between Min and Max
Emission factor in tCO ₂ /MWh	0.545	0.645	0.5847	18.35%

Difficulties are also created by the unavailability of auditing entities—designated operational entities (DOEs) in the terminology of the CDM, the VCS and the GS. There are presently few DOEs active in Turkey with high capacity (see Box 11). Interestingly, project developers appear to be satisfied with cost-levels, but are frequently frustrated with the length and duration of validation and verification, indicating opportunities for potential DOEs. Conversely, the establishment of a project registry for all carbon offset projects in Turkey, a prominent point on the action list of the Turkish government appears to be a lower priority for many project developers. Government’s interest in tracking voluntary action in Turkey is not the same as the interest of carbon project developers in a transaction supporting registry. The latter function is already fulfilled by various international registry providers associated with the voluntary carbon standards. The Turkish Government’s interest is however understandable, as it provides for an additional mechanism to ensure the environmental integrity of the Turkish carbon market. In the frame of the CFC supported carbon projects, these projects will be obliged to register at the Turkish central registry.

Concerning market regulation, market participants surveyed indicated concerns about the unclear regulatory situation that surrounds carbon trading in Turkey. The legal classification of carbon as a commodity, financial instrument or other has implications for property rights, tax and corporate accounting purposes. Project developers and credit buyers alike are seemingly struggling with identifying an economically appropriate, low risk approach. The substantial uncertainties go hand in hand with broader legal and contractual challenges. There is little, if any, climate and carbon law expertise available among domestic law firms. International law firms may be accessible, but there appears to be no carbon unit in any of these at a local branch, and engaging an international law firm will almost certainly drive the price.

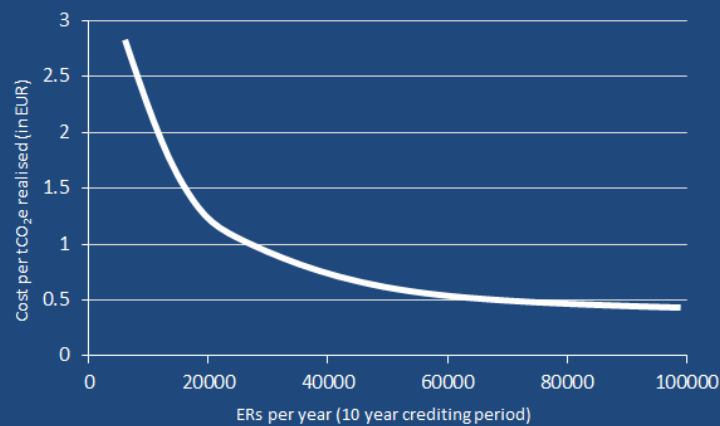
Box 10: Cost of developing carbon offset projects

The economics of implementing carbon projects depend on the relation between the upfront development costs and on going monitoring and verification costs on the one hand, and the timing and scale of the cash inflows from carbon credit sales on the other. For example, the development of project documentation and the validation of a 31MW wind farm developed under the voluntary Gold Standard in Turkey is expected to cost around EUR 75,000. Besides this upfront cash outflow, an issuance fee of 2% of issued credits applies. Additionally, annual monitoring and periodic verification costs around EUR 10,000 each. With the wind farm generating emission reductions of 56,346 tCO₂e annually, the expected annual income is EUR 281,730 assuming a GS VER price of EUR 5.

Cost outflows associated with the carbon component

	Estimate
Project development and validation	EUR 75,000
Issuance fee	2% of issued volume
Verification costs	EUR 10,000 / year
Monitoring costs	EUR 10,000 / year

Spreading the total cash outflows over a ten year crediting period, total costs amount to EUR 0.60 per generated credit. This means that selling credits anywhere above this value will generate positive cash flow for the project. The figure below illustrates the relationship between cost per credit volume and volume generated, indicating that the larger projects (exceeding 30,000 tCO₂e per year) are considerably more attractive than smaller projects. This calculation is illustrative and valid only for baseline-and-credit projects not for reductions under cap-and-trade schemes.





Box 11: Validating carbon projects in Turkey

It is commonly accepted and required by leading carbon offset standards that projects need to undergo a validation and verification procedure to ensure that the claimed emission reductions and any associated sustainable benefits are real and verifiable. These tasks are carried out by certified validators or Designed Operational Entities (DOEs). There are a number of validators that are engaged in validating or verifying Turkish voluntary carbon projects. Three have local teams present in Turkey.

Overview of validators active in Turkey:

- Bureau Veritas (local office)
- Re-Consult (local office)
- RINA SpA (local office)
- TÜV Nord
- SGS
- TÜV Rheinland
- Germanischer Lloyd
- TÜV SÜD
- Det Norske Veritas

The prices these firms charge for validating regular projects range between EUR 12,000 - EUR 17,500 for VCS projects and EUR 12,000 - EUR 20,000 for Gold Standard projects. Verification costs an additional EUR 10,000 to EUR 15,000. The complete validation procedure can take up to 10 months for VCS and 14 months for Gold Standard projects.

Source: GS and VCS Registries



5. Overcoming Barriers – Options for Growth

5.1. Demand

Even as they are not able to access the compliance segment of the market so far, Turkish carbon project developers have managed to reap significant benefits from the voluntary carbon market and have established themselves as prominent players in the voluntary market. While growth prospects in this market exist, far greater opportunities lie with the development of domestic demand in Turkey or the opening up of international compliance markets for credit supply from Turkey, i.e. establishment of a mandatory carbon market in one shape or another. This would be likely to drastically transform the outlook for Turkish project developers and significantly enhance the impact of the incentives carbon markets add to investments into renewable energy, energy efficiency and other climate friendly technologies. Turkish project developers are at the moment lacking a clear strategic perspective on the value of their carbon assets.

There are several strategies through which the Government of Turkey or private sector stakeholders could directly create a domestic carbon market or stimulate demand for offsets at domestic level. The Government could, firstly, adopt legislation that establishes a domestic emission trading scheme in Turkey, either independently or linked to the EU ETS. Alternatively, and at a smaller scale, it may, through various initiatives, help create a demand for Turkish offset credits. This could be realised through purely domestic initiatives such as a levy on the sale of fuels with proceeds earmarked for carbon credit purchases or through a diversion of existing demand for EU allowances by the Turkish airline industry to domestic offsets. Last but not least, the private sector may contribute a voluntary demand for credits in the framework of CSR.

The demand scenarios outlined in this section are based on initiatives that are presently under development in Turkey or which have been subject to discussion by domestic entities and international development agencies. For each of the identified options, targeted measures, actors involved and policy background are identified and the resulting demand for credits is estimated based on plausible assumptions. At present, none of the scenarios described are definite or would automatically come into play. Instead, each of them requires strong leadership either from the Government or the key private sector actors, to lobby for its realisation, adopt relevant regulations and create the necessary institutions. It is likely that for the coming years there will not be a single source of demand, but that different initiatives may come into play, with each potentially creating an enabling or even distorting effect on each other.

While international demand for credits through a continued growth of the international voluntary market, bilateral agreements in which credits are transacted in the framework of new market mechanisms or instruments like donor funds could constitute significant sources of demand for Turkish carbon credits, their potential is not specifically addressed in this section.⁴⁵

⁴⁵ An idea is e.g. that a donor fund (or a multilateral instrument alike) could stimulate carbon market development by providing to sponsors a “Contract for Carbon Price Differences”, possibly on commercial terms. The fund would then provide a financial guarantee that, should the sponsor not realise a minimum carbon price, he has recourse to the guarantee for the balance it realises. This approach will stimulate a project supply pipeline in the absence of e.g. regulatory uncertainty, and allow the build-up of a solid MRV infrastructure and services industry. Issues like alignment with host countries and prevention of perverse incentives need further consideration.

The factors that will shape the demand coming from these sources are manifold and largely outside the control of the parties this report addresses. Rather, initiatives are presented that could be realised by Turkish Government and other key institutional players domestically. International demand for carbon credits from Turkey remains uncertain as negotiations under the Durban Platform have yet to be concluded.

Domestic ETS

There are several scenarios how the Turkish Government could enact a domestic ETS. First, if Turkey should accede to the EU, accession would require Turkey to transpose the EU's Environmental Chapter including the Directive on Emission Trading into Turkish law. Second, even if Turkey will not join the EU, the country may still opt to implement a domestic ETS and link it up with the EU ETS subject to negotiation with the EU Commission, similarly to the case of Norway. Third, Turkey could decide to set-up its own domestic ETS based on domestic rule-making. Turkey could for instance decide to only incorporate sectors into the scheme that are relatively unaffected by international or regional competition, such as the power sector, which is primarily serving the domestic market. Under all of these options if sector coverage is similar to that of the EU ETS, about 250 million tCO₂e per year would be subject to emission trading (see Table 4 to see how Turkey would compare to existing EU ETS allocations and Box 15 for further details). By joining the EU ETS it might become the second largest player in the ETS market.

Table 4: Annual EU Member State CO₂ yearly allowances for Phase II (in million tonnes)

Selection of EU Member States and Turkey	2005 verified emissions	2008-2012 Cap allowed
Germany	474	453
Turkey*		Estimated 250
United Kingdom	242	246
Poland	203	209
Italy	223	196
Spain	183	152
France	131	133
Czech Republic	83	87
Netherlands	80	86
Other EU Members	501	519
Total		2080
* Own estimation based on calculations (see further details in Box 14)		

In all three scenarios, the Government would, either with or without the involvement of the European Commission, decide on mandatory targets for large direct emitters, grandfather or auction a commensurate amount of emission allowances to these emitters and allow them to trade with each other. In the case where Turkey sets up its own ETS, unbound by the rules of the EU ETS, the Government could also decide freely on the role of offsets. Whereas the EU ETS allows for the imports of CDM and JI credits with certain restrictions, Turkey could decide to only allow carbon credits from domestic projects. Every scheme that includes the power sector, however, would have to either ban project based carbon credits from energy efficiency and



renewable electricity projects (Turkey's main source of credit supply today) or devise another mechanism to disclose or avoid double counting.

Aviation ETS

Turkish airlines are required to purchase EU allowances commensurate with the emissions from their flights to and from EU member states as of 2012 (with the obligation to surrender allowances or credits beginning in April 2013). However, the European Commission is empowered to adopt measures to exclude flights *arriving in the EU* from a third country, in the event that that country adopts "equivalent measures" to reduce the GHG impact from its flights to the European Union (Article 25a EU ETS). This could offer an opportunity for Turkey to develop a domestic emission reduction scheme for her airlines that replaces a part of their obligations under the EU ETS.

The Commission has not issued explicit guidance on what would constitute "equivalent measures". Rather, it has stated that the term is a flexible concept to be assessed on a case-by-case basis pursuant to discussions with individual countries.⁴⁶ The Commission has, moreover, indicated that while cap-and-trade systems would be envisaged for developed countries, developing countries could also consider options such as offsetting, sectoral market mechanisms or NAMAs.⁴⁷

Two aspects of equivalent measures are, however, clear. The first is that the equivalence relates to environmental impacts.⁴⁸ This means that any proposed measures must reduce or avoid the same level of emissions as would inclusion of flights from Turkey to the EU in the EU ETS and must be backed by a robust MRV framework. The second is that measures must be non-discriminatory and not distort competition between airlines.⁴⁹ As such, measures that give preferential treatment to Turkish airlines (or developing country airlines more generally) over other airlines departing from Turkey would likely not qualify. The Commission has also stated that measures should be simple and transparent, and minimize unnecessary administrative burdens.⁵⁰

It appears probable that inclusion of flights departing from Turkey to the EU in a domestic cap-and-trade scheme would qualify as an equivalent measure, subject to agreement from the EU. This measure could, as a first estimate, cover about 2 million tCO₂e per year, for further elaboration on this option see Box 15. The market size could be bigger, even if the larger portion of allowances is handed out for free, due to multiple trades in allowances. Other measures, such as a domestic offset scheme that includes airlines or a sectoral market mechanism for the aviation sector may also be feasible. In the case of cap-and-trade or sectoral mechanisms, there would likely be scope for Turkish offsets.

The type and amount of offsets that would be permitted would depend on negotiations with the EU. While it is unlikely that the Commission would limit offsets to those eligible under the EU ETS (in particular CDM and JI credits) it is likely that some qualitative restrictions would be required, which may limit the use of certain voluntary credits. On the other hand, a specific domestic offset system could be designed with input from the EU to ensure eligibility. With regards to the

⁴⁶ Saqib Rahim (2011), see http://www.eenews.net/public/climatewire/2011/05/31/1?page_type=print.

⁴⁷ Philip Good, DG Climate Action (2010) *The EU Emissions Trading System*, presentation at ICAO Colloquium, Montreal, May 2010.

⁴⁸ Philip Good (2010), see footnote 38.

⁴⁹ Commissioner Hedegaard, Commission answers to EU Parliament questions, 14 July 2011.

⁵⁰ Ibid.



amount it remains difficult to judge what would be permitted, though it is likely that some quantitative restrictions would be required to ensure emissions are in fact reduced in the aviation sector.

The application of exemptions to flights arriving in the EU only and not those departing from the EU may present a disincentive for creating equivalent measures. As airlines operating in Turkey would still have to participate in the EU ETS insofar as they fly into Turkey from the EU, creating equivalent measures could in fact double the administrative burden operators are faced with. On the other hand, measures could be designed to create synergies with the EU ETS MRV infrastructure, and even potentially link up to the EU ETS.

The initiative for proposing potential equivalent measures would rest with the Turkish government. The EU has indicated it is open to discussions with governments on what kind of measures could be instituted⁵¹, and so engaging with the Commission at an early stage of development to establish common understandings would be crucial. Once an agreement has been reached between Turkey and the Commission, the Commission would adopt implementing legislation exempting Turkish inbound flights from EU ETS obligations.

Turkish Climate Kurus

The Swiss Climate Cent Foundation is a successful example of the proposed mitigation financing scheme (see Box 12). With support of the Turkish government, suppliers of road sector fuels could introduce a levy of ten Kurus on gasoline and diesel fuel sales to partially offset CO₂ emissions from transport. While ten Kurus (approximately EUR 0.042) is not a considerable addition to the fuel price, overall proceeds would be in the range of EUR 45 million per year. These could be earmarked for funding emission reduction projects in Turkey through the purchasing of offsets which would lead to demand for about 6.8 million tCO₂e given an average offset price of EUR 7 (see Box 16). As diesel and gasoline prices are already relatively highly taxed in Turkey the Kurus might be shared between consumer/supplier and the government through reducing tax as partial compensation.

Box 12: The Swiss Climate Cent Foundation

The Climate Cent (“Klimarappen”) is a voluntary measure of the Swiss industry to reduce 17 million tCO₂e over the period 2008 to 2012 using project-based mechanisms under the Kyoto Protocol. Funded by an import charge of 1.5 cent per litre diesel and petrol, the Swiss Climate Cent Foundation generates around 100 million Swiss Francs annually which it invests into emission reduction projects both in Switzerland and internationally.

Of the 3.4 million tCO₂e of annual emissions reduction pledges, at least 0.4 million tCO₂e have to be achieved in the building or industrial sectors within Switzerland, while up to 3 million tonnes may be achieved abroad through schemes such as the CDM.

⁵¹ Isaac Valero-Ladron, a spokesman for the European Commission has stated: “We are very open. The definition of equivalent measures is a very flexible concept.” See Saqib Rahim, “Airline manoeuvres intensify as E.U. cap on jet emissions looms”, ClimateWire, May 31, 2011 available at: http://www.eenews.net/public/climatewire/2011/05/31/1?page_type=print.



Turkish Climate Certificate

Another option for stimulating demand for offsets is through introduction of a climate neutral label or Turkish Climate Certificate. The Turkish Government could act as sponsor and administer of the Certificate, allowing eligible Turkish companies to carry it, position themselves as eco-friendly companies and give a boost to their products and services. As part of the effort to become more climate-friendly or at best even climate neutral, a portion of the company's carbon footprint could be offset through the purchase of domestic VERs. The Certificate could also be sponsored by credible private sector institutions and involve such institutional actors as the Carbon Disclosure Project, Istanbul Stock Exchange or the Turkish organisation for standard setting. An interesting initiative in this regard is the Turkish Industrial and Development Bank (TSKB)'s recently launched "Zero (Sıfır) Carbon Standard". The Zero Carbon Standard is endorsed by the Ministry of Environment and Urbanisation and several other organisations including the Gold Standard.

A front-runner in the field of a state-sponsored standard definition is Costa Rica, which even targets complete climate neutrality (see Box 13).

Box 13: The Costa Rican Climate neutral Standard

Costa Rica has pledged to implement a long-term economy-wide transformational effort to enable climate neutrality by 2021 and has defined the technical norm INTE 12-01-06:2011 so that organizations and companies may, voluntarily, elaborate their GHG inventories, determine their carbon footprint and aspire to become climate neutral. Up to date Costa Rica has managed to reduce a substantial amount of national GHG emissions through energy and land use policies. However, to fulfil its voluntary goal of achieving climate neutrality by 2021, Costa Rica will need to: (i) increase energy efficiency in processes and practices, and use new technologies, (ii) capture and store carbon through forestry and the expansion of its programmes on Payment for Environmental Services and (iii) develop a national carbon market.

The technical norm INTE 12-01-06:2011 is the first state approved norm that provides a method for entities to measure, report, verify and certify emission reductions in line with international standards. Its aim is to facilitate a common language (definitions), guarantee transparency and avoid inconsistencies in measurements.

The norm specifies the requisites to establish a management system that enables an entity to demonstrate its climate neutrality. Its main aspects consist of:

1. Reference norms,
2. Principles,
3. Requirements for the evaluations of greenhouse gas inventories. Its objective is that when the claim of climate neutrality is made, there is a reliable and verifiable method to support it.
4. Requirements to measure emission reductions and increase in forest carbon stocks,
5. Documents and templates needed for proving ERs
6. Requirements for compensations
7. Requirements for information management on all of the above.

As an example, the potential of the Turkish tourism sector for a climate neutral label is further detailed and explored in Annex III.



Domestic voluntary offsetting (Corporate Social Responsibility)

Even in the absence of a specifically Turkish climate certificate, Turkish domestic companies could engage in measuring, reporting, reducing and ultimately offsetting their carbon footprint⁵². So far, Turkish domestic companies have not sought climate neutrality as part of their CSR strategy, nor have they become off-takers of domestic carbon credits at a significant scale. However, there are indications that this could change in near term. Two developments in particular could in medium term stimulate a demand for voluntary credits:⁵³

1. Investors in new coal-fired power installations face growing public pressure over their environmental and social impacts, translating into prolonged timelines for receiving environmental permits. An example is the Geze power plant in the Black Sea region. This has heightened investor's awareness of climate change liabilities of their investments and triggered some Turkish investors to start exploring the possibility of partially offsetting emissions - a practice which is already seen among investors in new coal-fired power stations in the United States. Modest efforts of offsetting 2 per cent of their emissions would already lead to demand for 2 million tCO₂ per year (see Box 15), which in turn would lead to a negligible price increase of 0.017 and 0.020 Euro cent per kWh for coal and lignite plants respectively.⁵⁴
2. Top-100 companies in Turkey are demonstrating growing interest in sustainability and the Carbon Disclosure Project in Turkey. The Istanbul Stock Exchange in conjunction with the local chapter of the World Business Council for Sustainable Development (WBCSD) is developing a Sustainability Index aiming at the current constituents of the ISE-100 index. Target launch of the index is at the end of 2012. While there is currently no direct link between the Index and climate neutrality, it could be re-constructed to encourage an emission trading market facilitation. The key success factor is to identify investors and fund managers who can make the Index work to this end.

Such initiative can have a compulsory nature if governments decide to have carbon disclosure obligatory for all companies listed on an exchange, as will be the case in the United Kingdom (see Box 14). Impact of such measure for the Turkish situation, will need further investigation.

These initiatives are further described in Boxes 15 and 16, providing additional information as to the policy background of each, targeted sectors, key activities that are necessary, implementing agencies and timeline considered. The figure in Box 16 includes a comparative analysis of the size of the carbon market or demand for offsets created by each initiative.

⁵² An example of a private sector driven scheme is the Santiago Climate Exchange (SCX) which sets out to enable domestic voluntary offsetting in Chile by companies, government institutions and individuals.

⁵³ Information provided directly by Gaia Carbon Finance and Melsa Ararat, director of the Carbon Disclosure Project for Turkey and member of the Istanbul Stock Exchange Sustainability Index peer review group.

⁵⁴ Assuming a price of a VER of 10 EUR per tCO₂e and an emission factor of 1,022 tCO₂/GWh for lignite and 804 tCO₂/GWh for hard coal.



Box 14: Mandatory GHG emissions reporting for listed companies in the UK

During the RIO+ 20 Summit held in June 2012 in Rio de Janeiro, Brazil, the UK Deputy Prime Minister announced that starting next financial year all companies listed on the London Stock Exchange will be required to report their GHG emissions in their annual reports. The new obligation, which will be overseen by the Department for Environment, Food and Rural Affairs, will be introduced in April 2013 and will be the first of its kind.

The motivation behind the new regulation is not only to create greater transparency regarding the impact companies are having on the environment, but also to allow investors gain insight into the way companies are managing their emissions and what the long-term hidden costs may be associated with such exposure. The reporting of GHG emissions will follow the GHG Protocol, an internationally recognised standard for corporate accounting and reporting of GHG emissions. The reporting will consist of scope 1 (direct emissions) and scope 2 (energy-related emissions) GHG emissions.

The regulation will be reviewed in 2015, after which a decision will be made whether the regulation will be extended to cover all large companies operating in the UK from 2016 onwards.

Source: Department for Environment, Food and Rural Affairs (June 2012)



Box 15: Measures facilitating cap-and-trade of emission allowances in Turkey (potentially allowing for offsetting)

Measure	Policy background	Target	Activity	Implementing Agent	Timeline	Output
Either domestic ETS or participation in EU ETS	<ul style="list-style-type: none"> Partnership for Market Readiness (PMR) – The World Bank (World Bank Capacity building program for implementation of domestic emission trading markets in candidate countries that also include Turkey) Strategy and Action Plan for Istanbul Finance Center, IFC Istanbul, October 2009 	<ul style="list-style-type: none"> Establishing a functional ETS for direct emission mitigation in Turkey With rigorous and internationally acclaimed MRV capacity That can ultimately be linked to other national and regional schemes. 	<ul style="list-style-type: none"> Capacity Building for a national ETS (especially under PMR of the World Bank) Bill for the “Verification and Control of GHG emissions of Certain Industries”. Carbon Exchange experience through a pilot program under ISE (Istanbul Stock Exchange) 	<ul style="list-style-type: none"> Ministry of Environment and Urbanization Capital Markets Board Istanbul Stock Exchange 	2015-2020	250 mtCO _{2e} per year (initial estimate by Climate Focus) ¹
Power sector ETS	<ul style="list-style-type: none"> Same as for a comprehensive ETS 	<ul style="list-style-type: none"> Reduce emissions 5% 2015-2020 	<ul style="list-style-type: none"> Same as for a comprehensive ETS 	<ul style="list-style-type: none"> Same as for a comprehensive ETS 	2015-2020	160 mtCO _{2e} per year ²
Aviation ETS	<ul style="list-style-type: none"> 2008 revised DIRECTIVE 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community Inclusion of Turkish flights to the EU in the EU ETS from 2012 	<ul style="list-style-type: none"> Turkish air carriers flying to the EU 	<ul style="list-style-type: none"> Establishing a mandatory compliance framework for Turkish Airlines (possibly limiting to those flying to the EU); Setting a cap comparable to the ambition required under the EU ETS (taking into account free allocation of units to airlines based on historic emissions); Defining standards for the acceptance of voluntary offset credits into the compliance framework 	<ul style="list-style-type: none"> <i>Carbon Market Supervisory Board</i> Ministry of Transport and Communication Directorate General of Civil Aviation 	2013-2020	2 mtCO _{2e} per year ³

¹ Emissions from the power sector (163.646 mtCO_{2e}, see above) are multiplied by the ratio of energy related emissions from the Turkish energy to those from the manufacturing industry (1,88 for 2009 - from <http://www.turkstat.gov.tr/PreHaberBultenleri.do?id=8537>), yielding 86.819 mtCO_{2e} industrial emissions. The total permits for an industry wide ETS would thus be 250.465 mtCO_{2e}.

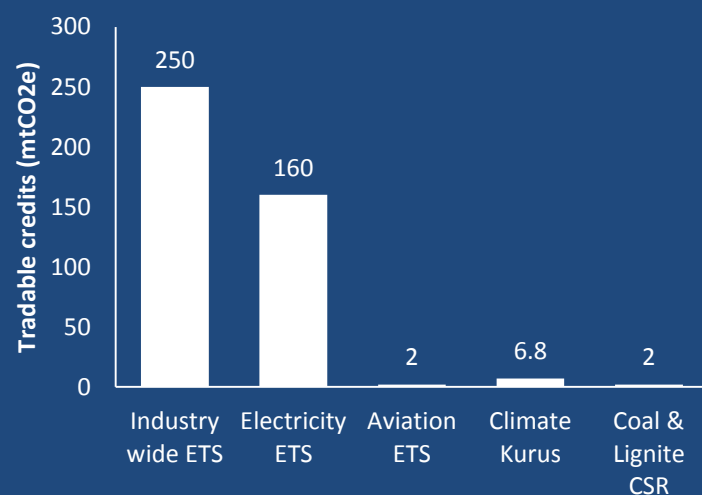
² Estimated emissions from the power sector over the period 2015 – 2020 are 1,034 mtCO_{2e} according to the Capacity Projection Reports of the Turkish Electricity Transmission Company (<http://www.teias.gov.tr/projeksiyon/KAPASITEPROJEKSIYONU2011.pdf>). A reduction of 5% (equal to the EU ETS phase I target for power sector) would leave an average of 163.646 mtCO_{2e} tradable credits per year.

³ Allocation of free annual allowances for Turkish aviation companies under the EU ETS for 2013 to 2020 is 2.409 mtCO_{2e} (http://www.dehst.de/SharedDocs/Downloads/DE/Publikationen/LV_Zuteilungsbericht.pdf?__blob=publicationFile) of which it is assumed that just half of the emissions (inwards EU flights) may be covered in a domestic scheme. Expected average annual emissions for the same time frame are 3.771 mtCO_{2e} allowing for 3% annual growth – again half of which is assumed to be the market size of traded aviation credits: 1.89 mtCO_{2e}.

Box 16: Measures facilitating voluntary offsetting projects in Turkey

Measure	Policy background	Target	Activity	Implementing Agent	Timeline	Output
Turkish Climate Kurus	<ul style="list-style-type: none"> Turkish National Climate Change Action Plan The Energy Efficiency in Turkey: Planning for the Present and Future (EIE (General Directorate of Electrical Power Sources Survey and Development Administration), 2009) 	<ul style="list-style-type: none"> Limit emission increase rate of individual vehicles in intra-city transport (NCAAP, 2011) Realise potential for -15% energy consumption in transport (EIE, 2009) 	<ul style="list-style-type: none"> Introducing a government tax, industry levy, (or mix) of 10 Kurus per litre on gasoline and diesel road fuel 	<ul style="list-style-type: none"> Ministry of Energy and Natural Resources Energy Efficiency Co-ordination Board Turkish Oil & Gas Companies 	2013-2020	6.5 mtCO ₂ e per year ¹
Turkish Climate Neutral Label	<ul style="list-style-type: none"> Turkey could sponsor the establishment of a Turkey Climate neutral Label. The label would be given to qualifying Turkish companies in e.g. export and/or tourism 	<ul style="list-style-type: none"> Reducing energy consumption and GHG impact at Turkish companies by i) investments in sustainable energy and ii) facilitating the purchase of Turkish VERs to become eligible for a Turkey Climate Neutral Label. 	<ul style="list-style-type: none"> Definition of standard and process for a Turkey Climate neutral Label 	<ul style="list-style-type: none"> Ministry of Environment and Urbanization as key sponsor Participating Banks as intermediaries, possibly including Istanbul Stock Exchange on the medium term. 	2012 - 2015	TBD
Coal Power CSR	<ul style="list-style-type: none"> Public pressure against planned coal power plants 	<ul style="list-style-type: none"> Offset 2% of emissions from coal power plants (percentage subject to CSR policy) 	<ul style="list-style-type: none"> Encourage voluntary offsetting in the coal utilities 	<ul style="list-style-type: none"> EUAS and other Turkish electricity utilities 	2013-2020	2 mtCO ₂ e per year ²

Figure: Estimation of carbon market size potential under different policies



¹ Turkish fuel consumption is assumed to remain stable in the near future since it has been decreasing over the past years, however this is expected to be offset by increasing numbers of vehicles in the future. Road sector fuel consumption in Turkey for 2008 was 2,318 ktOE gasoline and 8,452 ktOE diesel (<http://data.worldbank.org/>). This relates to 2,695.349 million l gasoline and 8,624.490 million l diesel or all in all 11.32 billion litres road sector fuel consumed. If ten Kurus (about EUR 0,042) per litre (equals EUR 47.54 million) is invested in carbon credits for EUR 7 each (average price see Chapter 3, accounting for price increase due to high demand increase), about 6.79 mtCO₂e offsets can be purchased.

² That is 2 % of expected average annual emissions from coal and lignite electricity production, over 2013 to 2020 (<http://www.teias.gov.tr/projeksiyon/KAPASITEPROJEKSIYONU2011.pdf>)



5.2. Supply

Even though Turkish project developers have so far enjoyed success in developing and registering voluntary carbon projects, barriers on the supply side are also present as indicated by respondents to the Carbon Market Survey. Building on the analysis of existing supply-side barriers described in Section 4.2 above, a set of concrete measures to overcome these hurdles are identified below. Addressing barriers to supply may not only help to remove inefficiencies and existing stumbling blocks but also position Turkish project developers better with buyers – all of which is essential for maintaining future competitiveness. Note that this report does not focus on Turkey's absolute supply potential in terms of volume. Rather, it is considered a given that the tons of emission reductions that could potentially be produced in Turkey will not be a bottleneck given the Government's high ambition levels for renewable energy and energy efficiency development in Turkey. The IMACC study estimates that the overall annual abatement potential with a carbon pricing approach could reach 159 MtCO₂e in 2020 and increase to 344 MtCO₂e in 2030.⁵⁵

Improving access to finance – capacity building for banks

As described in Section 4 above, the level of banking services offered to carbon project developers is a relevant barrier to successful project development. Capacitating banks through enabling them to enhance the range of high-quality services offered to project developers is key to improving the identification of successful project opportunities, integrating carbon finance with credit facilities. Furthermore, if Turkish banks became active in carbon trade, value add could be shifted to Turkey through bypassing foreign intermediaries between Turkish suppliers and the end-users of credits and capitalizing on the bank's reputational standing.

By providing carbon finance training to participating banks and developing pilot transactions, the MidSEFF carbon finance consultancy works to alleviate barriers associated with Turkish bank's current lack of involvement.

Improving knowledge – carbon development hubs spread through Turkey

A key factor underlying successful market penetration is appropriate technical and institutional training of current and potential future market participants. Workshops, partnerships and training programmes within national universities and other knowledge centres have proven successful for carbon project development elsewhere, for instance at provincial government level in China. Building on this success, it is recommended to mainstream carbon project (and carbon market) development through Turkey's education system.

Capacity building for local DOEs

Both intermediaries and project owners have voiced concerns that the number of DOEs is not sufficient to meet the demand in Turkey and that the quality of DOE services in Turkey is mostly "poor" (with some exceptions). In addition to long periods of validation, it is commonly perceived that DOEs lack detailed domestic sector knowledge, with no indigenous Turkish DOEs currently operating in the market. To remedy the situation and improve local knowledge, Turkish auditing companies could be trained in the field of carbon project assessment, facilitating their expansion and internationally accepted accreditation in this new area.

⁵⁵ NERA, BNEF, IBF (2011), page viii



Furthermore, the Turkish government could consider building a local accreditation system for validation and verification bodies through the Turkish Accreditation Agency, a member of the International Accreditation Forum. For example, the American National Standards Institute (ANSI) has developed an accreditation program in the US to provide accreditation services and approvals for VCS, California's Climate Action Reserve (CAR), and The Climate Registry. As a result, there are now a number of validation and verification bodies operating in the US, under the oversight of ANSI.

Project standardisation approach: verified grid emission factor

Project owners and DOEs have expressed a strong need for tools and templates that can help them reduce development costs and uncertainties. Standing out in the survey is the need for a verified grid emission factor. All project developers surveyed specify that a verified emission factor would provide the single most assistance in the project development process and half of the DOEs state that they experience significant difficulties in verifying underlying data. Therefore it is recommended that the Turkish government centrally hosts and periodically updates verified grid emission factors for Turkey. This could follow the example set by the Chinese Designated National Authority which publishes grid emission factors for different regional grids in China, for use by project developers, intermediaries, buyers and DOEs. An initiative for a validated national grid emission factor for Turkey may be facilitated under MidSEFF.

In the same vein, standardization work could be carried out for several other industries in Turkey, for example development of performance benchmark approaches for the housing or commercial real estate sector (e.g. tCO₂e per square meter) In the agriculture sector, it could be tCO₂e per ton of fertilizer applied. Alternatively and especially if the focus is on new market mechanisms, one could develop 'positive list' approaches for activities that would be deemed a priori additional thereby streamlining project approval.⁵⁶

Improving legal infrastructure and legal capacity building

Sound legal advice is crucial to facilitating carbon transactions. Due to the specific nature of these transactions, the availability of legal counsel with adequate carbon expertise will allow transactions to proceed with greater speed, at lower cost, and with improved confidence on both sides. As noted in Section 4.2, there are currently no law firms in Turkey with dedicated carbon desks. This means that both buyers and project developers must engage foreign counsel that may have little knowledge of the specifics of the Turkish carbon market and will, in many cases, significantly drive up the price of transactions. Building up the capacity of local law firms to provide core carbon transaction services could greatly facilitate the smooth flow of transactions, while fostering domestic legal expertise that can later feed into the development of national carbon market infrastructures. Such capacity-building could also include the development of carbon transaction document templates tailored to Turkish market specifics, further streamlining the process and reducing costs for buyers and project developers. Under MidSEFF the development of standardised VERPA templates and the building up of legal carbon market capacity in Turkey is envisaged to remedy the barrier.

Clarifying the legal status of carbon credits

As described in Section 4 above, the regulatory uncertainty surrounding the legal status of carbon credits presents a market risk. The solution to this issue can only come from the regulator,

⁵⁶ The VCS has through a consultative process developed comprehensive guidance for the determination of performance benchmarks and standardized methods.



i.e. Parliament, financial services authorities and/or other relevant government entities. Action from relevant institutions could clearly classify the category of property to which carbon credits belong and bring certainty to their status for purposes of property and transaction requirements, tax law and, potentially, introduce an appropriate accounting framework. Regarding an accounting framework, in line with country practices elsewhere, a consolidated approach to how carbon will be treated on the company books may eventually emerge from common practice in the application of international accounting standards. For an overview over the current discussion on the legal treatment of carbon credits see Box 17. In Turkey, VER revenue is subject to corporate tax law as other taxable income and is considered a tangible by-product of the projects.

Box 17: Carbon credits – commodity or financial instrument?

EU Member States have long failed to establish a common practice on how to classify carbon units for financial-regulatory purposes. Sweden, and more recently France, have classified them as financial instruments, while countries such as the UK, Germany, Italy and Spain so far regarded them as a commodity such as oil and gas, regardless of the fact that carbon units are dematerialized certificates, not tangible substance.

The classification is relevant for a range of issues, notably market oversight and taxes. In most countries, stringent market oversight is in place for financial instruments, less rigid one for commodity trading. The EU Markets in Financial Instruments Directive (MiFID) sets minimum standards for protecting the markets with financial instruments. However so far, while derivative trading with carbon units (futures, forward, options etc.) has been covered, the spot trading has been excluded, as the carbon unit as such is not considered a financial instrument.

This practice in Europe stands to change. EU law-makers have recently taken issue with a number of trading irregularities concerning VAT fraud, theft and “recycling” of EUAs, and several ‘phishing scam’ incidents. Following a proposal from the European Commission (October 2011), the European Parliament and the Council are expected to adopt a MiFID amendment shortly under which spot CER, ERU or EU emission allowances trades will be rendered subject to the regulation to the effect that both spot and derivative markets will be under a single supervisor.

The reform aims at providing enhanced safety, efficiency and market confidence, enhance overall transparency, enable supervisors to respond decidedly to misconduct and threats to market integrity, and lastly minimise insider dealing and market abuse and manipulation through the introduction of anti money laundering rules.

Since all this also means that market players that have previously not been subject to extensive regulation would in the future be regulated just as investment firms, the proposal has spurred not only positive reactions. However, the Commission foresees an exemption for market participants that are below a minimum threshold.

Though not regulated by MiFID, any classification as financial instruments, commodity or other has also consequences for VAT treatment, as many countries exempt the trade in financial instruments from VAT, while the transfer of a commodity will be treated as a supply of services which is subject to VAT.

Finally, there are implications from an accounting perspective, as accounting rules usually differ if carbon units are treated as financial instruments (Sweden, France), tangible asset/inventory (Germany) or on cost/income basis only (Spain, UK).



6. Turkish Carbon Market Survey in Detail

Uncertainty in owners' and intermediaries' expectations on future domestic & international demand for Turkish offsets

The majority of owners, intermediaries and buyers expect a domestic compliance market by 2020

Analysis of Demand Barriers

Domestic and international demand barriers

Short-term expectations

More than half of responding **owners** and two thirds of **intermediaries** expect the worldwide demand for VERs to increase in the coming two years.

Regarding the demand for Turkish VERs, again over 50 per cent of **owners** believe an increase whereas 36 per cent believe that demand for Turkish VERs will not change in the next two years.

Only 45 per cent of **intermediaries** expect the demand for Turkish VERs to increase in this period.

Long-term expectations

14 out of 25 **owners** are either certain or strongly believe that a national carbon market will be established in Turkey by 2020 and another six find this probable, whereas the remaining four are sceptical.

While **intermediaries** believe it is not likely that a national carbon market will be established by 2015, they are more optimistic about it by 2020.

According to **intermediaries** bilateral agreements and EU ETS aviation emission offsetting are the two most likely markets for future VER use.

Four out of six **buyers** also estimate Turkish VER demand from post 2012 new market mechanisms as a strong possibility.

Out of 25 respondents, none of the **owners** think that public awareness for climate change issues in Turkey is very strong and only one believes that it is strong. Nine believe that the public has a moderate level of awareness for this issue and fifteen of think it is weak.

All **intermediaries** agreed that the level of public awareness for climate change issues in Turkey is weak.



Owners and intermediaries see important demand drivers to be social and environmental integrity of the standard used and project type

The quality of Turkish VERs is rated above average by almost all survey participants

Most attractive are believed to be wind, landfill and geothermal – but diversity in Turkey is poor

Standard barriers

Standard specific demand drivers

Almost all responding **owners** and **intermediaries** listed “standard used”, “environmental and social integrity” and “project type and technology” as top three demand factors for Turkish VERs.

Five out of six **buyers** agreed on “project type and technology” and “environmental and social integrity” as important demand drivers but also emphasised “price”. Five **DOEs** that are active in Turkey point to “project type and technology” and “standard used” as the most important factors in setting the price for validation and verification services.

Quality of Turkish VERs

More than half of **project owners** believe that the quality of Turkish VERs is already above average.

The responding **intermediaries** assess the quality of VER supply from Turkey as moderate and strong. Three **buyers** see the quality as “very strong”, two as “strong” and one said “fair”.

Almost all **DOEs** grade the quality of VERs from Turkey and the capacity of the project developers as “strong”.

Project type barriers

Attractiveness

A major portion of **owners** believes that the most attractive projects for buyers are wind power projects. Second and third most attractive for buyers, according to owners, are landfill and geothermal projects respectively. 88 per cent of responding **intermediaries** think that wind power projects are the most attractive projects for buyers. Half of them agree on geothermal and landfill gas projects as also attracting buyers.

Diversity

Intermediaries assess the diversity of VERs in terms of project type and geography as “weak”.

Analysis of Supply Barriers

Finance barriers

Lack of finance and bankability of project

The general opinion among **project owners** on the minimum price needed to continue investing in carbon asset development



Project owners keep regarding carbon asset development as attractive

is at least 5 EUR/tCO₂e and 7-8 EUR/tCO₂e for Gold Standard projects.

Most of the **project owners** claim the strength of VER revenue to increase bankability as “medium” or “strong” but not “very strong”.

Also, more than 70 per cent of the responding **owners** perceive the investment in VER development still feasible with current and expected VER prices in upcoming years.

Development cost barriers

Collecting emission data

More than 80 per cent of responding **owners** have difficulties in calculating a grid emission factor and outsource calculation to the consultants or intermediaries that are developing the assets.

All **intermediaries** conduct grid emission factor, partially or fully, in house. Two thirds of the intermediaries use TEIAS (Turkish Electricity Distribution Company) or TUIK (Turkish Statistics Institute) or EPDK (Energy Markets Regulatory Agency) main sources of information for grid CO₂ EF calculations. Only one fifth of them use other sources solely.

DOEs face no difficulty in verifying the grid emission factor but get challenged in verifying data sources and supporting the calculations. They all believe that a verified EF would strongly assist them in the validation process. All **DOEs** see the lack of a verified grid carbon emission factor as most important country specific price factor.

Finding the right Methodology

The responding **project owners** claim that project methodology selection is pursued by outside sources because they lack in-house capacity and find identifying appropriate methodologies rather difficult.

All **intermediaries** conduct the methodology selection and application for their projects, partially or fully in house and almost all state that identifying appropriate methodologies for their projects is an easy task for them. The majority finds the appropriate methodology from UNFCCC resources and similar projects. A few also use outside consulting beside these sources.

DOEs are satisfied with the accuracy of methodology selection of their clients.

The need for a verified grid emission factor is strong according to the vast majority of owners, DOEs, developers, and intermediaries

Methodology development poses a big hurdle to project owners but not to intermediaries



Restrictions in quantity and service quality of DOEs and long validation according to owners and intermediaries

Quality and quantity restrictions of DOEs and validation

Almost 70 per cent of project responding **owners** believe that the number of DOEs active in Turkey is not sufficient but most of them have no difficulty in reaching a DOE. Almost all believe that validation takes long but that the weight of the cost within the entire carbon asset development cost is rather moderate. They rate the local knowledge of DOEs “strong”.

Intermediaries regard the number of DOEs as not sufficient to meet the service demand in Turkey and rate the quality of DOE services in Turkey mostly as “poor”. It is relatively easy to access a DOEs in Turkey but the time for validation is long. They assess the level of local knowledge as “moderate” but weigh costs for DOEs in developing VERs as “strong”.

DOEs assess the length of validation and verification process as moderate. According to their experience, validation of a VCS project takes between four and nine months where under GS it usually takes between one and one and a half years.

Stakeholders frequently struggle with legal issues of carbon asset development

Preparing legal documents

The project **owners** responding to the survey claim that understanding the legal documentation for carbon market is difficult to understand and yet, they try to solve legal aspects in-house.

One third of the **intermediaries** define preparing the legal documentation of their VER sales as moderately difficulty and another few as very difficult, while one forth says it is easy.

Intermediaries find it easy to understand and evaluate the service contracts with DOEs. **Buyers** think that the sellers have difficulty in understanding the ERPAs.

Information barriers

Knowledge and awareness of carbon opportunities

Almost 80 per cent of the **project owners** responding the questionnaire state that they have outsourced their carbon market activities to an intermediary. 45 per cent of them claim to have more than three years of experience in the carbon market while 25 per cent have been engaged with carbon finance for less than a year.

Intermediaries rate the awareness of project owners for carbon market opportunities as “weak”. Almost all of them develop their carbon assets in-house and most of them have been working on carbon market for between three and five years.

Project owners have poor knowledge on carbon project development



None of owners or intermediaries have received carbon finance services and all rate expertise on this in Turkish banks as weak

A majority of responding **project owners**, almost 90 per cent, mention that they have never received a carbon finance service from a bank or a financial institution. Yet, more than half of the respondents expect the banks to become a source of carbon market advisory knowledge. On the other hand, all respondents rate the level of climate finance knowledge in banks “weak” or “very weak”.

None of the **intermediaries** have so far received a climate finance related service from a bank or financial institution and assess the level of climate finance expertise in Turkish banks as weak.

Marketing of Turkish VERs

According to the responding **owners**, there is no strong need for developing a unique standard for Turkish VERs. To increase the price, a majority of responding **owners** point to “better marketing of Turkish VERs”.

A little more than half of the **intermediaries** believe that there is no need for developing a new standard specific for the Turkish VERs. Yet, the other less than half consider a unique VER standard for Turkey as a good option

Four out of six **buyers** said a unique standard is not really necessary for Turkey. One said it may be necessary.

All of the **DOEs** believe that there is no additional value in developing a Turkey specific standard.

Pricing and finding a buyer

Almost all **intermediaries** get pricing information via regular interaction with buyers (traders, brokers and end-buyers).

All responding **owners** expect to sell their VERs to an intermediary or a broker, not directly to an end buyer. None of the respondents expected to reach an end-buyer.

Most of the **intermediaries**, almost 80 per cent, consider broker/traders or end buyers as the most possible buyers for their VERs.

Which standard to use

All responding **owners** have used only GS or VCS so far and almost 75 per cent of the respondents use GS and almost all believe that GS certification would increase price by ensuring environmental and social integrity of the project. Only two respondents attached Social Carbon to their non-GS VERs.

While six of the **intermediaries** thought increasing the price

There is a need to better market Turkish VERs, potentially introducing a Turkish standard

Owners and intermediaries have limited access to information on prices and buyers



All project owners and intermediaries use GS and VCS and regard GS as the strongest in terms of integrity and demand expectation

plays the most important role of standard choice in the development process of their project, six of them attribute environmental and social integrity with the standard.

All **intermediaries** agree on GS as the strongest standard in terms of guaranteeing environmental and social integrity. Almost all use GS as first option and all of them consider GS to add value for the increase in price. Yet, for practicality and applicability reasons all intermediaries point to VCS as standard to use.

For most **buyers** using a standard such as VCS or Gold Standard is of major importance in the validation of a project: They value the environmental and social integrity assurance and the quality of the additionality test. Five out of six **buyers** say GS is the most assuring on environmental and social integrity. One said social carbon is the strongest in that sense.

DOEs believe that the standards used are appropriate to analyse the integrity of the projects in detail. They have strong confidence in the GS to assess the environmental and social integrity of the projects but also see VCS and other standards as good for various issues.

Owners, buyers, intermediaries and DOEs see benefit in a national registry mechanism

Regulatory barriers

Registry service

Project **owners** rate the quality of registry services as “average” and point out a fairly strong need for a local registry mechanism.

Intermediaries are content with the capacity and service quality of existing registry mechanisms such as APX or Markit in terms of service quality and accessibility. Three quarters express a need for a national registry mechanism to strengthen VERs from Turkey.

Four out of six **buyers** presume some need for a national registry mechanism. Two claim that it is not necessary.

Four out of five **DOEs** see value in a national registry mechanism.

Owners have no knowledge on the taxation of their VER revenue

VAT treatment

The project **owners**, in general, do not have any knowledge on the taxation of VER revenues. A significant majority, 92 per cent, of **project owners** claim to be the sole owner of VER rights of their project with no agreement to share them with other project stakeholders.



Annex I – Carbon market survey methodology

Survey method

This is the first carbon market survey of Turkey based on active information collection through questionnaires and interviews. The survey was conducted in the period December 2011 to March 2012. The survey covers project developers, intermediaries, buyers and Designated Operational Entities (DOEs) that are actively participating in the market. A total of 45 respondents participated in the survey that was held through telephone interviews.

The survey targets four main stakeholder groups: *project owners, intermediaries, DOEs and buyers of the VERs*. These groups have been actively and commercially involved in the Turkish carbon market. A specific questionnaire was prepared for each group (ANNEX B) and then conveyed to potential respondents by enumerators with experience and technical information on the sectors. Potential respondents who preferred written responses were reached by email to which the enumerators followed up for clarification.

Project Owners

Parties that are listed in either GS or VCS registries as developers of at least one project in Turkey were selected as 'project owners' for the survey. After six weeks of interaction, from initially 59 project owners, 25 parties have adequately responded to the questionnaires. A major part of the group that had not responded to the questionnaire explained that their knowledge on carbon markets and carbon asset development would be very limited since they have outsourced the carbon market component of their projects to intermediaries.

Intermediaries

Carbon asset developers and carbon finance consultants – the intermediaries – are the second surveyed group of players in the Turkish carbon market. Starting 2007, international carbon finance consulting companies opened liaison offices in Turkey to cultivate the voluntary carbon market potential. Today, in addition to the international players, there are also various domestic consulting companies which have been actively developing VER credits in Turkey. From GS and VCS listings, a group of twelve intermediaries has been identified as target group for the survey. Nine parties out of this group fully responded the questionnaire.

Designated Operational Entities (DOEs)

The GS and VCS listings and further market research have revealed seven active DOEs in the Turkish carbon market. Five of these DOEs have responded to the survey and provided their market expertise from a technical point of view. The group specific questionnaire focused on the technical elements of project development and the quality of the process accordingly.

Buyers

Being an over the counter market with most transactions arranged between buyers and sellers without public records, the identity of buyers in the voluntary carbon market is the least accessible market information. Through market research and some records on the public display of buyers in past transactions, eight buyers have been identified which were interviewed about their perspective on Turkish VERs and the future of the voluntary carbon markets. Furthermore, a number of London based broker and offsetting companies have been interviewed.



Annex II – Activities and gases covered by Turkish MRV legislation

Activity	GHG
<ul style="list-style-type: none"> Combustion of fuel in plants with installed capacity greater than 20 MW. (excluding those that combust hazardous or household waste) Oil refinery Coke production 	<p>CO₂</p> <p>CO₂</p> <p>CO₂</p>
<ul style="list-style-type: none"> Metal ore (including sulfide ore) charring, sintering or pelletizing Pig iron or steel manufacturing above 2.5 t/hr capacity, including continuous casting (primary and secondary melting) Manufacturing or processing of all iron metals (including iron alloys) by combustion plants with installed capacity greater than 20 MW. (includes processing, rolling, reheating, annealing, metal processing, iron foundry, plating and stripping) Primary aluminium production Secondary aluminium production with combustion plants with installed capacity higher than 20MW 	<p>CO₂</p> <p>CO₂</p> <p>CO₂</p> <p>CO₂ and PCFs</p> <p>CO₂</p>
<ul style="list-style-type: none"> Production and processing of non-iron metals by combustion of plants with installed capacity greater than 20 MW such as production, refinery and founding of alloys Clinker production by rotating ovens with capacity greater than 500 t/day or by furnaces with capacity greater than 50 t/day Lime production and calcification of dolomite or magnesite by rotating ovens or furnaces with daily capacity greater than 50 t/day Glass production including glass fiber by melting capacity greater than 20 t/day Ceramic production including roof tiles, bricks, refractor bricks, tiles, stones and porcelain with capacity greater than 75 ton/day Production of glass, stone or cinder including mineral fiber insulation material with melting capacity greater than 20 t/day Drying and calcification of lime stone or production of lime panels and other lime stone material by combustion plants with installed capacity greater than 20 MW 	<p>CO₂</p> <p>CO₂</p> <p>CO₂</p> <p>CO₂</p> <p>CO₂</p> <p>CO₂</p> <p>CO₂</p>
<ul style="list-style-type: none"> Cellulose production from wood or other fiber material Paper, card board or carton production with capacity greater than 20 t/day Carbon black production including carbonization of organic materials such as oil, tar, cracking and distillation residues by combustion plants with installed capacity greater than 20 MW Production of nitric acid Production of adipic acid Production of glyoxal and glyoxylic acid Production of ammonia Organic chemicals production in large scale by cracking, reforming, partial or full capacity oxidization or similar process with capacity greater than 100t/day 	<p>CO₂</p> <p>CO₂</p> <p>CO₂</p> <p>CO₂ and N₂O</p> <p>CO₂ and N₂O</p> <p>CO₂ and N₂O</p> <p>CO₂</p> <p>CO₂</p>
<ul style="list-style-type: none"> Hydrogen (H₂) and synthesis gas production by reforming or partial oxidization with capacity greater than 25 t/day Production of Soda ash (Na₂CO₃) and Sodium Bicarbonate (NaHCO₃) 	<p>CO₂</p> <p>CO₂</p>



Annex III – Climate neutral tourism: destination Turkey

The concept of ecotourism implies “responsible travel to natural areas that conserves the environment and improves the well-being of local people.” (Eco Tourism described by the International Ecotourism Society (TIES), 1990). It aims at uniting conservation, communities, and sustainable travel. According to TIES, the principles of ecotourism are as follows;

1. Minimize impact.
2. Involve travel to natural destinations.
3. Build environmental and cultural awareness and respect.
4. Provide direct financial benefits for conservation.
5. Provide financial benefits and empowerment for local people.
6. Respect local culture.
7. Support human rights and demographic movement.

Ecotourism requires travellers to be responsible for themselves, locals and other tourists who may be around them. Responsible travel is similar to educational travel, yet it is much more active. In other words, ecotourism includes some educational aspects where the travellers not only promote water and energy conservation conceptually, but also encourage implementation of the concept in the areas they visit.

In 2002, a declaration on responsible tourism was agreed by 20 countries including Turkey in the Conference on Responsible Tourism in Destinations held in Cape Town. The declaration defines responsible tourism as tourism that:

- minimizes negative economic, environmental and social impacts;
- generates greater economic benefits for local people and enhances the wellbeing of host communities;
- improves working conditions and access to the industry;
- involves local people in decisions that affect their lives and life chances;
- makes positive contributions to the conservation of natural and cultural heritage;
- embraces diversity;
- provides enjoyable experiences for tourists through more meaningful connections with local people, and a greater understanding of local cultural, social and environmental issues;
- is culturally sensitive, encourages respect between tourists and hosts, and builds local pride and confidence.

The tourism industry largely contributes to climate change: About 5% of global CO₂ emissions are generated by the tourism industry, of which 94% is caused by air transportation (Viner & Nicholls, 2006). For some time, the concept of carbon neutral tourism has been discussed within climate change mitigation debates. Conceptually, “climate neutral tourism” can be achieved, by neutralising carbon emissions generated by travelling. Climate neutral tourism is an essential part of “responsible tourism” or “ecotourism”.



The tourism industry should engage in efforts to limit its impact on GHG emissions. Equally, as travellers should be concerned with climate responsible options, stakeholders at tourism destination should consider creating options to accommodate off-setting. Companies active in the Turkish tourism industry can benefit from branding various trips, tours and accommodation facilities as “climate neutral”.

Proposed Scheme for Branding

The following scheme can be proposed for developing a method to brand climate neutral tourism, such as parks and museums as well as accommodation. The mechanism includes:

- (i) monitoring, reporting and verification of carbon emissions;
- (ii) obtain resource efficiency; and
- (iii) offsetting of remaining carbon footprint with purchase of domestic VERs.

Potential Market Size and Demand

The potential demand for VERs from such a scheme could come from two main sources: demand from offsetting for accommodation (Climate Neutral Hotels) and from offsetting touristic attractions and protected sites. An estimation of the potential size as a result from offsetting for accommodation is given in table 5 below.

Table 5: Offsets market potential by tourists accommodated in Turkey (estimates)

total accommodations	of which domestic (42.7%)	of which foreign (57.3%)	5% of foreign tourists to offset 1 tCO ₂
33.6 million	14.3 million	19.3 million	1 million VERs