



***ASSESSMENT ON
CLEAN INFRASTRUCTURE DEVELOPMENT
IN
TURKMENISTAN***

OCTOBER 2013

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SECTION 1 INTRODUCTION

The need for sustainable development is a global one. With climate change becoming an increasing problem across the globe, clean infrastructure and energy efficiency are of fundamental importance to every country – but they are particularly important to arid countries like Turkmenistan.

The clean infrastructure sector has shown that progress on climate change is possible. Clean infrastructure includes renewable energy (wind power, solar power, biomass, hydropower, biofuels, waste to energy) and is allows for the creation of electricity and fuels, with a smaller environmental footprint. While there is no standard definition of "clean technology," it has been described by Clean Edge, a clean technology research firm, as "a diverse range of products, services, and processes that harness renewable materials and energy sources, dramatically reduce the use of natural resources, and cut or eliminate emissions and wastes."¹

The IEA's contribution to the recent Clean Energy Ministerial stated that "*the renewable energy sector and emerging country efforts are lights in the dark as progress on clean energy remains far below a two-degree pathway.*"² In addition, clean infrastructure can no longer be dismissed as wishful thinking: it represents a globally strong market and has continued to grow in 2013 in all end-use sectors – power, heating and cooling, as well as transport – and supplied an estimated 19% of global final energy consumption in 2011. As in previous years, about half of new electricity capacity installed worldwide was renewable-based.³

At the same time, making use of energy efficiency technologies and practices in new and existing buildings could save as much as 34% of the projected primary energy consumption by the world's buildings by 2020.⁴ Indeed, buildings today account for 40% of the world's energy use and resulting carbon footprint, significantly exceeding that of all transportation combined. As such, large and attractive opportunities exist to reduce buildings' energy use at lower costs, and generate higher returns than other sectors. These reductions are fundamental to the achievement of the International Energy Agency's target of a 77% reduction in the planet's carbon footprint against the 2050 baseline to reach stabilized CO₂ levels called for by the Intergovernmental Panel on Climate Change.⁵ High-growth countries such as Turkmenistan where the government has promoted a number of policies to encourage an increase in housing construction could easily orchestrate a step-change in energy efficiency by creating incentives for incorporation of energy

¹ <http://www.cleandedge.com/reports/clean-energy-trends-2013>

²Tracking Clean Energy Progress, IAE input to the Clean Energy Ministerial 2013. http://www.iea.org/publications/TCEP_web.pdf

³REN21 Renewables 2013 Global Status Report. http://www.ren21.net/Portals/0/documents/Resources/GSR/2013/GSR2013_lowres.pdf

⁴UNDP Project Document. Improving Energy Efficiency in Residential Buildings Sector of Turkmenistan.

⁵The World Business Council for Sustainable Development (WBCSD). Energy Efficiency in Buildings, Transforming the Market 2013. <http://www.wbcsd.org/transformingthemarketeeb.aspx>

efficiency technologies in construction. The work and investment necessary for this can also contribute to economic growth and employment, especially in the building sector.

Today, at least 118 countries, more than half of which are developing countries, have clean energy targets in place, and 109 countries have policies to support renewables in the power sector.⁶ In addition to mitigating climate change, one of the main drivers propelling clean infrastructure policies is their potential to create jobs. Globally, an estimated 5 million people work directly or indirectly in clean infrastructure industries. As a result, more and more governments around the world acknowledge the benefits of energy efficiency and clean infrastructure as central to any national green economy strategy.⁷ Today, even energy rich countries such as Saudi Arabia, Qatar, the United Arab Emirates and Kazakhstan are moving in the direction of developing a national green economy by considering clean infrastructure and energy efficiency options for domestic use. As such, notwithstanding its status as the country with the fourth largest gas reserves in the world, Turkmenistan could easily follow in the same direction.

Turkmenistan's economy was among the fastest growing in the world in 2011 according to the European Bank for Reconstruction and Development ("**EBRD**").⁸ According to unverifiable Government of Turkmenistan statistics, the country's GDP in 2012 is estimated to be US\$23.6 billion, a 16% increase in growth from US\$20.2 billion in 2011.⁹ In July 2012, the World Bank elevated Turkmenistan from a 'lower middle income' country to an 'upper middle income' country, to reflect the country's recent robust economic growth.

Despite these impressive statistics, foreign investment in Turkmenistan remains at a low level and Turkmenistan's GDP growth is mainly driven by hydrocarbon production, as the country remains one of the largest gas producers among the former Soviet republics. It is anticipated that in the short term, GDP growth will continue to be driven by hydrocarbon production and further diversification of export routes. At the same time – according to the latest announcement by President Berdymukhammedov – Turkmenistan aims to increase the non-oil and gas private sector share to 70 per cent of GDP (currently approx. 40%, or 25% if oil and gas is included).¹⁰

⁶REN21 Renewables 2013 Global Status Report.
http://www.ren21.net/Portals/0/documents/Resources/GSR/2013/GSR2013_lowres.pdf

⁷REN21, Renewables 2013 Global Status Report.
http://www.ren21.net/Portals/0/documents/Resources/GSR/2013/GSR2013_lowres.pdf

⁸EBRD, Turkmenistan Country Assessment: Transition Report 2012.
<http://www.ebrd.com/pages/research/publications/flagships/transition/turkmenistan.shtml>

⁹United States Department of State. 2013 Investment Climate Statement - Turkmenistan

¹⁰EBRD, Turkmenistan Country Assessment Transition Report 2012.
<http://www.ebrd.com/pages/research/publications/flagships/transition/turkmenistan.shtml>

*“Along with intensive transit of our energy to world markets, we carry out the large-scale work to apply advanced, economically sound, eco-friendly technologies in the sectors of the national economy”.*¹¹ – President Berdymukhammedov

In the light of these statements in May 2010, the Government of Turkmenistan adopted its National Program for Socio-Economic Development of Turkmenistan for 2011-2030 (the “**National Program**”). The National Program envisages diversification of the economy and increased competition, and recognizes the importance of further market and institutional reforms. In addition, although the promotion of renewable energy technologies is not mentioned as a special target of energy policies, the National Program identifies renewable energy technologies as contributing to meeting several targets, including environmental protection and sustainability.

Energy efficiency and clean infrastructure development can contribute towards the diversification of Turkmenistan’s economy through the creation of a national green economy. Central to this should be a clear incentive to reduce end-use consumption of natural gas: exports of natural gas provide valuable revenues to the state budget, whilst internal consumption is financed mostly by the government. By reallocating such finance towards the creation of a national green economy, the government can help mitigate climate change effects whilst boosting internal development and growth. Natural gas saved through energy efficiency or clean infrastructure development can be exported. Essentially the choice is between no revenue (or even subsidy costs and negative revenue) on the one hand, and positive revenue at international market prices on the other.¹² So reducing hydrocarbon energy consumption domestically can result in an increase in quantities of natural gas for export, resulting in a win-win scenario for the government.

Turkmenistan is facing increasing demand for investment in infrastructure development generally, and the development of a green national economy (and the introduction of energy efficiency and clean infrastructure technologies) can only increase that demand further. These pressures together have the potential to overstretch the government’s budget, requiring as they do not only private sector investment, but private sector knowledge and expertise as well. The traditional approach of governments for infrastructure development of any kind is either to use the state’s own budget or privatisation. The first is markedly insufficient to meet the country’s needs, while the latter only works in a sound legal and financial framework.

This is not an intractable problem, however. This report tries to analyse the option for a third way – collaboration with the private sector through public private partnerships (“**PPPs**”). UNECE, through its Team of Specialists on PPPs and the International PPP Centre of Excellence, held a series of meetings with key stakeholders involved in sustainable development, infrastructure development, climate change, energy efficiency and clean infrastructure development in Turkmenistan in order to prepare this report on the potential for clean infrastructure development in Turkmenistan.

¹¹http://www.science.gov.tm/en/news/20100224news_alten_wel/

¹²UNDP Project Document: Improving Energy Efficiency in the Residential Buildings Sector of Turkmenistan. http://www.undptkm.org/files/projects/environment/EE_PD_2012-en.pdf

The report will focus on PPP possibilities and necessary enabling environment for PPPs in Turkmenistan with a particular focus on clean infrastructure and energy efficiency projects. The assessment will aim to provide information on options to facilitate financing of clean infrastructure development through the use of PPPs.

This report will be divided into the following sections:

(a) Section 2 Climate Change in Turkmenistan

This section will provide an analysis of climate change effects in Turkmenistan. The section shows that climate change should be seen as one of the main triggers for clean infrastructure and energy efficiency development in the country. The section concludes with a list of recommendations.

(b) Section 3 Clean infrastructure in Turkmenistan

This section tries to explain why clean infrastructure development is important to Turkmenistan. It also provides an overview of the solar, wind, waste to energy and energy efficiency potential in the country, and of clean infrastructure pilot projects currently under development. The section concludes with a list of recommendations for clean infrastructure and energy efficiency development in Turkmenistan.

(c) Section 4 PPPs in Turkmenistan

This section provides an explanation of what PPPs are, and what their role in the development of clean infrastructure projects might entail. It also provides a comparison between the traditional approaches to infrastructure financing, and puts forwards PPPs as an alternative to “traditional” public procurement. The section also provides a list of main principles of PPPs and concludes with a list of recommendations for the development of clean infrastructure projects through PPPs.

(d) Section 5 Legal and Regulatory Framework for PPPs in Turkmenistan – Current Position and Proposed Recommendations

This section will identify gaps in the current legal and regulatory framework in Turkmenistan and will highlight the main components of a workable PPP legal and regulatory framework, including the necessary steps for an effective implementation. The steps that Turkmenistan needs to take in order to develop and implement clean infrastructure projects via a PPP model will be spelled out together with recommendations on possible actions to fill the gaps.

(e) Section 6 Innovative Financing Options

This section provides a list of potential financing options for clean infrastructure development in Turkmenistan and will explore alternative sources of finance,

innovative financing schemes and effective channelling of resources for investment.

(f) Section 7 Conclusion

This section will conclude our report.

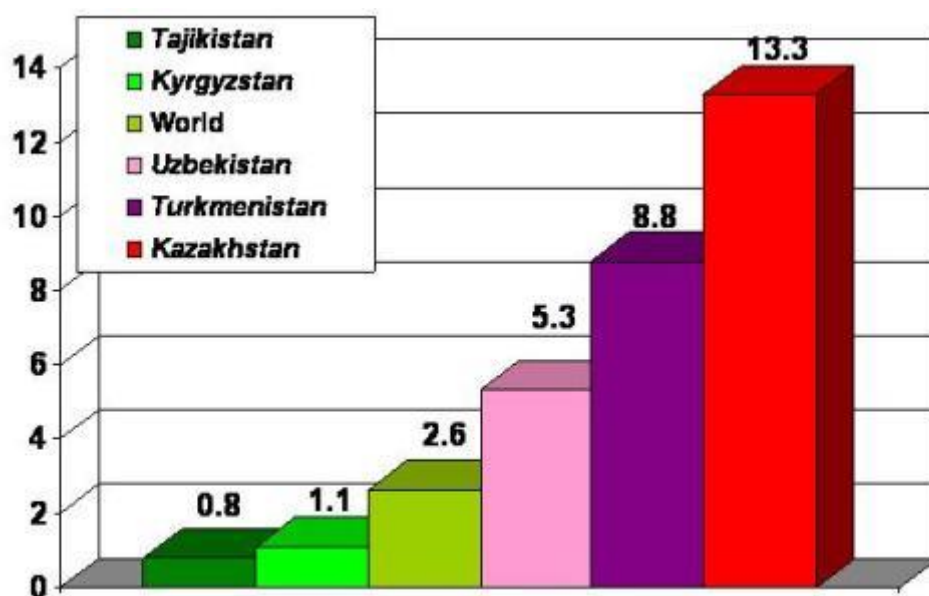
CLIMATE CHANGE IN TURKMENISTAN



SECTION 2 CLIMATE CHANGE

2.1 General Overview

The link between energy efficiency, clean infrastructure and mitigation of climate change is clear. The International Energy Agency, in its 2012 World Energy Outlook, said that economically viable energy efficiency measures could halve energy demand growth by 2035. Energy efficiency could delay the “lock-in” of CO₂ emissions foreseen under the 2°C scenario from 2017 to 2022.¹³ At the same time, clean energy is likely to become the world’s second largest source of power generation by 2015, second only to coal. However, without policy support, up to two thirds of the economically viable potential to improve energy efficiency and to incentivise clean infrastructure development will remain unrealized through 2035.¹⁴



Source:¹⁵

Climate change in Turkmenistan is progressing fast. Turkmenistan is among those countries which are more vulnerable to climate change effects, experiencing difficulties mainly in the fields of agriculture, water resources, public health and natural ecosystems. During the past 55 years, intensive warming has been observed all over the country,

¹³International Energy Agency, 2012 World Energy Outlook.
<http://www.worldenergyoutlook.org/publications/weo-2012/>

¹⁴International Energy Agency, 2012 World Energy Outlook.
<http://www.worldenergyoutlook.org/publications/weo-2012/>

¹⁵ http://europeandcis.undp.org/uploads/public1/images/climchange_fig2.JPG

occurring at a faster pace than anywhere else on the planet. The 1.4°C temperature rise was observed during this period, whereas on the global scale the average temperature rose by 0.74°C over the past 100 years. The highest temperature rise of 2°C is observed in winter.¹⁶

Historically, economic development has been strongly correlated with increasing energy use and growth of greenhouse gas emissions. Clean infrastructure can help decouple that correlation, contributing to sustainable development.¹⁷ More clean infrastructure deployment is expected to play a key role in helping to mitigate Turkmenistan's climate change impact by abating significant amounts of greenhouse gas emissions and paving the way for greater domestic low-carbon energy development. This abatement can be realized directly by developing clean infrastructure and energy efficiency projects and indirectly through enhancement of the wider political, legal and investment environment in order to attract the relevant private sector investment necessary for the development of such projects on a larger scale.

2.2 Climate Change in Turkmenistan



Source: <http://climatechange-asiapac.com/countries/turkmenistan>

Turkmenistan ratified the United Nations Framework Convention on Climate Change in June 1995. In September 1998, Turkmenistan signed the Kyoto Protocol, and in December 1998 the Parliament adopted a resolution ratifying the Protocol. Like other

¹⁶National Climate Change Strategy of Turkmenistan 2012. http://www.undptkm.org/files/news/2012/110712_Strategy_en.pdf

¹⁷IPCC: Special Report on Renewable Energy Sources and Climate Change Mitigation. http://orbit.dtu.dk/fedora/objects/orbit:63951/datastreams/file_5672879/content

Central Asian nations, Turkmenistan has a potential for large-scale Clean Development Mechanism projects. Turkmenistan has established a Designated National Authorities for the assessment of Clean Development Mechanism projects at the Office of Climate Change within Ministry of Nature Protection. Until today, however, no Clean Development Mechanism project has been registered.¹⁸

However, Turkmenistan adopted a National Strategy on Climate Change in 2012 (“the **Strategy**”)¹⁹ which sets out the trends and directions of Turkmenistan’s policy for the gradual and consistent transition to an economy with lower greenhouse gas emissions values, whilst causing no detriment to social and economic growth rates. Energy efficiency and energy saving, sustainable utilization of natural gas and oil products and the increased use of alternative sources of energy constitute the main priorities of the policy oriented towards reduction of greenhouse gas emissions.

According to the Strategy, priority areas for such measures in Turkmenistan are the following:

- (a) Measures on enhancing energy efficiency, energy and resource savings in all sectors of economy;
- (b) Developing alternative sources of energy;
- (c) Promoting technological modernization for further development of competitive capability;
- (d) Energy security; and
- (e) Diversification of economy

The Strategy recognises that the basic tools of the national policy for the implementation of such measures are:

- (a) Improving the regulatory legal framework;
- (b) Improving the institutional framework;
- (c) Developing financial instruments to stimulate reduction of greenhouse gas emissions;
- (d) Developing national system for monitoring of greenhouse gas emissions; and
- (e) Developing information instruments.

¹⁸Turkmenistan 2012. Source: REEEP Policy Database. <http://www.reegle.info/policy-and-regulatory-overviews/TM>

¹⁹National Climate Change Strategy of Turkmenistan 2012. http://www.undptkm.org/files/news/2012/110712_Strategy_en.pdf

For the purpose of increasing the share of renewable sources of energy in the country's energy mix and development of alternative energy sector the Strategy anticipates that the following measures will be implemented:

- (a) Further support to research works and testing of renewable and clean infrastructure technologies and adaptation of these technologies to climatic conditions of Turkmenistan;
- (b) Introducing, in short-term perspective, small- and medium-size renewable and clean infrastructure installations in remote and sparsely populated areas;
- (c) Introducing, in mid- and long-term perspective, in-house facilities and increased share of renewable energy sector in the country's energy mix.
- (d) Developing economic incentives for application of clean infrastructure sources.²⁰

2.3 Current developments

Whilst the Strategy represents the national vision on climate change issues the government has not yet developed any legal and/or institutional framework for energy efficiency and clean infrastructure development. Most importantly, due to vast estimates of natural gas reserves in the country there seems to be little recognition of the importance of energy efficiency and clean infrastructure development. Abundant natural gas reserves have steered the Turkmen electricity sector towards using it as the primary generating fuel and a key feature of Turkmenistan's energy sector is the low energy tariffs, which were introduced after gaining independence. According to the 1992 Presidential Decree (No.598) *"On Free Consumption by the Population of Turkmenistan of Electric Power, Gas, and Water"* and the 2003 Presidential Decree that extended the 1992 decree through the year 2020 electricity, natural gas, water and salt will be subsidized for citizens up to 2020.²¹ The population receives natural gas and electricity free-of-charge, and other users who have to pay for energy consumption still enjoy the world's lowest energy prices. The result of this policy however is an inefficient and wasteful use of energy which severely undermines the competitiveness of clean infrastructure and energy efficiency technologies.

It is the aim of this report to help the government implement initial steps and initiate the development of a legislative and institutional base for energy efficiency and clean infrastructure projects. In particular, the government should take into consideration that energy efficiency and clean infrastructure development could help the country save billions of cm³ of natural gas, which could be exported, especially in the light of the current commissioning of new pipelines for delivery of natural gas to new markets.

²⁰National Climate Change Strategy of Turkmenistan 2012. http://www.undptkm.org/files/news/2012/110712_Strategy_en.pdf

²¹UNDP Project Proposal: Turkmenistan Improving Energy Efficiency in the Residential Building Sector.

2.4 Climate Change Recommendations

- 1: Political leadership might want to ensure public awareness of the link between climate change, sustainable development and the need for incorporation of energy efficiency and clean infrastructure development into the country's national policies.
- 2: Pilot projects for energy efficiency and clean infrastructure should be prioritised at senior political level. As there are many competing investment priorities, it is the responsibility of the government to define and pursue strategic goals.
- 3: The government might want to consider introducing sustainable development, climate change considerations, energy efficiency and clean infrastructure development mechanisms into all sectoral programmes and strategies building and improving on the National Strategy.
- 4: The government might want to consider increasing electricity tariffs to attract investment and reduce excessive consumption paving the way for putting in place a mechanism framework to support exploitation of the untapped clean infrastructure resources in the country and establishing a regulatory framework for the power market in order to attract investment and encourage improvements in the efficiency with which energy is generated, distributed and used.



CLEAN INFRASTRUCTURE IN TURKMENISTAN

SECTION 3 CLEAN INFRASTRUCTURE IN TURKMENISTAN

3.1 Why Clean infrastructure in Turkmenistan

- (a) The interest in clean infrastructure sources is derived from their sustainability;
- (b) To use the resources with minimal negative impact on the environment;
- (c) To develop resources in an appropriate and cost-effective manner that is able to carry on for the long term;
- (d) Clean infrastructure can help trigger sustainable economic growth and help economies that are dependent on fossil fuels to diversify by creating new industries, expertise and jobs;
- (e) Clean infrastructure development offers opportunities for new business formation and new technologies, particularly for SME's;
- (f) Emerging evidence shows that renewable power projects create new opportunities for job creation on the grounds that low carbon sources of power employ more people per MW of installed capacity than conventional sources. In addition, a crucial contribution expected from further deployment and support to renewable power generation, will be in terms of its contribution to economic growth, within Turkmenistan and potentially, within the region;
- (g) Increased adoption and diffusion of new technologies may create opportunities to exploit sources of endogenous growth via innovation; and
- (h) Increased renewable generation may assist national grids over-dependent on centralised distribution to develop greater robustness and tailor infrastructure power towards off-grid networks.

According to the European Commission Turkmenistan has significant potential for improving energy efficiency and increasing their use of renewable energy sources, both of which will contribute to economic sustainability, reduction of industrial pollution and reduction of the impact on climate change from fossil fuels.²²

²²http://ec.europa.eu/europeaid/where/asia/countryoperation/turkmenistan/turkmenistan_en.htm

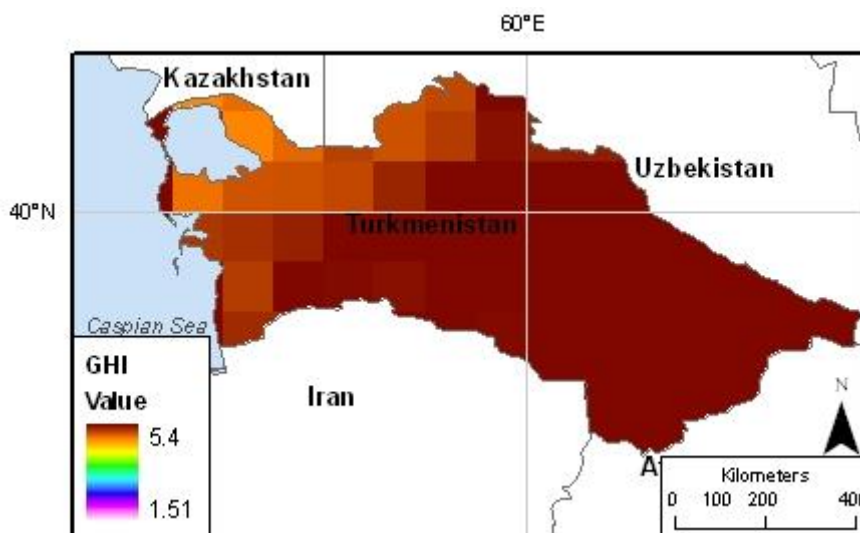
Solar Energy Case Study UAE

Despite having the third largest oil reserves in the world, the UAE has probably the most ambitious renewable energy programme, certainly in the GCC if not in the MENA region. The UAE is keen to diversify its economy and sees the development and export of green technology as means of doing this.

The UAE's flagship project is Masdar City, which aims to be the world's first carbon-neutral city by relying on solar, wind and other renewable energy resources. It is scheduled for completion in 2016, with a projected cost of US\$22 billion resulting in savings of US\$2 billion in oil over 25 years. It is claimed that, when complete, it will use 70 per cent less electricity and 60 per cent less water than a conventional city. The UAE intends that Masdar City will be a global clean technology hub and it is already home to IRENA, the main international renewable energy agency. Abu Dhabi boasts of a 10 MW solar PV facility supplying power to Masdar in addition to other pilot projects spread across the UAE. A 100 MW concentrating solar power (CSP) plant, Shams-1, has been inaugurated in March 2013. That is to be followed by Shams-2 and Shams-3 with further capacity of 150 MW. Moreover, the UAE PV rooftop program aims to reach 500 MW installed capacity within 20 years.

3.2 Solar energy potential in Turkmenistan

Turkmenistan Solar Global Horizontal Irradiance

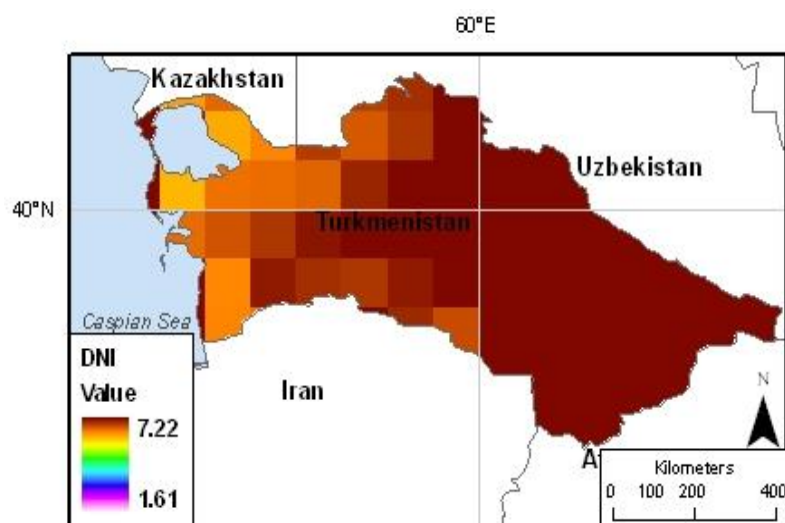


Source: NASA

According to International Renewable Energy Agency (“IRENA”) and the European Bank for Reconstruction and Development (“EBRD”) Turkmenistan has very high solar potential.²³ There are nearly 300 clear days per year in the country where the average solar radiation amounts up to 2,000 kW/m²/year. In this regard, the natural and climatic conditions of Turkmenistan form a good basis for utilization of solar energy in different fields of activities.

Turkmenistan Solar Direct Normal Insolation (Source: NASA)

²³ Renewable Energy Country Profiles for Asia (January 2013 edition)



Solar energy plants may be particularly beneficial in places remote from electric transmission lines, i.e. in desert and semi-desert conditions. Taking into account the fact, that 71.7% of the Turkmenistan's territory is occupied by desert, the possibility of efficient use of the solar energy cannot be excluded, especially by independent consumers, despite the fact of possession of traditional sources of energy. It is economically inefficient to connect remote areas with the electricity grid and gas pipelines and/or the cost of maintenance of such grid can be extensive. Renewable energy could become a source of power generation, which could be used for household and agricultural needs, as well as pumping of underground drinking water.²⁴

3.3 Wind energy potential in Turkmenistan

According to the Renewable Energy and Energy Efficiency Partnership (“**REEP**”) approximately 40% of Turkmenistan holds wind energy potential suitable for power generation. REEP estimate that 10GW could be developed in the medium term and potentially 500GW in the long term. Such quantities may even rival the country's natural reserves. IRENA and the EBRD also note that Turkmenistan has a very large wind power potential, which is estimated to equal the country's fossil fuel potential.²⁵ The long Caspian coastline and the large central desert area provide strong and reliable winds, both in the 4–5 m/s category and in the 5–6 m/s category. Some areas near the coastal town of Turkmenbashi have reliable speeds even higher than 6 m/s. The theoretical wind energy potential is estimated at 500,000 MW of which 10,000 MW are technically feasible to be developed in the mid-term.²⁶

²⁴UNECE First Environment Performance Review (EPR) of Turkmenistan 2012. http://www.unece.org/fileadmin/DAM/env/epr/epr_studies/Turkmenistan.pdf

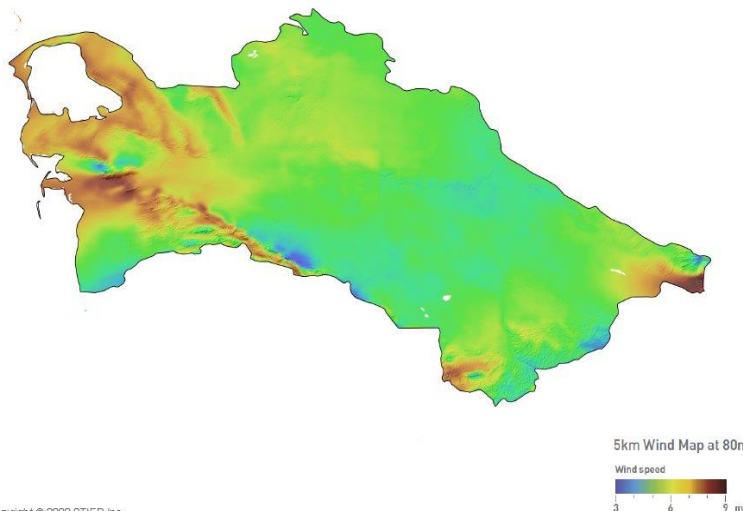
²⁵Renewable Energy Country Profiles for Asia (January 2013 edition). EBRD 2009 Turkmenistan Country Profile. <http://www.ebrdrenewables.com/sites/renew/countries/Turkmenistan/default.aspx>

²⁶World Energy Council, 2007 and Renewable Energies in Central Asia Country Profile Turkmenistan.

Case Study Energy Efficiency UAE

The Dubai government approved a Building Code (the Green Code 2010 and will be rolled out in phases. The Green Code, sets out optional and mandatory regulations in order to make buildings in Dubai compatible with environmental requirements which include a set of factors such as site selection, efficient use of energy and water, indoor environmental quality, and waste management. These regulations aim generally at reducing electrical energy consumption, rationalising water consumption and the optimum use of renewable energy. All these factors will contribute effectively in reducing gas emissions, reflecting positively on public health.

Turkmenistan Wind Map at 80m



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Of particular note, the German company Goetzpartner, together with the Ministry of Energy and Industry of Turkmenistan, conducted a wind measurement programme in the Balkanabad area. Calculations based on measurements and existing data of weather stations showed that 1 MW of installed wind power capacities would be able to generate 3.6 million kWh per year. This site could support power capacities of around 200 MW.²⁷

3.4 Energy Efficiency in Turkmenistan

Over the recent years, the government of Turkmenistan has promoted a number of policies to encourage an increase in housing construction and to increase private sector investment in construction. This resulted in a 45% increase in the housing stock from 2000 to 2007.²⁸ Today, the government continues to support increased rates of construction according to the *National Program of the President of Turkmenistan for Reshaping the Living Conditions of the Population in Villages, Towns, Cities and District Centers to the year 2020* and according to the *National Strategy for Socio-Economic Development of Turkmenistan to the year 2030*.

²⁷UNECE First Environment Performance Review (EPR) of Turkmenistan 2012. http://www.unece.org/fileadmin/DAM/env/epr/epr_studies/Turkmenistan.pdf

²⁸UNDP Project Brief 2013 Improving Energy Efficiency in the Residential Buildings Sector of Turkmenistan. http://www.undptkm.org/files/projects/environment/EE_PB_2013-en.pdf

This opens up many opportunities for the government to incentivise the private sector to incorporate energy efficiency considerations in construction. According to the United Nations Development Programme (“UNDP”) at present, neither new construction nor refurbishment projects consider the energy performance of the buildings involved. Therefore, *“the buildings being constructed and refurbished now without any attention to energy efficiency are effectively locking in patterns of energy consumption – and associated greenhouse gas emissions – for the next several decades.”*²⁹

It is encouraging however that the government is currently working with UNDP and the Global Environment Facility (“GEF”) on a project that seeks to introduce efficient designs and technologies in the residential sector of Turkmenistan.³⁰

3.5 Waste Management in Turkmenistan

The oil and gas sector is the main generator of industrial waste, generating about 90 per cent of all registered industrial wastes. Municipal solid waste management in Turkmenistan - solid waste generation on the territory of Turkmenistan of 470,500 tons/year (ca. 1,300 t/day)-year in 2000 and thus it is anticipated that today this amount is at least three times higher.

Clean infrastructure technologies can be incorporated in order to deal with both industrial toxic waste and to develop relevant waste incineration facilities for municipal waste, including appropriate waste sorting and disposal systems and introduction of municipal and industrial waste utilization/recycling technologies.

Waste management should also be seen as a fundamental component of environmental management. Currently, waste management in Turkmenistan is underdeveloped and lacks specialized legislation, and the practice of disposal of municipal solid waste is poor and does not meet international standards. However, the government is making some progress as for example, the management of medical waste strategy was published in 2009. 2009 Medical Waste Management Strategy defines methods of collection and sorting, transportation, treatment and disposal. Other sectors, particularly the oil industry and municipal solid waste sector, still lack sectoral strategies which take waste management into account.³¹

According to the UNECE Environmental Impact Assessment of Turkmenistan, current waste disposal practices are either non-existent, not followed, or do not comply with international standards. Disposal sites for municipal waste are often located near towns to

²⁹UNDP Project Brief 2013 Improving Energy Efficiency in the Residential Buildings Sector of Turkmenistan. http://www.undptkm.org/files/projects/environment/EE_PB_2013-en.pdf

³⁰For a list of all current GEF projects in Turkmenistan please see: http://www.thegef.org/gef/country_profile/TM

³¹UNECE First Environment Performance Review (EPR) of Turkmenistan 2012. http://www.unece.org/fileadmin/DAM/env/epr/epr_studies/Turkmenistan.pdf

minimize transportation distances, exposing populations to nuisance and danger, and presenting a long-term threat to human health and the environment. Government institutions do not seem to be sufficiently informed about the status of disposal sites to enable them to efficiently regulate development of the country's waste management sector.³²

The government might want to consider preparing:

- (i) Draft legislation on waste management and on a waste classification system;
- (ii) A national waste management programme.

³²UNECE First Environment Performance Review (EPR) of Turkmenistan 2012.
http://www.unece.org/fileadmin/DAM/env/epr/epr_studies/Turkmenistan.pdf

In addition, following the example of the National Programme of Safe Management of Medical Waste in Health Facilities, other sectors would also need to consider developing sectoral programmes on waste management, action plan on management of waste from the oil and gas sector.

The government might also want to consider introduction of clean technologies in waste management. For example, waste-to-energy is the process of generating energy in the form of electricity and/or heat from the incineration of waste. Most waste to energy processes produce electricity and/or heat directly through combustion, or produce a combustible fuel commodity, such as methane, methanol, ethanol or synthetic fuels.

Incineration, the combustion of organic material such as waste with energy recovery, is the most common waste to energy implementation. All new waste to energy plants in OECD countries incinerating waste must meet strict emission standards, including those on nitrogen oxides (NO_x), sulphur dioxide (SO₂), heavy metals and dioxins. Hence, modern incineration plants are vastly different from old types, some of which neither recovered energy nor materials. Modern incinerators reduce the volume of the original waste by 95-96 percent, depending upon composition and degree of recovery of materials such as metals from the ash for recycling.

There are a number of other new and emerging technologies that are able to produce energy from waste and other fuels without direct combustion. Many of these technologies have the potential to produce more electric power from the same amount of fuel than would be possible by direct combustion. This is mainly due to the separation of corrosive components (ash) from the converted fuel, thereby allowing higher combustion temperatures in e.g. boilers, gas turbines, internal combustion engines, fuel cells. Some are able to efficiently convert the energy into liquid or gaseous fuels:

Thermal technologies:

- (i) Gasification (produces combustible gas, hydrogen, synthetic fuels)
- (ii) Thermal depolymerization (produces synthetic crude oil, which can be further refined)
- (iii) Pyrolysis (produces combustible tar/bio oil and chars)
- (iv) Plasma arc gasification or plasma gasification process (PGP) (produces rich syngas including hydrogen and carbon monoxide usable for fuel cells or generating electricity to drive the plasma arch, usable vitrified silicate and metal ingots, salt and sulphur)

Non-thermal technologies:

- (i) Anaerobic digestion (Biogas rich in methane)
- (ii) Fermentation production (examples are ethanol, lactic acid, hydrogen)

(iii) Mechanical biological treatment (MBT)

Many countries are looking into waste to energy projects via public private partnerships. For example, in Azerbaijan a French company CNIM is designing, building and operating a waste to energy plant.

The designing, construction and 20 year operation of the future Waste-to-Energy plant with 500,000 tons of MSW per year is considered in 20 ha area designated in Balakhany settlement. The amount of electricity obtained as a result of burning of waste will be equal to 231,5 million kWh/year.

3.6 Clean infrastructure Pilot Projects in Turkmenistan

In line with the theme of “success breeds success” we believe that the government needs to be the main driving force for the implementation of the clean infrastructure projects, at least for the early stages of the programme. We also believe that the government should focus on a few high profile projects early in the programme. At the outset of the programme, the private sector is probably going to be unwilling to spend its resources on a project that is sponsored by a local or municipal entity at the outset of the programme. This is because there will be a perception that entities outside of central government do not have the capacity to deliver clean infrastructure projects.

We therefore strongly suggest that the early implementation of the programme be taken forward by central government. In addition, we suggest that a “pathfinder” scheme be identified and used as a demonstration case to prove the structures for the delivery of clean infrastructure projects. Focussing on a single project and delivering it on a basis that permits financing by local and international financiers on a limited recourse basis will showcase the country’s processes and capabilities to international developers and lenders alike.

3.7 Current clean infrastructure developments in Turkmenistan

The Turkmen Solar Scientific Research Institute, or the GUN Institute, which means sun in Turkmen, has the lead in developing solar energy in the country. Despite lack of significant government support, the GUN Institute managed to apply some of its previously developed technologies to achieve the following: two sheep-breeding complexes, which include a combined wind and diesel-driven electricity generating unit; a solar distiller for processing salty underground water; a house equipped with a solar heating system; and a wind-driven electric generator that supplies electricity to a school located at Gyzylsuw Island in the Caspian Sea.³³

³³<http://wikileaks.org/cable/2009/12/09ASHGABAT1676.html>

Case Study Qatar

The emirate of Qatar is an oil and gas rich nation, with the third largest gas reserves and one of the highest GDP per capita in the world.

Qatar is well placed to meet its energy needs and fuel future power projects. Nevertheless, the emirate is pushing forward with investment in renewables and looking to develop alternative energy sources. Qatar's successful bid for the 2022 World Cup will spur rapid deployment of more renewable technologies as the country aims to make good on its pledge to host a low carbon event.

Qatar has created a Qatar Science and Technology Park which aims to assist organisations in the development of sustainable technologies as well encouraging the development of Qatar's knowledge economy. Current members include global power-houses such as The Chevron Corporation, EADS, ExxonMobil, For example, Chevron is establishing a solar test facility at QSTP in collaboration with GreenGulf Inc.

The GUN Institute could act as a catalyst for renewable energy development in Turkmenistan and the government of Turkmenistan should encourage other private sector parties, such as foreign oil and gas companies present in the country to cooperate with the institute in the development of sustainable technologies as well as in the development of Turkmen's knowledge economy in the green sector. The type of collaboration envisaged could be based on the example provided in the Qatari case study. Such collaboration could include work on renewable energy supply, pumping water from wells and boreholes, heating, cooling, drying, cultivation of algal biomass, household and industrial wastes recycling and production of biodiesel and organic fertilizers, waste-free autonomous raising cattle and cultivation of plants, creation of the comfortable conditions in settlements.

The practical value of these projects is obvious. Even though Turkmenistan is self-sufficient in electrical power generation a number of localities such as the Caspian islands preclude stringing centralized electric power lines and power shortages could be addressed by local renewable energy facilities. In addition, the demographics of Turkmenistan, where a significant part of the country is sparsely populated, have led to a number of communities with little or no access to reliable energy supplies, since the investment required for connecting/modernising small and isolated communities to the grid are not economically viable. Here, the features of renewable energy sources and their decentralised nature are the best option for the social and economic development of the country outside of the major population centres.

In the past, most electrification programs for small and isolated communities have focused on supplying electricity to such areas through connection to national or local grid. However, connecting small, isolated villages to grid can be expensive because of the necessary investment in transmission lines, poles, transformers, and other infrastructure. Even though such facilities are unlikely to attract interest through a PPP model, construction of them would show the commitment of the country to renewable energy development and as such these localities could be used as useful case studies for larger scale development through a PPP model at a later stage.

Current technology developments make efficient decentralized power generation systems possible using renewable energy technologies. As a result it should be understood that extension of grid-based power and off-grid energy systems are not mutually exclusive options in delivering electricity services. Small and isolated communities' electrification

planning should clearly define the roles of grid extension versus mini-grids and stand-alone options. What is critical is that the policies supporting small and isolated communities' electrification not be biased towards grid extension or diesel based systems.

(a) Case Study – Island of Gyzylsu

- (i) The GUN Institute constructed a prototype wind turbine capable of generating 5RWt for the isolated island of Gyzylsu in the Caspian. When installed, the windmill will provide power for the island's school, kindergarten, and a day nursery for 100 children. The windmill will also provide electric power to a solar seawater desalination system in the village, its pumps, reservoir-distillate accumulator, and ultraviolet water disinfection unit which was designed specifically for the facility.³⁴
- (ii) Gyzylsu village's inhabitants previously produced electricity from a diesel generator, which only ran four hours a day because of fuel restrictions, forcing many families to utilize their own low capacity gasoline and diesel generators.
- (iii) Whilst this project is small in scale it represents a positive start towards renewable energy development in Turkmenistan. The Caspian contains nearly 50 islands, mostly small, of which 23 are in Turkmen territorial waters and the implementation of renewable energy options in Gyzylsu island can be used an example for other inhabited islands in the Turkmen territorial waters.

(b) Solar pilot projects

According to the EBRD there are a few pilot projects proposed by leading western companies on construction of solar power plant of up to 10MW nominal capacity in average and wind power plant on Caspian Sea shore.³⁵

3.8 Renewable energy and energy efficiency in Turkmenistan Recommendations

The government might want to consider:

1. Investing in alternative sources of energy, in particular small scale projects to ensure sustainable development of remote rural communities, as well as full-scale large solar and wind power projects, which could be cost effective when export prices for natural gas are taken into account.
2. Developing a strategy on development of energy efficiency and renewable energy for the period until 2030 taking into account international practices and taking into account the potential phasing out of electricity subsidies in Turkmenistan by 2020.
3. Preparing a draft law on energy efficiency and renewable energy development.

³⁴State News Agency of Turkmenistan. http://science.gov.tm/en/news/20091223news_alt_ener/

³⁵EBRD Draft Strategy for Turkmenistan 2012. <http://crudeaccountability.org/wp-content/uploads/2012/10/EBRD-DraftStrategyForTurkmenistan.pdf>

4. Establishing a state agency for energy efficiency and renewable energy, which will take a leading role in identification of energy efficiency and renewable energy potential, development of relevant policies, legislation, regulations and projects and collaboration with relevant international organisations.
5. Seeking international experience and assistance in developing energy efficiency and renewable energy policies, measures and programmes.
6. Raising awareness about the issues pertaining to the concept of sustainable development across government ministries, domestic users of resources and educational institutions.
7. Taking advantage of such contacts and start collaboration with them to exchange experience in developing environmentally friendly technologies and industries. The representatives of the large foreign companies and firms interested in developing renewable energy in Turkmenistan put forward the proposals on cooperation at the II International Energy Exhibition and Conference, which was conducted in Ashgabat in 2009.³⁶
8. Seeking to collaborate with foreign companies that are currently active in the oil and gas industry in Turkmenistan by involving them in the development of energy efficiency and renewable energy projects and/or research.
9. Developing detailed building codes to include energy-efficiency requirements and should commit to enforcing and tightening these over time.
10. Providing tax incentives to enable energy efficiency investments. The government should also introduce incentives for developers to submit applications for energy efficiency buildings.
11. Preparing draft legislation on waste management and on a waste classification system and a national waste management programme together with relevant sectoral waste management programmes. The government should also consider waste to energy plans as an effective waste management tool.
12. Taking the necessary steps to integrate renewable energy sources into existing energy system which requires adapting the existing system and creating a supporting framework to minimize voltage fluctuations while accommodating intermittent renewable energy production. A policy that looks to reduce barriers to renewable energy grid connection should address the following:

- (i) System reliability;

³⁶ http://science.gov.tm/en/news/20091223news_alt_ener/

- (ii) Uniform technical standards for interconnecting distributed generation to the grid;
- (iii) Testing and certification procedures for equipment that interconnects with the grid;
- (iv) Rules eliminating or reducing barriers for entities to install and interconnect systems;
- (v) Monitoring equipment for utilities to assess the value or impact of power anywhere on the grid at any given moment;
- (vi) Regulatory tariffs;
- (vii) Utility support schemes that eliminate the incentive to allow distributed generation;
- (viii) Interconnection rules;
- (ix) A priority for certain types of technologies.

13. Encouraging other private sector parties to cooperate more with the GUN Institute. The latter could act as a catalyst for renewable energy development in Turkmenistan. The type of collaboration envisaged could be based on the example provided in the Qatari case study. Such collaboration could include work on renewable energy supply, pumping water from wells and boreholes, heating, cooling, drying, cultivation of algal biomass, household and industrial wastes recycling and production of biodiesel and organic fertilizers, waste-free autonomous raising cattle and cultivation of plants, creation of the comfortable conditions in settlements.

14. preparing a number of pilot clean infrastructure projects followed by demonstration and semi-commercial projects and subsequently by large scale commercial projects. The phased approach at pilot stage reflects need to test available technology, insufficient geo-referenced resources and data sets to gauge feasibility and guide investments, and low public sector capacity to oversee the industry's development. Once technologies have been proven feasible in pilot projects, a phased approach towards commercialization should be adopted, mainly reflecting lack of sufficient resources to fund large scale operations initially.

In Morocco, for example the first pilot was a 3.9 MW project near Tetouan (the Al Koudia Al baida project), developed by the public utility Office National de l'Électricité (ONE) with international development agencies support. Following the successful pilot project Morocco immediately migrated to private procurement of wind energy projects: the 50 MW expansion of Al Koudia Al baida was developed by a French consortium Compagnie Eolienne du Détroit under a 19-year build-own-operate-transfer (BOOT) concession. All completed projects in Morocco were structure as public-private partnerships.

If there is sufficient private sector interest the government could move directly to relatively large scale projects with private participation. For example, Cape Verde's first wind farm – also the first commercial operation outside of North Africa – was executed as a PPP before any pilot projects.

Wind Energy Case Study Mongolia

Mongolia's first wind farm was recently constructed – the 50 MW Salkhit wind farm. As of 20 June, 2013, Salkhit is connected to the grid and has started producing electricity

Mongolia has adopted a progressive Renewable Energy Law which will give producers preferential rights to sell their output. However, while the National Renewable Energy programme mandates a quarter of energy coming from renewable sources by 2020, the Salkhit wind farm is the first significant renewable energy generator in the country, producing about 5 per cent of its electricity needs.

Salkhit wind farm was built with debt and equity financing of US \$47.5 million from the EBRD and the same amount from FMO, the Dutch development bank. The funds were provided to Clean Energy LLC, a company now 51 per cent owned by Newcom, 14 per cent owned by each the EBRD and FMO, and 21 per cent by General Electric. Newcom is a Mongolian technology holding company, which founded the first mobile operator in the country and owns the largest domestic airline.

According to the EBRD: "Salkhit wind farm has awakened interest in wind power in Mongolia from other investors, both local and international. We are now assessing several follow-on wind farm projects. The demonstration effect from the Salkhit, both in terms of project implementation and financing, has been significant."

The 50 MW Salkhit wind farm was built about 70 km away from the capital Ulaanbaatar, one of the most polluted cities on Earth. The wind farm is expected to reduce CO2 emissions in the country by approximately 164,000 tonnes annually, enabling the company to sell carbon credits.

Shams 1 UAE Solar Case Study

Three companies, France's Total S.A., Spain's Abengoa S.A., and Abu Dhabi-based Masdar gained a US\$600 billion loan to build the plant, named Shams 1, which will have a 100-megawatt capacity and would qualify for carbon credits under the United Nation's Clean Development Mechanism (CDM).

The Shams 1 solar plant is the GCC's biggest renewable energy project to date. Shams 1 has attracted a 22-year, US\$600 million bank loan from eight foreign and two local banks led by French bank BNP Paribas. The Shams consortium also received a US\$153 million equity subscription from its sponsors: UAE-based Masdar holding a 60% stake, alongside France's Total and Spain's Abengoa each holding 20%.

Two different processes generate solar power: solar photovoltaic (PV) cells that absorb light and concentrating solar thermal (CST) technologies that harness heat. The Shams 1 project uses parabolic trough technology, which is a form of CST technology to generate electricity.

Under the model, we understand the project company will sell power to state utility Abu Dhabi Water and Electricity Co. (ADWEC) under a power purchase agreement. An important feature of the Shams 1 solar project is the introduction of a "green payment" under which the Abu Dhabi Ministry of Finance will compensate ADWEC for the difference between average domestic power generation cost and the generation cost for Shams 1. The green payment provides a critical political support in the form of this payment, which enhances the long-term viability of renewable transactions in UAE.

Cape Verde Wind Farm Case Study

Cabeolica is the first commercial-scale, privately financed, PPP wind farm in Sub-Saharan Africa. The project won the renewable energy project of the year award in 2011 after being developed, commissioned and put into operation by InfraCo Africa. It is now managed by a special purpose company, Cabeolica SA, established in 2009 by its founding partners: the Government of Cape Verde, Electra (the government owned utility company), and InfraCo Africa. The US\$78m project reached financial close during 2010. It has been financed by a combination of debt supplied by the European Investment Bank and the African Development Bank, and equity from the African Finance Cooperation (the principal shareholder, an African private equity firm in West Africa), Finnfund and the lead project developer, InfraCo Africa.

Cabeolica Wind Farm, Cape Verde – Analysis against identified risks of delivery with input from project sponsors

General Business Framework

Including the Government and the state-owned utility as shareholders in the project company gave government an additional incentive for them to see the project succeed. The individual stakeholders within the Government and the offtaker also sat on the Board of the project company, giving them a personal stake in the project. The individuals involved were knowledgeable and had the authority to push matters through.

Lack of Developers

The developer was InfraCo, part of the PIDG group of companies. InfraCo was specifically set up to tackle the risks associated with early stage project development – risks that the private sector typically would not accept. In fact InfraCo is prohibited in its constitution from competing with the private sector. It is unlikely that the project would have succeeded without this availability of early-stage risk capital.

Issues with Offtaker and Political Risk

The offtaker itself was not sufficiently creditworthy to support a 20 year PPA, but the government support structure we put in place was acceptable to both the investors and the lenders. Cape Verde has one of the most stable political systems in Africa so political risk was relatively low. For example a presidential election was held in the midst of financing (July 2011), which had no adverse effects on the development schedule.

Availability of Long-Term Debt and Equity

DFIs were happy to provide financing to the project, as it had great developmental value and was a landmark transaction in the African renewable energy sector. Equity monies were made available by InfraCo through the auspices of the PIDG Trust (representing development finance interests of several Western European governments) and through the Africa Finance Corporation, who are the majority shareholder.

Availability of Equipment

The project benefitted from an equipment supplier/contractor that was keen to expand its operations in the region, that had the capability and experience to build this challenging project (i.e. relatively few turbines on 4 separate islands) and that could offer a full EPC package. This was one of the most important factors that allowed us to obtain suitable financing for the project.

Other Innovations

The Government of Cape Verde entered into Establishment Convention giving the project company certain tax and foreign currency benefits. Key legislation was also in place (Public Partnerships Act, Electricity Regulations Act and Land Law).

Cabeolica Wind Farms Outcomes

Total investment in infrastructure committed: US\$78m.

Cabeolica is expected to provide 25% of the country's energy.

The cost of generating power about 20% less than before.

It benefits 95% of the population or 425,000 people with more reliable, cleaner and cheaper power, and benefits an additional 50,000 Cape Verdeans with connections to the national electricity grid.



*PUBLIC-PRIVATE PARTNERSHIPS IN
TURKMENISTAN*

SECTION 4 PPPS IN TURKMENISTAN

4.1 General Overview

As noted above the government is at a very early stage of clean infrastructure development and there is currently no PPP regulatory or legislative environment to support any proposed development via a PPP model. Notwithstanding this the government should take into account the potential benefits that a PPP model could bring to its infrastructure development in the near future and should follow in the footsteps of such countries like Mongolia which did not have a PPP legislative or regulatory framework in place until 2010 but today has one of the most highly regarded legislative frameworks in the world.³⁷

There is no clear-cut definition of a PPP although a standard definition is that a PPP is a business venture which is financed and operated by a partnership between the government and a private sector company. This arrangement contrasts with traditional public investment where the government contracts with the private sector to build an asset that is designed and financed by the government. There are various types of PPP projects and there is sometimes too much temptation to provide for a specific set of PPP structures/forms in a concession PPP/legislation (“BOT”; “BOO”; BLT”; “DBFO,” etc.). This is usually undesirable. The PPP “universe” now comprises a wide spectrum of commercial and financial structures. None of them are, in fact, capable of being defined in a precise and clear-cut manner, and attempts to define and provide for them in a concessions law are generally unhelpful, easily giving rise to confusion and inflexibility in practice. What is needed instead is maximum flexibility, allowing the law to cater for the full range of existing structures the market currently deploys, and the inevitable evolution of new ones in the future. This can often be achieved at a definitional level in the elucidation of the expressions “public-private partnership” or “privately-financed infrastructure.”

A typical example of a renewable energy PPP project is the so-called “independent power producer” (the “**IPP**”) project. This usually involves the development of a new (greenfield) power generating facility by a private company that sells the power on a wholesale basis to a government utility that distributes the power to individual customers. In the case of IPPs, the assets will belong to the private company, but the power will be sold to the government (or a government power utility) for retail distribution as a public service to customers.

4.2 Traditional Approach to Infrastructure Financing

Although, there has been a significant increase in private sector participation in infrastructure initiatives across the Central Asian region, the traditional approach to infrastructure finance continues to dominate the playing field.

³⁷ For more information see: <http://www.ebrd.com/downloads/legal/concessions/mongolia.pdf>

Traditionally, governments have financed infrastructure projects through state resources. There several drawbacks associated with financing projects entirely from the government budget:

- (a) Large infrastructure projects often take several years to develop and public funding may only be available for the initial stages of the project. As a result, government departments are cautious about investing time in the planning stage of a project if there is a degree of uncertainty regarding the future availability of funds to complete the project.
- (b) There tends to be disproportionate focus on the capital aspect of the relevant government ministry's budget.
- (c) There is lack of equilibrium between the costs of the project vis-à-vis the capital returns. It is crucial that the project costs are weighed against the capital returns to ensure that the investment will add value and contribute to overall economic growth of a country.

4.3 PPPs as an alternative to 'traditional' public procurement

There are different ways in which the private sector can invest in public infrastructure projects. On one end of the spectrum we find the 'traditional' public procurement, while on the other end, we find outright privatisation. PPPs are essentially what comes in between, and are different from both 'traditional' public procurement and outright privatisation of public assets. The key differences are:

- (a) Specifications in PPPs are measured in terms of 'outputs' rather than 'inputs' as in 'traditional' public procurement;
- (b) The private sector is responsible to finance, build and operate the asset;
- (c) The public sector 'purchases' the services through regular payments (service payments) or income generated (user fees) over the life of the contract;
- (d) In a PPP, any costs overruns remain at the private sector's risk; risks associated with costs of design, construction, operation and maintenance, and demand for the use and service provided by the asset, are transferred from the public to the private sector in a PPP project;
- (e) In a PPP, construction costs are funded by the private sector, thus relieving the pressure on government funding for infrastructure projects requiring significant capital investment; and
- (f) The whole life-cycle approach in the PPP model vis-à-vis traditional procurement ensures that the private sector selects the most efficient and sustainable solution for the long term rather than the cheapest solution in the short term.

4.4 Viability

Following are various scenarios under which a PPP can be a viable option:

- (a) Where the service requires external expertise and government will not be able to provide it independently;
- (b) Where a private partnership would significantly enhance the quality of service compared to what the government could extend independently;
- (c) Where a private partnership would expedite the project implementation significantly;
- (d) Where there would be a considerable reduction in the project cost and also the service cost with the involvement of a private player;
- (e) Where PPP offers greater scope for innovation which would simplify the existing systems and processes; and
- (f) Where PPP provides larger scope for socio economic welfare.

4.5 Main principles of PPPs

(a) Value for Money in a Project

Ensuring value for money (“VfM”) in an infrastructure project should be at the core of the public sector’s decision to engage in a PPP infrastructure project. Essentially, a PPP is considered a VfM transaction if it generates a net profit for a public institution in terms of quantity, quality of the service or facility, cost and risk transfer during various stages of the project life cycle. Hence, the VfM prognosis of a PPP plays a fundamental role in the decision whether a public institution would be willing to enter into PPP agreement.

(b) Selection of Appropriate Infrastructure Projects

One of the challenges faced by institutions is the ability to discern the suitability of an infrastructure project for the PPP model. This suggests that the notion of ‘one size fits all’ is not applicable to infrastructure projects. The governments should heed the fact that PPPs are not a panacea for all infrastructure development initiatives. It is therefore crucial in the planning phase to select infrastructure projects that would be well suited to the PPP model as it would be more likely to ensure the success of a project.

(c) Legal and Regulatory Framework

It is vital that a strong legal and regulatory framework is established to govern PPP transactions as without this it will be almost impossible to attract private sector investment. In view of the nature and the lengthy time frame of such

projects it is imperative that the interests of both the public and private sector are protected by law. It is evident that an established legal framework governing PPP transactions creates an incentive and an enabling environment for prospective investors. As Turkmenistan does not have a legal and regulatory framework governing PPP arrangements, it is recommended that it embarks upon such reform as soon as possible as this would create an incentive for prospective investors.

4.6 Sustainability and PPPs

(a) PPPs and Sustainability

(i) A focus on longer term timescales

At its core, sustainability is about ensuring society lasts through time. By focusing on longer timescales, it demands that the impacts of a project are taken into account over its entire life-time, rather than in terms of just the initial building costs. This approach to the total costs of a project is sometimes known as ‘cradle-to-grave’ or life-cycle analysis. PPPs are similar because they require companies to build and operate projects over a relatively long time period. The PPP approach thus allows governments to ensure that projects are efficient over their entire life-time, rather than being cheap to build and expensive to run or decommission. For example, in construction projects, architects focus on minimising capital costs rather than operational costs, despite the fact that operating and maintenance costs far outweigh capital costs over the entire life-time of a project. Rather than focusing solely on the initial cost of a project, the PPP process encourages bids that are more efficient over the long term. Evidence shows that contractual parties are more willing to cooperate and to build good relationships on longer-term contracts, and this is good for sustainability.

(ii) Working in partnership

Sustainability requires all parts of society, including the public, business and non-governmental organisations ("NGO") to work together in partnership with the government. The entire PPP approach is based upon a similar recognition that government can deliver major projects like infrastructure more efficiently by working closely with business and the public. Public participation is a critical part of working in partnerships. For PPPs to be successful, people must want them and be willing to pay for the services that they provide. Stakeholder consultation is essential to identify PPP needs, gauge demand and develop exact specifications for new projects that will ensure that they are supported.

(b) Creating ‘win-win-win’ scenarios

Applying the principles of sustainability to PPPs creates win-win-win scenarios for the government, private industry and the public. Taking into account the goals and principles of sustainability enhances the long-term acceptability/sustainability of PPP projects and, at the same time, PPP projects, if properly designed, can effectively promote sustainability.

- (i) Private industry benefits because sustainable PPPs are more profitable, using cutting edge technology and management to reduce costs over the entire life-time of the project. This means that risks are lower and the potential operating profits are higher, making them more attractive to private industry.
 - (ii) The public benefit because sustainable PPPs provide more effective public services. Consulting the public ensures that the PPP will provide a service that is actually needed in a way that people will be willing to pay for. By consulting NGOs and Trade/Labour Unions to take account of labour concerns the likelihood of public opposition resulting from environmental damage or working conditions is also reduced.
 - (iii) The government benefits in three ways. First, PPPs enhance local support for the project. For example, including transport costs for construction materials in a tender might make it more efficient to use local resources of labour and materials. This reduces carbon emissions from transporting the materials used, promotes sustainable consumption/production patterns and stimulates the local economy. Second, effective partnership working with private industry attracts investment into an area. For example, setting out a clear and transparent legislative framework for the PPP process will attract investment from leading companies. Third, sustainable projects are more self-sufficient making them resilient to future threats from climate change.
- (c) The tables below describe some typical sustainability criteria for environmental, social and economic considerations respectively that might be applied to the majority of PPPs that are currently being considered across the world. The sustainability specification is listed in the first column, while the possible techniques to achieve it and the measurable performance criteria are listed in the second and third columns. The list is not exhaustive, and is a mixture of project specific indicators, like green procurement, and outcomes flowing from the practise of sustainability, like greenhouse gas emissions, or improved employment . While the menus have been separated into environmental, social and economic for clarity, it should be clear that many of the specifications address overlapping sustainability issues.
- (d) Menu of environmental criteria for sustainability³⁸

<i>Output specification</i>	<i>Possible techniques</i>	<i>Performance criteria</i>
General sustainability	Adherence to recognised environmental management systems such as EMAS or ISO 14002 Appropriate use of Environmental Impact Assessments	Audit of procedure Cost of bid over entire life-time

³⁸ Source: UNECE Training Module - An overview of issues related to PPPs and sustainable development

	Feedback on environmental performance from local people and / or NGOs Life-cycle analysis	
Efficient use of energy and security of supply	Use renewable sources Establishment of ESCo (Energy Service Company) to supply the project's energy and provide ongoing advice on improving efficiency and flexible means of financing renewable energy sources for the project Adherence to recognised building quality standards that require incorporation of sustainability principles in building design: e.g. making use of natural heating and ventilation, natural light Innovative technologies Carbon offsetting by creation of new habitat	Running costs Carbon footprint Proportion of energy from renewable sources
Minimise waste	Re-use of materials during construction and operation	Amount of non-recyclable waste produced (during construction and operation) Proportion of waste materials reused, recycled, composted, energy from waste, sent to landfill
Conserve water resources	Treatment of waste water Grey water recycling Rainwater harvesting	Running costs Proportion of clean / brown water usage
Minimise vulnerability to flood risk	Porous surfaces to allow infiltration Creation of reed beds and green areas to absorb and store water	Number / severity of flood incidents at site and downstream
Maximise use of materials from local and sustainable sources	Sustainable procurement procedure for sub-contractors Goods and services sourced locally Substitution of non-renewable resources for renewable, sustainable resources	Audit of construction and operating materials Proportions of natural resources sourced from sustainable sources
Minimise pollution	Clean technologies that reduce emissions Avoidance of toxic substances Treatment of emissions to water, air and soil Minimise noise and light pollution Maximise vegetation	Local air/water quality indicators User / resident satisfaction
Protect biodiversity	Preservation of existing habitat Creation of new habitat Incorporation into building design	Number of critical species Area / quality of habitat

(e) Menu of social criteria for sustainability³⁹

<i>Output specification</i>	<i>Possible techniques</i>	<i>Performance criteria</i>
Community	Stakeholder consultation	Public support for the project

³⁹ Source: UNECE Training Module - An overview of issues related to PPPs and sustainable development

engagement	Identification and empowerment of a 'sustainability champion' for the project	Levels of public participation in project governance arrangements: openness & accountability; extent to which users believe their views are considered Quality of feedback from public consultation; Degree to which public preferences are reflected in project outcomes Number of NGOs involved in project
Community facilities	'Bundling' profitable PPPs with less profitable ones that provide facilities (for example, a worker crèche, a school, recreation spaces)	Levels of resident / employee satisfaction Percentage of catchment population able to access service Equality of access across race, religion, gender, age, disability, sexual orientation
Social cohesion	Availability of affordable housing Equal opportunities Accessible to minorities Preservation and / or enhancement of cultural heritage and integrity	Levels of resident / employee satisfaction Levels of community voluntary work, membership of community organisations Community diversity
Low carbon lifestyle	Link development to public transport Provide high quality pedestrian and cycle routes	Level of car use / proportion of employees using sustainable methods of transport to travel Resident / user satisfaction Health e.g. if policy is to improve air quality through public transport, then reductions in respiratory illnesses appropriate

(f) Menu of economic criteria for sustainability⁴⁰

Output specification	Possible techniques	Performance criteria
Maximise local benefits	Use local businesses, local labour and training in construction, operation, and maintenance. Local procurement	Percentage of procurement / employment sourced within a specific area Employment statistics (broken down into youth, old age, female, disabled, ethnic groups etc if specific groups are being targeted) Income statistics and distribution (again possibly broken down as above) National / regional / local GDP PPP completed and operated to budget and time Private sector profits against expected profits Number of new businesses starting up over PPP lifespan
Worker health and safety	Compliance with relevant labour legislation Health and safety standards / regulations	Worker satisfaction Number of accidents Staff turnover Other products: e.g. training provided to workers, creation of a skilled workforce, thriving 3 rd sector

⁴⁰ Source: UNECE Training Module - An overview of issues related to PPPs and sustainable development

4.7 Delivery of Projects and Pathfinders

In line with the theme of “success breeds success” we believe that the government needs to be the main driving force for the implementation of the PPP programme, at least for the early stages of the programme. We also believe that the government should focus on a few high profile projects early in the programme. At the outset of the programme, the private sector is probably going to be unwilling to spend its resources on a project that is sponsored by a local or municipal entity at the outset of the programme. This is because there will be a perception that entities outside of central government do not have the capacity to deliver PPP projects. There will also be concerns about the legal powers of such entities to enter into PPP transactions, their creditworthiness and the interface with central government in the process.

We therefore strongly suggest that the early implementation of the programme be taken forward by central government. In addition, we suggest that a “pathfinder” scheme be identified and used as a demonstration case to prove the structures for the delivery of PPP projects. Focussing on a single project and delivering it on a basis that permits financing by local and international financiers on a limited recourse basis will showcase the country’s PPP processes and capabilities to international developers and lenders alike.

In addition, in Turkmenistan entities outside the central government such as the municipal sector remains the least advanced and most difficult area of the infrastructure sector reform, as (i) municipalities do not have the right to borrow, (ii) cities have very limited fiscal autonomy and own budgetary resources, (iii) almost all communal services are financed by central government’s budget allocation, and (iv) most services are still provided to the general public and companies with very low and heavily subsidized tariffs.⁴¹

4.8 Relevant Areas of Law

There are potentially many areas of law that have to be considered before making any attempt to design an optimal legislative and regulatory framework for successful clean infrastructure PPPs. PPPs will touch on many of these areas, quite apart from the contents of any general legislation that may be introduced to facilitate their use. These will typically include, for example, commercial contract law, company law, taxation law, employment law, competition law, the law of finance and security, insolvency law, infrastructure sector specific laws, property law, environmental law, foreign investment protection law, intellectual property law, public procurement law or rules, laws relating to expropriation and compulsory property purchase, and many others. The existence of adequate legal provision in these and many other laws is paramount as serious deficiencies in any of them could potentially represent insuperable obstacles in the way of the effective implementation of PPPs.

⁴¹EBRD Draft Strategy for Turkmenistan 2012. <http://crudeaccountability.org/wp-content/uploads/2012/10/EBRD-DraftStrategyForTurkmenistan.pdf>

In order to create a stable legal environment that will attract private investors to PPPs, the government needs to review its existing legislation and may have to amend, repeal or adopt certain laws and regulations.

It would go well beyond the scope of this report to discuss all the aspects in which these diverse areas of law might prove deficient or what might have to be done to reform or modify them in order to make them more conducive to the successful implementation of PPPs. However, section 5 below analyses in greater detail the current legal and regulatory framework in Turkmenistan and contains specific recommendations on each of the issues raised.

4.9 PPPs in Turkmenistan Recommendations

PPP is a relatively new concept in Turkmenistan and, as such, understanding and knowledge of its basic principles is justifiably patchy across the public and private sectors.

1: Greater coordination within the public sector and also the inclusion of private sector parties became the norm in other countries with a more mature PPP process, and this coordination and level of engagement should be further encouraged in Turkmenistan to help raise understanding more speedily and consistently across the board. Political will is the single most important aspect of successful PPP development followed by the availability of capital, that is, affordability.

2: The PPP process should have sufficient political support across all ministries.

3: Private participation in PPP projects should have a clear basis in policy, with broad government support and should be linked to broader sustainable development objectives of the country.

4: Transparent procedures should be specified for all stages of the PPP process.

The government might want to consider:

- i. Gathering good renewable energy resource data;
- ii. Engaging critical stakeholders early – list includes local communities, ministries, local authorities and national energy transmission and distribution companies.
- iii. Building capacity for the development of renewable energy projects.
- iv. Preparing a national renewable energy plan. This plan must include rigorous and transparent funding and realistic but detailed affordability analysis; this will result in a more efficient identification and ranking of potential PPP projects. To ensure coherence, it could be incorporated/aliened to Turkmenistan's National Strategy. A number of pilot projects should be identified within the plan. Running such projects would be a great demonstration of the government's political willingness

to support PPP implementation and a significant example of cooperation/coordination.



*THE LEGAL AND REGULATORY FRAMEWORK
FOR PPPS IN TURKMENISTAN*

SECTION 5 THE LEGAL AND REGULATORY FRAMEWORK FOR PPPs IN TURKMENISTAN – CURRENT POSITION AND PROPOSED RECOMMENDATIONS

5.1 General Legislative and Institutional Framework

- (a) Issue: It is important for potential investors to know that the constitutional, legislative and institutional framework for the implementation of privately-financed renewable energy projects ensure transparency, fairness, and the long-term sustainability of such projects.

A policy framework for improving the legal environment and promoting PPPs has not been identified in Turkmenistan. Although the cooperation between the public and the private sectors under concession agreements has been acknowledged by the laws of Turkmenistan since 1993, the “public-private partnerships” on the other hand have not yet found their legal basis in the country. The concession relations in Turkmenistan are governed by the Law on Foreign Concessions 1993 (the “**Concessions Law**”), under which an authorized body on state property is entitled to review tender applications, select the concessionaires and sign the concession agreements. According to an EBRD assessment of the Concessions Law in 2011 Turkmenistan scored low compliance in the assessment of its legal PPP framework (26 per cent compliance rate), receiving the lowest marks in the EBRD region. The analysis of local institutional framework revealed substantial gaps from 50 to 67 per cent in all key indicators.⁴²

Recommendation:
Private participation in PPP projects should have a clear basis in policy, with broad government support. The Government might consider amending existing laws to comply with the EBRD requirements for a well-defined PPP legal and regulatory framework

- (b) Issue: Is there any relevant legislation for PPP projects in Turkmenistan?

The Concessions Law is the most relevant law for PPP development in Turkmenistan at this moment. According to the EBRD Assessment of Concessions Legislation in Turkmenistan (2011) however, the Concessions Law is “*too vague scope of application*

⁴² EBRD CONCESSION/ PPP LAWS ASSESSMENT 2011. For more information see: <http://www.ebrd.com/downloads/legal/concessions/pppreport.pdf>

*needs serious improvements.”*⁴³ A concession is defined as “a permission of the state to carry out a specific type of business activity”⁴⁴. The EBRD assessment does note however, a certain number of positive elements (e.g. provisions regulating compensation for early termination, general principle of government assistance in “achieving objectives” of concession agreements). In addition, the Concessions Law declares that any amendments to the concession’s terms may only be exercised by mutual agreement and provides for compensation where the concession is terminated by the grantor. However, the rule is somewhat declarative and vague and does not provide for any mechanism for determining such compensation. Also worth mentioning as a positive feature is a general principle of government assistance in “achieving objectives” of concession agreements. Despite these certain positive components the EBRD assessment concluded that “*the law does not constitute a sufficiently solid legal basis for the development of PPP in infrastructure and utility services in Turkmenistan.*”⁴⁵

Pursuant to the Concessions Law, concessions are granted on a competitive basis for a period of 5 to 40 years. The relevant contracting authority is not clearly defined, the sectors that may be subject to concessions are not specified and the selection procedure is not sufficiently developed. While the Concessions Law contains a basic set of rules on tender procedures, these rules are very limited and the scope of their application unclear, arguably leaving room for arbitrary decisions by the authorities from case-to-case. The Concessions Law provides that concession agreements may only take the form of Build Operate Transfer arrangements, thus limiting flexibility of arrangements between the parties.

Recommendation:

The PPP “universe” now comprises a wide spectrum of commercial and financial structures. None of them are, in fact, capable of being defined in a precise and clear-cut manner and attempts to define and provide for them in a concessions law are generally unhelpful, easily giving rise to confusion and inflexibility in practice. What is needed instead is maximum flexibility, allowing the law to cater for the full range of existing structures the market currently deploys, and the inevitable evolution of new ones in the future. This can often be achieved at a definitional level in the elucidation of the expressions “public-private partnership” or “privately-financed infrastructure.”

⁴³ EBRD CONCESSION/ PPP LAWS ASSESSMENT 2011. For more information see: <http://www.ebrd.com/downloads/legal/concessions/pppreport.pdf>

⁴⁴ Article 3 of the Law of Turkmenistan “On Foreign Concessions”

⁴⁵ EBRD CONCESSION/ PPP LAWS ASSESSMENT 2011. For more information see: <http://www.ebrd.com/downloads/legal/concessions/pppreport.pdf>

- (c) Issue: It is important not only for potential investors, but also for the governments, to identify legislative provisions that identify not only the sectors (such as renewable energy, roads, railways, waste management and so on) in which PPPs projects may be awarded but also, if any, the sectors/activities where PPP projects are specifically excluded by legislative provisions.

Under the Concessions Law the concession projects can be granted for exploration, development, extraction or operation of natural resources (which does not fall under the scope of PPPs in infrastructure), as well as for any other economic activity in all sectors and for any type, provided that such activity is not prohibited by existing laws of the country⁴⁶ and does comply with established requirements of ecological, sanitary-hygienic, radiation, fire and explosive safety⁴⁷. The given definition of concession implies that a PPP mechanism (if used in the country) can be applied to a broad range of sectors (i.e. not only to infrastructure sectors, such as transportation, waste, water, disposal, etc., but also to economic sectors as well, such as manufacturing and agriculture, which falls beyond the scope of traditional PPP arrangements).

5.2 Scope of Authority to award projects

- (a) Issue: Does the law clearly identify the public authorities of the host country (including, as appropriate, national, provincial and local authorities) that are empowered to award privately-financed renewable infrastructure projects (“PPPs”) and contracts for their implementation.

Articles 4, 6 and 7 of the Concessions Law provide that the Cabinet of Ministers of Turkmenistan determines the terms and procedure for competition. Concession projects, programmes and feasibility study are subject to “state expert examination” which is not further defined. The State of Turkmenistan, “duly represented by the authorised bodies” is the subject of concession activity. The Cabinet of Ministers approves priority sectors for concession activities.⁴⁸ The present legislation in Turkmenistan does not provide for a clear allocation of power between national and local authorities and it is not clear whether the relevant powers extend both to the construction and operation of new facilities and the maintenance, modernisation, expansion and operation of existing facilities.

⁴⁶ Article 5 (1) of the Law of Turkmenistan “On Foreign Concessions”

⁴⁷ Article 5 (2) of the Law of Turkmenistan “On Foreign Concessions”

⁴⁸ Article 4, 6 and 7 of the Law of Turkmenistan “On Foreign Concessions”

Recommendation:

- *The Government might want to identify the agency, ministry or other procuring authority in charge of the procurement process and the entity that will execute the PPP agreement with the private sector. As stated above, the points in the process when approvals from other entities will be required should be highlighted, as should the jurisdictional limits of the procuring entity;*
- *It is absolutely vital that there is not a bureaucratic contest for control of projects and that the role of each individual entity is clearly established. The key issues for the private sector are:*
 - (a) That there is a clear route map for obtaining all of the necessary consents for a project;*
 - (b) That a realistic timetable is set for the obtaining of these consents and that the timetable is delivered;*
 - (c) That the number of “gateways” and consents is minimized to the maximum extent possible; and*
 - (d) That the negotiating parties are clearly authorized to make the necessary decisions to drive the project forward and will not*

5.3 Administrative Co-ordination

- (a) Issue: Have adequate institutional mechanisms been established to co-ordinate the activities of the public authorities responsible for issuing approvals, permits, licences and consents needed for the implementation of the renewable project?

According to the current legislation in Turkmenistan there are no clear institutional mechanisms to co-ordinate the activities of the public authorities for issuing approvals, permits, licenses and consents needed for the implementation of renewable energy projects.

Recommendation:

- *Adequate institutional mechanisms should be established to co-ordinate the activities of the public authorities responsible for issuing approvals, permits, licences and consents needed for the implementation of renewable energy projects in Turkmenistan.*
- *Regulatory competence should be entrusted to functionally independent bodies sufficiently autonomous to ensure their decisions are taken without political interference.*
- *Rules governing regulatory procedures should be publicly available.*

5.4 Risk Allocation and Repatriation of Profits

- (a) Issue: Are there any unnecessary statutory or regulatory limitations on the ability of the contracting authority and the concessionaire to agree on an allocation of risks in the project agreement that is best suited to the project?

According to the Concessions Law the government has the right to share in the concession's profits, purchase the concession's products and control the performance of the concession agreement (this can introduce a certain degree of uncertainty).⁴⁹

From the legislative standpoint, the most helpful advice is perhaps expressed in negative terms. It is important that the host country's legal system contains as few restrictions as possible on the ability of the parties to a PPP to achieve the most appropriate allocation of risks for the purposes of any individual project. Legislators drawing up relevant laws may sometimes be tempted to try to prescribe patterns of risk allocation in the law, in one form or another. This is usually inadvisable.

Risk assessment and allocation is an intricate subject – in reality, as much an art as a science – and attempts to provide for it at an abstract level in advance in legislation will usually be counter-productive. Legislative provisions are not the appropriate tools to deal with it. Contracts are, on the other hand, and it is equally important to avoid including in any laws any restrictions on the terms of a concession or project agreement that are not clearly essential (see further below). Flexibility has to be the rule.

- (b) Issue: The issue of profit and capital repatriation is of great importance not only to the private partner, but also for project sponsors and lenders. Therefore, from the private partners' point of view, it is crucial that the repatriation of profits derived from the PPP project in the respective country is not prohibited by legislation.

Under the laws of Turkmenistan foreign investors have a right to freely use the earned profit, including the reinvestment of such for the purposes not contradictory to the legislation of the country, as well as repatriate any income or revenue, and any other duly received funds under their investment activity (e.g. dividends, interests, compensation amounts, funds from investment related transactions, etc.), provided that all applicable taxes and mandatory fees have been paid accordingly.⁵⁰

⁴⁹ Article 15 of the Law of Turkmenistan “On Foreign Concessions”

⁵⁰ Article 21 (2) of the Law of Turkmenistan “On Foreign Investments”

Recommendation

No pattern of risk allocation is ever truly identical, as between any two or more projects. Variations, subtleties and unique circumstances have to be allowed for. For that reason, our advice would normally be to say as little as possible about the assumption or imposition of risk in legislation, but to ensure that the parties have the freedom to define and allocate it as they think appropriate in the context of each individual project

5.5 Government Support

- (a) Issue: What feed in tariffs (if any) are available for renewable energy development projects?

There are no feed in tariffs or other incentives for renewable energy development projects in Turkmenistan.

- (b) Issue: It is known that project sponsors and lenders always want support and assurances from the host government with respect to various project issues. In most cases government support refers to special measures of a financial and economic nature that may be provided by the host government to enhance the conditions for the execution of a given project or to assist the project company in meeting some of the project risks. Accordingly, explicitly stated government support in legislation instils the necessary confidence in private partners, sponsors and lenders, whereas the government maximizes the potential interest in investing in its infrastructure projects.

The concessions under the laws of Turkmenistan are granted to the private sector to use land plots, natural resources, enterprises and other assets for a specific period of time in return for a payment. Accordingly such commercial relations do not benefit from any state loans, subsidies or grants. However, the state authority granting concessions to the private party under the Concessions Law, guarantees, among other, the following:

- (i) an inadmissibility of changing the provisions of the concession contract without concessionaire's agreement;
- (ii) reimbursement of expenses incurred due to the early termination of the contract by the initiative of the contracting authority;
- (iii) compensation of damages caused by the violation of the contract terms by the contracting body;
- (iv) a right to export goods produced in a due course of a concessions activity, provided that the amount of goods to be exported by the private sector is agreed by the parties;
- (v) a right of repatriation of profits earned under the terms of the contract;

- (vi) an extension of the term of the agreement upon its expiration (concession agreements are executed for a term from 5 up to 40 years).⁵¹

Additionally foreign investors operating under the concession agreements in Turkmenistan are provided, among other, with the following guarantees under the Law on Foreign Investments:

- (i) national treatment of business activities⁵²;
- (i) a “not-less-favored” legal regime for foreign investors⁵³;
- (ii) repatriation of profits;
- (iii) guarantees against changes in the legislation⁵⁴;
- (iv) guarantees against requisition/confiscation (see below for more details);
- (v) access to international arbitration (see below for more details);
- (vi) exemption from customs duties (applicable to funds brought to Turkmenistan as the contribution to the charter capital of the company with foreign participation, etc.).

Besides the above should the activity of the investor under concession agreement be carried out within priority areas of the economy and leads to sustainable social and economic development of the country, such investor may be provided with other support by the state on case by cases ground.⁵⁵

⁵¹ Article 10 (1) of the Law of Turkmenistan “On Foreign Concessions”

⁵² Article 8 (1) of the Law of Turkmenistan “On Foreign Concessions”

⁵³ Article 8 (2) of the Law of Turkmenistan “On Foreign Concessions”

⁵⁴ If a change in Turkmenistan legislation adversely affects an investment, the application of that change is subject to a 10-year moratorium. Article 8 (5) of the Law of Turkmenistan “On Foreign Investments”

⁵⁵ Article 11 (7) of the Law of Turkmenistan “On Foreign Investments”

Recommendation

- *The government might want to consider introducing feed-in tariffs for renewable energy development in Turkmenistan and other direct promotion through governmental support programme.*
- *The government might also want to consider introducing quota obligations and/or soft loans for renewable energy development, along with fiscal incentives and/or grants and rebates for renewable energy development.*
- *The government should adopt renewable energy targets.*

5.6 Selection of the IPP developer

Issue: It is widely known that legislation stipulating for the clearly written process of selection of the private partner provides greater stability and predictability for investors, including providing governments with a clear guidance as to the procedures to be followed and the parameters within which negotiations are to be concluded. A number of issues have therefore been identified for the purpose of providing the user of this report with a clear picture of how the selection process of the private partner is normally dealt with, namely: (a) selection criteria; (b) selection procedure (including issues related to transparency, neutrality, and non-discrimination); (c) establishment of the selection committee; (d) unsolicited proposals; (e) awarding concessions without competitive procedures, and (f) availability of standard tender documents.

(a) Selection Criteria

The Concessions Law does not define any criteria applicable in selection of the concessionaire, however, states that terms and conditions of undertaking a selection is to be determined by the Cabinet of Ministers of Turkmenistan.

(b) Selection Procedure

The concessions are granted on a competitive tender basis, the terms and conditions of which are to be defined by the Cabinet of Ministers of Turkmenistan. Special rules may be established for each field of industry, for example: there are tender rules in petroleum industry approved by Cabinet of Ministers. Basic principles of tender selection procedure of contractors for industrial and social objects projection and construction are:

- (i) compliance with the Legislation of Turkmenistan and present Rules;
- (ii) economical and industrial practicability;
- (iii) conformity of submitted offers at the common rate, existing for the tenders holding period;
- (iv) equality of participation conditions for all contractors, which are applicable to qualifications;

- (v) publicity and openness of tender holding conditions;
- (vi) steadfast adherence of tenders technical conditions and results.

(c) Selection committee

According to the Concessions Law the revision of tender applications and selection of the concessionaires is carried out by an authorized body on state property (without any reference on establishing an independent working group or selection committee).

At the same time, committee on tender selection of contractors is created by the State Concerns. According to the tender rules in the field of petroleum industry, work on preparation and holding of a tender is carried out independently by each Tender Committee of State Concerns. Committees' decisions forward to Expert Committee for analysis and subsequent approval in Cabinet of Ministers.

(d) Unsolicited proposals

The selection of the concessionaire in Turkmenistan is carried out based on competitive tender and direct negotiations. State Agency on management and usage of Hydrocarbon Resources under the President of Turkmenistan (hereinafter referred to as "Agency") carries out negotiations on issuance of licenses, as per results of held tender, and on conclusion of a Contract with applicant. Agency carries out direct (non-exclusive) negotiations on acquisition of license and conclusion of a Contract with applicant.⁵⁶

(e) Availability of standard tender documents

Currently, procurement is based on a list of standard tender documents approved by Cabinet of Ministers in Turkmenistan. Required documents: 1) tender invitation; 2) copy of manufacturer permission; 3) form of qualifications; 4) main conditions of the Contract; 5) rules of tender selection of suppliers on material and technical goods for oil and gas complex of Turkmenistan.

⁵⁶ Article 7 (2, 3) of the Law of Turkmenistan "On Hydrocarbon resources"

Recommendation

Clear procurement processes which uphold the principles of fairness and equality to all bidders and which provide transparency in the public sector's decision-making process are necessary to encourage effective competition for PPP projects. This not only benefits foreign investors and funders by providing comfort that their bids will be treated on merit, but also benefits the public authority by achieving better value for money, as increased competition will help drive down prices and encourage better technical solutions. The Government might want to consider the following:

- (a) Setting out in the law clear procurement processes which are suitable for PPP structures.*
- (b) Ensuring that procurement procedures uphold the key principles of fairness, transparency and competition.*
- (c) Ensuring that the procurement framework makes the public sector accountable for its decision, which must identify a winning bidder who has the ability to implement the project successfully.*
- (d) Establishing a procurement process which is structured and includes procurement stages that reflect the scale and complexity of the project.*
- (e) Designing a procurement procedure which includes conditions that encourage competition between bidders so as to allow public authorities to achieve better value for money.*
- (f) Advertising projects appropriately, using accessible forms of media.*
- (g) Using award criteria that are objective and transparent.*
- (h) Complying with procurement procedures as this ensures certainty by removing the risk of challenge.*
- (i) Advertising contract award.*
- (j) Notifying unsuccessful bidders of decisions and provide an opportunity to give a debrief of their bid, setting out the reasons for*

5.7 Project Agreement

- (a) Issue: The project agreement is the main document regulating the rights and obligations of the parties, and in the main, the parties have freedom of contract. However, a number of standard mandatory clauses might be imposed on the parties by statute for inclusion in the project agreement. These mandatory clauses do effectively restrict the parties' freedom of contract, and as such, deprive them of the necessary overall flexibility to negotiate an agreement depending on the needs and peculiarities of a specific project. Does the law allow sufficient scope and flexibility for the parties to agree on the contents of the project agreement as best suited to the needs of the project?

The concession agreement under the laws of Turkmenistan is considered effective from the date of its state registration with the state authorities and the Concession Law envisages provisions on the following:

- (i) parties to the agreement;
- (ii) concession object and purpose;
- (iii) land plot boundaries, within which a concession is granted;
- (iv) list and cost of the concession object;
- (v) rights and obligations of the parties;
- (vi) terms and conditions of payments;
- (vii) terms and conditions of sale of goods (produced under concessions) in domestic and foreign markets;
- (viii) terms and conditions of importing the raw materials, complementary parts;
- (ix) customs terms;
- (x) insurance conditions;
- (xi) term of the concession agreement, conditions related to its amendment, extension, and termination;
- (xii) requirements on the safety and restoration of environment, conditions on preservation and protection of historical and cultural monuments, natural landscapes, flora and fauna;
- (xiii) obligations of the concessionaire to provide the contracting authority information discovered in the course of the activity, including information on exploration work;
- (xiv) condition of hiring employees;
- (xv) terms of dispute resolution and liabilities of the parties;
- (xvi) minimum amount of capital required to be invested;
- (xvii) price or tariff margins on the goods to be sold in domestic and foreign markets;
- (xviii) financial guarantees of the parties, whereabouts of the parties; bank account details;

- (xix) legal, financial and organizational consequences in the events of emergencies;
- (xx) terms and conditions of inspection and monitoring the implementation of the concession project.

However, the above mentioned clauses are not exhaustive and the parties may agree to include any other provisions, provided that they do not contradict the existing legislation of the Republic of Turkmenistan.

5.8 Project site, assets and easements

- (a) Issue: Is the law sufficiently flexible in terms of the controls it permits to be vested in the developer over the use and ownership of the site and the assets comprised in the project? (For example, can clear distinctions be made (if necessary) between public assets and private property? Can the developer be obliged to transfer some assets and retain others at the end of the project?

All land in Turkmenistan is government-owned and neither domestic nor foreign businesses can receive long-term land-use rights for “non-agricultural” purposes. Private citizens have some land usage rights; however, these rights exclude the sale or mortgage of land. Land rights can be transferred only through inheritance. Foreign companies or individuals are permitted to lease land for non-agricultural purposes, but only the president has the authority to grant the lease.⁵⁷

⁵⁷ According to the 2004 Land Code, foreign companies or individuals are permitted to lease land for non-agricultural purposes, but only the president has the authority to grant the lease. Foreign companies may own real estate property other than land.

Recommendation

Security of property rights is obviously essential for fostering private investment in any country. Ideally, there should be no restrictions on foreign or private ownership which could be prejudicial to private-sector or cross-border investment. Property laws should contain adequate provision (and above all sufficient clarity) on the ownership and/or use of land and buildings, movable and intangible property, and further ensure the concessionaire's ability to use (license) and (where appropriate) to purchase, sell and transfer the property comprised in the project. This may call for an effective property registration system in the host country. Both the developer and its lenders will need a high degree of confidence that title to the land and the assets will not be subject to dispute by third parties.

5.9 Finance and Security

- (a) Issue: Does the law enable the developer to grant adequate security over the project assets for the purposes of raising such finance, including:
- (i) mortgage/charge over its property (immoveable and moveable);
 - (ii) pledges of shares in the project company;
 - (iii) a charge over proceeds and receivables from the concession;
 - (iv) an assignment of the concessionaire's contractual rights and claims;
 - (v) any other suitable security?

The Concessions Law does not regulate the issues of security and attracting borrowed funds, however, the civil legislation of Turkmenistan provides general rules on such issues. Under the Civil Code the investors under the concession agreement may attract funds through loans and securities, however, they may secure their obligations by means of the property, which are under their ownership (e.g. future receivables) and available for pledge⁵⁸.

Security rights on movable and immovable assets in Turkmenistan are governed by the Civil Code of 1 December 1998 (arts 267-299, 325-329), enacted on 1 March 1999, and the Law on Pledge (Pledge Law) of 1 October 1993. The Pledge Law can only apply to

⁵⁸ Articles 267 and 268 of the Civil Code of Turkmenistan

the extent that it does not contradict the Civil Code. The Civil Code primarily covers security over immovable assets (mortgages), possessory pledge.

According to the EBRD however, formalities of creation are complex and slightly confused and enforcement remains a challenging process for secured creditors. Overall, the EBRD note that “Turkmenistan has not followed the pace of reform that many neighbouring countries in central Asia have taken in the last decade, starting by Kazakhstan, the Kyrgyz Republic and also Russia. As a result, it is equipped with a very rudimentary legal framework for secured lending, which does not encourage sound banking practices.”⁵⁹

- (b) Issue: Does the law make it possible for a controlling interest in the project company to be transferred to a third party where appropriate?

The Law on Concessions is silent on the assignment of rights and obligations of the concessionaire to any third party. In the oil and gas industry a contractor has a right to transfer or to pledge all or half of his rights and obligations on license and contract only with preliminary written permission of Agency.⁶⁰

However, under the provisions of the Civil Code the concessionaire may transfer its obligations and claim to request under the concession agreement, provided that prior written agreement is reached with the contracting authority⁶¹. Additionally, in the event of reorganization of either of the parties to a concession agreement (e.g. bankruptcy, liquidation, merger and acquisition, etc.), the rights and obligations of the reorganized entity may be transferred to its successor, unless otherwise agreed by the parties.

5.10 Duration, extension

- (a) Issue: Does the law prescribe a (maximum) duration for the project?

Under the Concessions Law concession agreements are executed for a term from 5 to 40 years. The Concessions Law also provides for an extension of the term of the agreement upon its expiration.

5.11 Termination

- (a) Issue: in view of the fact that the termination of the project agreement triggers a series of compensatory claims as a result of interruption in services or their discontinuance, it is important for the innocent party to be adequately compensated. However, an attempt to stipulate all possible termination and compensation statutory clauses with any degree of precision can be inhibiting.

⁵⁹EBRD Draft Strategy for Turkmenistan 2012. <http://crudeaccountability.org/wp-content/uploads/2012/10/EBRD-DraftStrategyForTurkmenistan.pdf>

⁶⁰ Article 53 of the Law of Turkmenistan “On Hydrocarbon Resources”

⁶¹ Articles 476 of the Civil Code of Turkmenistan

Therefore, statutory intervention should ensure that the parties have adequate flexibility and freedom in negotiating termination and compensation clauses in the project agreement.

Under the Concessions Law the concession agreement may be terminated either by a mutual consent of the parties or based on a court decisions. However, should the contracting authority terminate the concession agreement prior to its expiration date, the concessionaire is entitled for a compensation of losses and/or damages incurred under such circumstances.

The Foreign Investment Law provides a guarantee of compensation to the foreign investor in case of forced alienation of property. The forced alienation is enforced in the form of requisition and applicable only in cases of force majeure. The guarantee provides for prompt, adequate and effective compensation. Notwithstanding these provisions, the Foreign Investment Law does not directly provide for prompt, adequate and effective compensation in case of expropriation, nor does it define the public interest.⁶²

Recommendation

- *Clearly set out termination rights in the PPP contract, including rights for each party to terminate for Force Majeure and for the other's default in certain circumstances.*
- *Make clear provision in the PPP contract for compensation payable by the authority on termination which adequately reflects the nature of the termination.*

5.12 Settlement of Disputes

- (a) Issue: Taking into account the complexity of PPP projects it is of great importance for investors, contractors and lenders that any dispute arising out of the implementation of the project is resolved fairly and efficiently. There is the possibility to involve arbitration in a neutral jurisdiction, though in this case, the enforceability of foreign judgments regime in the respective country should also be considered.

Any dispute arising in relation to the concession activity, including (i) disputes between the concessionaire and the contracting authority; and (ii) disputes between the concessionaire and state enterprises, public organizations, legal entities and individuals, as well as disputes between the concessionaires linked to their activity that are resolved in

⁶² Ashgabat Consulting Team Law Firm - International Financial Law Review - Supplement to Foreign Investment Guide 2011. For more information see: http://www.act.tm/upload/publications/file_eng_6.pdf

the courts of Turkmenistan, if otherwise provided by an international agreement⁶³. In regards to dispute resolution, the Foreign Investment Law provides that disputes are to be settled in the Arbitration court of Turkmenistan (litigation) or by the agreement of the parties in a commercial (investment) arbitration tribunal. Turkmenistan courts uphold arbitration agreements and choice of foreign law to regulate contracts.⁶⁴

However, Turkmenistan is not party to the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards and there is no current mechanism of enforcement of foreign arbitral awards in the legislation of Turkmenistan. Nevertheless, Turkmenistan is a party to the ICSID Convention, allowing resolution of investor-state disputes in the ICSID. In addition, Turkmenistan has signed more than 20 bilateral investment treaties, allowing investors from party countries to apply to ICSID for disputes resolution.⁶⁵

- (b) **Issue: The issue of a government guarantee against adverse acts of governments, namely from expropriation/nationalization is important to an investor coming to a country and doing PPPs.**

Turkmenistan's legislation does not provide for private ownership of land, and thus allows the government to force investors to vacate their land in the form of requisition or confiscation either for state's ownership or temporary use. However, the Law on Foreign Investments stipulates certain ground (e.g. in the event of natural disasters, epidemics, and other extraordinary emergency situations) under which a confiscation of investors property is allowed.⁶⁶

Should confiscation occur, the investors are entitled to prompt and adequate compensation. The amount of compensation shall be determined based on the market value of the property as of the date of confiscation, calculated by an authorized body of Turkmenistan or by an independent appraisal and paid in freely convertible currency and in timely manner.⁶⁷

5.13 International Regulatory Rankings of Turkmenistan

- (a) **International Rankings**

Measure	Year	Index/Ranking
TI Corruption Index	2012	170 of 174

⁶³ Article 19 of the Law of Turkmenistan "On Foreign Concessions"

⁶⁴ Ashgabat Consulting Team Law Firm - International Financial Law Review - Supplement to Foreign Investment Guide 2011. For more information see: http://www.act.tm/upload/publications/file_eng_6.pdf

⁶⁵ Ashgabat Consulting Team Law Firm - International Financial Law Review - Supplement to Foreign Investment Guide 2011. For more information see: http://www.act.tm/upload/publications/file_eng_6.pdf

⁶⁶ Article 26 (1) of the Law of Turkmenistan "On Foreign Investments"

⁶⁷ Article 26 (3) and (4) of the Law of Turkmenistan "On Foreign Investments"

Heritage Economic Freedom	2012	168 of 179
MCC Government Effectiveness	2012	-1.11 (0%)
MCC Rule of Law	2012	-0.98 (3%)
MCC Control of Corruption	2012	-0.95 (0%)
MCC Fiscal Policies	2012	6.6 (96%)
MCC Trade Policy	2012	79.2 (76%)
MCC Regulatory Quality	2012	-1.53 (0%)
MCC Natural Resource Protection	2012	30.4 (36%)
MCC Inflation	2012	4.5 (44%)

Although Turkmenistan has legislation to combat corruption, laws are not generally enforced, and corruption remains a problem. Formally, the Ministry of Internal Affairs, the Ministry of National Security, and the General Prosecutor's Office are responsible for combating corruption. President Berdimuhamedov has publicly stated that corruption will not be tolerated. Turkmenistan also joined the UN Convention against Corruption in March 2005. Notwithstanding these acts, the non-transparency of Turkmenistan's economic, financial, and banking systems provides fertile soil for corruption. The non-government organization, Transparency International, ranked Turkmenistan 170 among 174 countries in the world in its Corruption Perceptions Index for 2012.⁶⁸

5.14 Legal and Regulatory Framework Recommendations

Notwithstanding some of the positive aspects of the Turkmenistan's legal and regulatory framework as described above there is no clear legal and regulatory framework for PPP development in Turkmenistan.

1: Clarity and certainty of a country's legal and regulatory framework are necessary conditions for the success of a PPP programme. The existence of a PPP law can help to attract investors to a country by enhancing or clarifying the legal framework applicable to PPPs. This will also prevent reliance on general laws that are not specific and therefore not suited to PPPs. Investors and lenders will seek comfort that the governing law of their contracts affords them adequate protection and that disputes can be resolved impartially and efficiently.

2: A well designed PPP law could improve the legal framework applicable to PPPs by addressing the following essential elements:

⁶⁸Doing Business in Turkmenistan: 2013 Country Commercial Guide for U.S. Companies. For more information see: http://photos.state.gov/libraries/turkmenistan/868986/pdf/Doing_Business_in_Turkmenistan_2013CCG.pdf

- (i) clear and complete procurement procedures for the award of a PPP contract (including content of the contract notice, negotiation/competitive dialogue stages, remedies available to unsuccessful bidders on a successful challenge);
- (ii) clear guidelines on the contents of tender documents;
- (iii) state support and guarantees that may be available to investors;
- (iv) clear division of responsibilities for such matters as project planning, identifying priority sectors and conducting feasibility exercises; definition and safeguard of rights and responsibilities of both public and private sector bodies; institutionalisation of and capacity building within the government to ensure knowledgeable reference point to all stakeholders; clear and complete guidelines in relation to the control and supervision of procurement procedures by public authorities and of project implementation post contract award;
- (v) establishment of a PPP institutional framework, including for example the establishment of a PPP unit if a sufficient pipeline of PPP projects is anticipated.

5.15 Bidding Process Recommendations

Clear procurement processes which uphold the principles of fairness and equality to all bidders and which provide transparency in the public sector's decision-making process are necessary to encourage effective competition for PPP projects. This not only benefits foreign investors and funders by providing comfort that their bids will be treated on merit, but also benefits the public authority by achieving better value for money, as increased competition will help drive down prices and encourage better technical solutions.

The Government might want to:

1. Set out in the law clear procurement processes which are suitable for PPP structures.
2. Ensure that procurement procedures uphold the key principles of fairness, transparency and competition.
3. Ensure that the procurement framework makes the public sector accountable for its decision, which must identify a winning bidder who has the ability to implement the project successfully.
4. Consider establishing a procurement process which is structured and includes procurement stages that reflect the scale and complexity of the project.
5. Design a procurement procedure which includes conditions that encourage competition between bidders so as to allow public authorities to achieve better value for money.

- 6: Advertise projects appropriately, using accessible forms of media.
- 7: Use award criteria that are objective and transparent.
- 8: Authorities should strictly comply with procurement procedures as this ensures certainty by removing the risk of challenge.
- 9: Publicly advertise contract award.
- 10: Notify unsuccessful bidders of decisions and provide an opportunity to give a debrief of their bid, setting out the reasons for elimination.
- 11: Give unsuccessful bidders access to clear rights of challenge and effective remedies.

5.16 Allocation of Risk in PPP Projects Recommendations

The Government might want to consider:

- 1. Transferring the design and construction risk to the private sector. The public sector should be encouraged to make payments on a "no service no fee" basis, i.e. where payments to the private sector begin only on satisfactory completion of construction or demonstration of achievement of the specified performance criteria.
- 2: Defining the standard of work required in the PPP contract.
- 3: Applying incentives (penalties/bonuses) for the private sector to perform.
- 4: Making the construction contractor liable (either by contract or in law) for defects in the works for a defined period of time.
- 5: Allocating planning risks to the private sector, but encourage the public sector to provide assistance.
- 6: Allocating responsibility for obtaining all other approvals (for example, construction permits) to the private sector, but the public sector should provide reasonable assistance.

5.17 PPP Procurement Recommendations

A robust procurement procedure for PPPs must be developed as part of an established legal framework governing PPP transactions. The importance of this cannot be over-emphasised. Too often in numerous countries around the world, little thought has been given to the quality of tender documents or the process they attempt to describe. From an international investor's perspective, this creates a poor image from the outset. Well-structured and clearly considered tender documents are therefore a minimum requirement. Specifically, the tender documents should:

- (a) Clearly identify the tender process that will be followed, including each process that needs to be followed and the approvals required in order to take the project from start to finish;

- (b) Set a realistic timetable for the process. Too often the quality and robustness of a project is jeopardised by an unrealistic assessment of the amount of time required in order to procure PPPs. If the time period in the tender documents is too short, this will almost certainly cause private sector developers to think twice about participating as it demonstrates an unrealistic expectation within government. A balance between a desire for speedy delivery and a realistic procurement horizon needs to be struck based on experience;
- (c) Identify the objectives of the public sector and the evaluation criteria supporting these objectives for the PPP must be clearly established;
- (d) On a more practical issue, the government needs to ensure that it has the capacity to negotiate and then implement the schemes. This has been a key issue facing all governments desiring to implement PPP programmes. In addition, our comments below in relation to the identification of pathfinder schemes should assist. At least in the early stages of the programme, the expertise and capacity of host government should not be spread too thin. Efforts should be concentrated on the successful delivery of a few key schemes. Thereafter, as knowledge and practice becomes more widespread, the programme can be expanded.

5.18 Security Package Recommendations

We list below a standard set of securities usually required in international PPP projects. Lenders will expect a robust security package to protect their investments in the case of default by the borrower. The broad range of project finance securities normally available to lenders includes the following:

- (a) Mortgages over any land and property held by the project company;
- (b) Fixed and floating charges over shares of the project company and any plant and machinery, credit balances, book debts, intellectual property and other beneficial interests;
- (c) Assignment of insurance policies by way of security;
- (d) Assignment by way of security with respect to all receivables against the public authority, the subcontractors, the hedging counterparties, the insurance companies and the tax authorities and all rights in respect of any agreement to which the project company is a party;
- (e) Arrangements relating to the proceeds account to channel the proceeds generated by the project through a blocked account usually kept with the leading bank; these usually provide for a payment order in accordance with a cash cascade (or waterfall) clause;
- (f) Project support agreements: completion guarantee and/or cost-overrun guarantee from the project sponsors;

- (g) Subordination of sponsor's capital and loans to the lender's facilities;
- (h) Interest hedge/currency hedge arrangements;
- (i) Collateral warranties such as direct duty of care agreements from subcontractors; and
- (j) Direct agreements, which provide step-in rights for the lenders to step-in to the project in circumstances where the Project SPV has defaulted and is in danger of its contract being terminated (for example, by replacing the constructor or operator if they are not performing during a specified period of time or by transferring the contract to a suitable substitute). Direct agreements also usually provide for the subordination of the authority's rights to those of the lenders.



*INNOVATIVE FINANCING OPTIONS FOR CLEAN
INFRASTRUCTURE AND ENERGY EFFICIENCY
DEVELOPMENT IN TURKMENISTAN*

In many emerging economies, clean energy generation is paid for by a small surcharge on consumer bills. There are some local content incentives in place to encourage domestic manufacture and domestic jobs. Brazil makes financing from the local development bank BNDES conditional on securing local content in the project.

In China the Chinese government introduced supportive policies for Chinese wind such as massive central and local government support for industries and power companies developing projects, in the form of land grants, low-cost credit and political incentives.

The Chinese also introduced a feed-in tariff level paid for by a surcharge on consumers. There are also central and provincial targets for wind and RE development from the five-year plans. Though not legally binding, they act as a form of soft renewable power purchasing mandate.

SECTION 6 INNOVATIVE FINANCING OPTIONS

- (a) The Strategy and further action plans for its realization offer Turkmenistan a possibility to access the Global Green Climate Fund to obtain financial, technical and technological assistance from international sources.
- (b) The government should try and take advantage of the available international resources such as funds within UNFCCC and Kyoto Protocol, i.e. GEF, Adaptation Fund; Global Green Climate Fund (launch envisaged in 2013); Kyoto Protocol mechanism for the reduction of greenhouse gas emissions, Clean Development Mechanism and other international financing arrangements to support emission reduction efforts.
- (c) The government should take advantage of the proposed EU Project on “*Support to the introduction of Sustainable Development policies-rational use of natural resources in the energy-environment sectors in Turkmenistan*” and its synergies with the Investment Facility for Central Asia which was established by the EU. The EU supports Turkmenistan by national-level programmes worth €22 million, for the 2007-2010 period and €31 million for 2011-2013 some of which is allocated for energy efficiency and renewable energy development. In addition, the EU also created the Sustainable Energy Programme for Central Asia: Renewable Energy Sources-Energy Efficiency, a regional EU initiative to set up the necessary mechanisms enabling the penetration of renewable energy sources in the energy mix.
- (d) At the national level the Strategy offers to establish a National Clean Climate Fund, the budget of which may be formed from various sources including: the state budget of Turkmenistan; fixed percentage allocations from energy export revenues (natural gas, oil, electric energy etc.) and the budget of which can be used to support pilot projects for energy efficiency and renewable energy development.
- (e) Financial sources and know-how from international oil and gas companies in Turkmenistan can be used to help develop renewable energy know-how or pilot projects in Turkmenistan by allocating a percentage of fees from the production sharing agreements and allocations from gas exports procured as a result of adopting energy efficiency methods to the national

green economy sector.

- (f) The government should introduce renewable energy targets and feed-in tariffs in order to provide clarity and certainty to the private sector and in order thus to attract finance from the private sector for renewable energy developments. According to the recent UNEP report survey⁶⁹, feed in tariffs are considered to be the strongest policy instrument in leveraging private investment and finance. By guaranteeing the price and providing a secure demand, feed in tariffs reduce both the price and market risks, and create certainty for the investor regarding the rate of return of a project. It is important to ensure cost-efficiency of tariffs for society and feed-in tariffs do not need to be high they just need to be stable and durable.
- (g) The government should help develop local financial markets for renewable energy development by state-supported lending programmes from the stabilisation fund managed by the Ministry of Finance. The stabilisation fund could channel the country's oil and gas revenues into renewable energy and energy efficiency development in the country.
- (h) The government can help push local capacity building for renewable energy development by providing incentives to parts of the research and development chain, from basic research in universities to applied research through mini pilot projects. In addition, in September 2011, the government established the State Development Bank to provide soft loans to state-owned and private enterprises, which implement projects aimed at increasing production and creating jobs. The State Development Bank could act as a financial catalyst for energy efficiency and renewable energy development by providing soft loans to encourage the development of green economy via energy efficiency and renewable energy development.
- (i) The government should work on improving its general investment and country risk profile. Country risk forms part of an overall assessment by investors before investing in PPP projects. Perceived investment risks can have more of an impact on the effectiveness of renewable energy policies than do potential profits and costs, so that for national governments seeking to attract renewable energy investors to the country, the question of risk must be directly addressed through various policies, actions and procedures directing at making the investment environment safe and reliable.

The government should consider introducing some of the laws designed to make investment more economically attractive to the private sector, these can include:

- (i) Property and sales tax incentives;

⁶⁹UNEP Financing Renewable Energy in Developing Countries 2012.
http://www.unepfi.org/fileadmin/documents/Financing_Renewable_Energy_in_subSaharan_mol.pdf

- (ii) Production and investment tax credits;
- (iii) Grant or rebate programs for renewable energy developers and owners;
- (iv) Loan guarantee programs;
- (v) Renewable energy interconnection standards;
- (vi) Government mandated long-term off take agreements or feed in tariffs;
- (vii) Efficient and effective dispute resolution system.

SECTION 7 CONCLUSION

At this stage of clean infrastructure development in Turkmenistan it can be suggested that a PPP model might not be the most appropriate due to the small scale pilot projects which are being undertaken. However, once the government decides to develop the legal and regulatory framework resulting into a more tangible private sector interest, it will then be viable to prepare a selection of appropriate clean infrastructure projects to develop via a PPP model.

As mentioned throughout this report, if PPPs were to flourish, it is vital that a strong legal and regulatory framework is established to govern PPP transactions as without this it will be almost impossible to attract private sector investment. In view of the nature and the lengthy time frame of such projects it is imperative that the interests of both the public and private sector are protected by law. It is evident that an established legal framework governing PPP transactions creates an incentive and an enabling environment for prospective investors. As expected at this stage of PPP development, Turkmenistan does not yet have the necessary subject matter expertise or skills within either the public or private sectors, to develop and deliver a major PPP programme. Institutional capacity building at lead and line ministries is needed in order to improve the skills of public officials dealing with PPPs. On a more positive note, there appears to be a degree of commercial expertise within the public sector in contract dealings with the private sector, especially in the oil and gas industry.

Solid technical skills and knowledge are prerequisites for effective design, installation, commissioning, operation and maintenance of clean infrastructure projects. Many of the clean infrastructure related capacity building projects have focused too much on training activity that is not well integrated into actual project development and implementation. A narrow set of capacity building tools, mainly seminars and workshops have been employed with little recourse to practical training and programs based on learning by doing. In our view, it would be beneficial to invest in pilot scheme projects through which local government and public authority practical capacity building could be achieved.

A sizeable PPP programme for clean infrastructure development in Turkmenistan would be affordable for the public sector, provided that strong economic development continues. The government of Turkmenistan might want to consider taking the necessary steps to raise awareness about the importance of PPP for its infrastructure development and clean infrastructure development in particular. An awareness programme should be introduced at all levels of the government and the private sector in the country including an identification of a pipeline of PPP pilot projects in the near future. With the right political and institutional conditions, Turkmenistan could focus its attention on key selected projects. Such projects if delivered successfully could play an essential role in creating a reputation of Turkmenistan as a destination for PPP investment.

Energy efficiency and clean infrastructure development on a larger scale via a PPP model can contribute towards the diversification of Turkmenistan's economy through the creation of a national green economy. Central to this should be a clear incentive to reduce end-use consumption of natural gas: exports of natural gas provide valuable revenues to the state budget, whilst internal consumption is financed mostly by the government. By reallocating such finance

towards the creation of a national green economy in partnership with the private sector via the PPP model, the government can help mitigate the domestic climate change effects whilst boosting internal development and growth. At the same time, natural gas saved through energy efficiency and/or clean infrastructure development can be exported, resulting in a win-win scenario for the government.

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