

7.1 The energy legislative framework

Overview of the legislative framework for the energy sector

Renewable energy is an integral part of energy in Uzbekistan and development of renewable energy in Uzbekistan, as is the case all over the world, is being implemented as part of overall national energy policy (Box 7.1).

A peculiarity of renewable energy in Uzbekistan is that renewable energy technologies, except for hydroelectric resource technologies, are not used on an industrial scale and, like all new technologies that are still in the development and adoption stage, must initially receive political and economic support. Experience of other countries where renewable energy technologies have been developed to a certain degree shows that renewable energy technologies can become competitive with traditional energy production technologies only if they receive such support.

Such support has taken the form of targeted development programs, special laws and normative legal documents adopted by the government and its agencies for the purpose of providing favorable conditions to support foreign trade, personnel training as well as media coverage of the aims and goals of new technology development.

Further political support from the Government of Uzbekistan to develop renewable energy came in the form of a Government Resolution, On the Results of Socio-economic Development in 2005 and the Top Priorities for Adding Momentum to Eco-

nomic Reforms in 2006. The Government used the Resolution to obligate stakeholder ministries and departments in the Government to draft and submit for Government approval a Program of Specific Measures for the Economical Use of Energy Resources for the Period 2006-2010, specifically providing for extensive use of non-traditional alternative sources of energy.

Many economic and energy sector development programs in Uzbekistan devote attention specifically to renewable energy development issues. For example, the Program of Measures for the Overall Direction of the Economy, adopted by the Cabinet of Ministers of the Republic of Uzbekistan in 2000, called for drafting a program to develop modern resource-saving technologies, to promote sound and economical use of energy resources and to develop alternative sources of energy which would be adopted gradually by economic sectors and public service agencies. Likewise the Program for the Development and Modernization of Power Generating Capacity in the Republic of Uzbekistan for the Period 2001-2010 makes provision for expanding the use of alternative sources of energy: solar collectors and wind-driven generators.

To date, implementation of these programs, which are far behind schedule, has been proceeding slowly. Experience of other countries shows that drawing up program measures exclusively without drafting special legislation to regulate issues related to the use of renewable energy sources, including price regulation, is not sufficient for large-scale development of renewable energy.

Uzbekistan has so far adopted no special normative-legal documents pertaining to the development of renewable energy sector, although a number of umbrella documents regulating relations in this sphere do exist.

Box 7.1

A specific example of Government support for the development of renewable energy sector in Uzbekistan is the Development of Small Hydropower in Uzbekistan Program, approved 28 December 1995 by Resolution #476 of the Cabinet of Ministers of the Republic of Uzbekistan, On the Development of Small Hydropower in the Republic of Uzbekistan.

Laws of the Republic of Uzbekistan regulating individual renewable energy development issues include:

- On Competition and Limiting Monopolism in Commodity Markets, 1996
- On the Rational Use of Energy, 1997
- On Natural Monopolies, 1997
- On Licensing Certain Kinds of Activities, 2000

The Law of the Republic of Uzbekistan on the Rational Use of Energy (1997) serves as the cornerstone for the development and functioning of the entire energy sector, including renewable energy. It sets forth the general legal framework for conserving the nation's energy resources and for making efficient use of its existing production potential, fuel and energy.

The provisions of the Law apply to legal and physical persons associated with the extraction, production, refining, storage, transport, distribution and consumption of fuel and energy.

The scope of the Law was designed to achieve the following aims:

- To provide for the efficient and environmentally safe use of energy in producing and consuming energy;
- To foster the development and adoption of energy saving and lower cost technologies for extracting petroleum, natural gas, coal and other types of fuel and for producing petroleum products;
- To ensure the trustworthiness and uniformity of measurements used in accounting for the quantity and quality of energy produced and consumed; and
- To exercise government control and oversight for the efficient production and consumption of energy, energy quality, and over technical maintenance of energy equipment as well as energy supply and consumption systems.

The Law was the first to lay down, in summary outline form, the main directions of Government policy

pertaining to the sound use of energy, including:

- Implementing national, sector and regional goal-oriented programs and;
- Making provision for the stability of energy production and consumption that intensive development of the national economy requires;
- Optimizing energy production and consumption modes, and energy accounting management;
- Fostering the production of energy-saving equipment and products with minimum per unit expenditures of energy;
- Including energy efficiency indicators for energy producing and energy consuming equipment and products in normative documents;
- Establishing government control and oversight of energy quality, energy efficient production and energy consuming products;
- Organizing energy efficiency studies of enterprises, firms and organizations;
- Conducting energy assessments of products, facilities, technologies and equipment currently in use or being upgraded;
- Creating demonstration zones to showcase projects featuring highly efficient use of energy;
- Promoting the development of energy efficient and ecologically clean technologies and production; and
- Organizing statistical surveys of energy production and consumption.

A special article in the Law sets forth overarching conditions in which renewable energy sources are to be used with a view to promoting the development of renewable energy in Uzbekistan.

The special article grants independent electricity and thermal energy producers the right to release energy into power grids which are placed under obligation to accept the energy from said independent producers at duly established prices. An authorized

body – presently the Ministry of Finance of the Republic of Uzbekistan – establishes those prices.

An important stipulation of the Law on the Rational Use of Energy is that in establishing prices for electricity and thermal energy produced by independent producers so as to foster the adoption of renewable energy technologies, provision must be made for accelerating the return of capital invested to build facilities which use renewable energy sources.

For these same reasons, the Law makes provision for granting subsidies from the Energy Saving Fund to legal and physical persons who take measures to reduce energy consumption and to use secondary energy resources and renewable energy sources.

Nevertheless, the process of creating an environment conducive to the development of renewable energy in Uzbekistan is being held back because documents the Law stipulates are to be enacted have not been enacted - documents regulating: procedures, conditions and size of subsidies, conditions for gaining access to energy grids and procedures for establishing renewable energy prices.

At present, renewable energy technologies in Uzbekistan (except for hydropower) are used as stand-alone sources for supplying power to individual small-capacity consumers.

The bulk of renewable energy technologies do not negatively impact the environment or the public's interests and health. At the same time, for example, experience in building and operating hydro power plants shows they can lead to flooding of surrounding lands and experience in operating garbage incineration facilities and biogas electricity plants shows they can do damage to the environment and the public interest.

Such activities (construction of electricity plants, garbage incineration facilities, etc.) may therefore require the government to establish special requirements and conditions for legal and physical persons

through licensing their activities that use renewable energy technologies.

In accordance with the Law on Licensing Certain Types of Activities (2000), at the present time only producers of electricity connected to a unified electric power grid can be licensed in Uzbekistan (Box 7.2).

No licensing of any kind is required for producers of electricity not connected to a unified grid or producers of heat energy or biogas.

What makes it even more difficult for physical persons to obtain permission to produce electricity is that, pursuant to legislation now in force, only legal persons may be issued licenses to produce electricity.

Government unitary enterprises and firms are in the best position because they are established by the Cabinet of Ministers of the Republic of Uzbekistan and as such are authorized to perform a licensable activity without having to obtain a license to perform said licensable activity, so long as said licensable activity is specified in the charter documents of a unitary enterprise or firm.

Licenses conferring the right to produce electricity are issued per order of the government agency Uzgosenergonadzor Inspectorate, the working arm of the special Commission of the Cabinet of Ministers of the Republic of Uzbekistan that licenses the production of electricity at stationary electric power plants.

Box 7.2

Electricity production is licensed in accordance with Regulations on Licensing Electricity Production at Stationary Electric Power Plants Connected to a Unified Energy System, approved by Resolution #469 of the Cabinet of Ministers of the Republic of Uzbekistan, dated 28 October 2003.

Conditions for independent power producers

Resolution #476 of the Cabinet of Ministers of the Republic of Uzbekistan, approved 28 December 1995, On the Development of Small Hydropower in the Republic of Uzbekistan is another legal document that bears directly on the regulation of the use of renewable energy sources. What is important

about the Resolution is that it is the first document to make provision for regulation of certain issues associated with independent power producers using renewable energy technologies.

However the Resolution applies only to hydro

power plants belonging to the Ministry of Agriculture and Water Resources of the Republic of Uzbekistan and does not apply to other renewable energy technologies. But actual practical interaction between the power systems of specialized company Uzbekenergo and hydro power plants of the Ministry of Agriculture and Water Resources (i.e., independent power producers) is such that the Resolution could serve as the basis for drafting a more comprehensive normative act.

Matters arising in connection with concluding, implementing, amending and repealing business agreements between the specialized company Uzbekenergo and independent power producers are governed as well by the Civil Code of the Republic of Uzbekistan, the Law of the Republic of Uzbekistan on the Contractual-Legal Basis for Business Activities, and by the Rules and Regulations for the Use of Electricity.

Overview of pricing policy and energy prices

To provide steady funding for the Development of Small Hydropower in Uzbekistan Program, the Government has established procedures whereby money obtained from the sale of electricity produced by hydro power plants of the Ministry of Agriculture and Water Resources must be reinvested for the purpose of developing small hydropower. However, as already indicated above, the Development of Small Hydropower in Uzbekistan Program is way behind schedule.

Since the early days of independence in Uzbekistan, pricing policy (Box 7.3) has been implemented, as is well known, so as to create conditions conducive to enabling enterprises in all economic sectors to be financially self-supporting.

At the same time, the Government seeks to provide social protection for its people, place limits on monopolistic market behavior, and develop a competi-

The Law serves as the basis for business agreements which establish specific obligations and responsibilities of the sides, amounts and costs of electricity to be provided, billing and payment procedures and other conditions for business relations between the sides.

The legal documents cited above, as well as taxation and customs legislation, pertain not only to the renewable energy sector but to all other economic sectors as well. So though a special chapter in the Rules and Regulations for the Use of Electricity may discuss how consumers connected directly or through a customer service buffer to the electricity system power grid interface with independent electricity producers, the Rules and Regulations themselves govern how all consumers interface with the energy system even though they make no mention of producers using renewable energy technologies.

tive market. For these purposes, the Government has adopted legislation empowering it to exercise direct regulation of the activities of enterprises and organizations occupying a monopolistic market position.

Enterprises and organizations falling in this category in Uzbekistan include those that engage in: coal mining; oil drilling and transport; extraction of natural gas condensate, petroleum products and natural gas; generation and transmission of electricity and thermal energy.

Regulation of their activities is exercised through price regulation or by defining which category of consumers must use the energy they produce (Table 7.1). At present, the Ministry of Finance of the Republic of Uzbekistan implements price regulation of the activities of natural monopolies, including those of the specialized company Uzsuvenergo.

Box 7.3

1. Price Formation Procedures and Control of Their Application, approved by the Cabinet of Ministers of the Republic of Uzbekistan 31 March 1997, in Resolution #165, On Measures for the Implementation of the Law of the Republic of Uzbekistan On Competition and Limiting Monopolism in Commodity Markets.
2. Rules and Regulations for Procedures for Establishing Prices approved by the Cabinet of Ministers of the Republic of Uzbekistan 21 September 2000, in Resolution #364 On Measures for the Implementation of the Law of the Republic of Uzbekistan On Natural Monopolies.

Table 7.1

Energy prices in Uzbekistan as of 1 April 2006

Energy type	Price per unit, in UZS
Electricity for the public, kWh	36.25
Electricity sold by hydro power plants of the Ministry of Agriculture and Water Resources, kWh	26.55
Hot water for the public (city of Tashkent) (metered), Gcal	443.0
Natural gas for the public (metered), m ³	12.72
Natural gas, wholesale price for enterprises, m ³	43.4

Subsequent adoption of market mechanisms for the sale of goods and services in Uzbekistan introduced along with the concept of “free and regulated prices” resulted in the concept of a “stock exchange” price for types of fuel resources, such as heating oil and certain other kinds of petroleum products. Nevertheless, certain kinds of energy resources continue to be sold at regulated prices. So even though electricity, thermal energy and natural gas prices have been rising steadily in recent years, they still remain significantly below world market prices. In

September 2005, for example, the world price for natural gas was USD 0.52 per m³ [21].

Current prices for some resources do not allow energy utilities to be financially self-supporting and the government is now undertaking measures to resolve this issue. Starting in 2007 the transition to financial self-sufficiency for centralized heating for the public will be implemented and the price the public pays for natural gas will gradually approach the wholesale price [27].

7.2 Support and incentive schemes

The Government of Uzbekistan has had significant experience providing support and incentives for socio-economic development or certain activities in specific directions [30]. It has provided that support in various ways, including:

- Planning and implementing various development programs;
- Supporting foreign trade efforts of enterprises and organizations;
- Instituting simplified procedures for: registration of entrepreneurial entities, licensing their activities, filing government statistical and bookkeeping reports and certification of what they produce;
- Organizing training, retraining, and professional development for employees working in the field of renewable energy sources;
- Publicizing in the mass media the goals and aims of developing renewable energy and ac-

tivities in the field of renewable energy; and

- Setting up targeted government funds, such as the Energy Saving Fund, defined in the Law on the Rational Use of Energy.

All of these aspects of government support can be used to expand the use of renewable energy in Uzbekistan.

Furthermore, a legislative framework has been established for obtaining commercial bank loans. The terms for granting such loans are the same as those in most countries of the world: ability to repay, security, promptness of payment, and use for designated purpose.

Loans for ongoing and investment activities of enterprises and organizations are granted using resources of commercial banks themselves as well as various non-budget fund credit lines: the Fund for Supporting Collective Farms and Farms, the Employment Assistance Fund, and others.

The interest rate on a loan is basically determined

by mutual agreement between the borrower and the bank.

The credit rate for soft loans is a fixed rate. For example, interest rates on soft loans from non-budget fund credit lines, depending on an investment project's purpose, are fixed as follows [30]:

- For raising initial (startup) capital - 1/6 of the Central Bank's going refinancing rate;
- For developing and expanding collective farms and farms, acquiring agricultural equipment, and constructing farm buildings - 1/3 of the Central Bank's going refinancing rate;
- For producing and complete reprocessing of raw materials and physical materials, for developing local industry - 2/5 of the Central Bank's going refinancing rate; and
- For other purposes, as specified in legislation, - 45% of the Central Bank's going refinancing rate.

Small business loans from non-budget fund credit lines are granted for a set amount of time and without right of extension.

The terms for granting loans and preferential pay-back periods from other non-budget fund credit lines are established by a general agreement between a commercial bank and the non-budget fund based on their regulations and charters approved according to duly established legislative procedures. To obtain a loan, a borrower must put up security as stipulated in Central Bank legal acts.

Micro-credit and micro-loans for small businesses are also undergoing development in Uzbekistan, with micro-loans not permitted to exceed the following amounts:

- For individual entrepreneurs and collective farms not established to conduct business as a legal person – the equivalent of USD 5,000; and
- For collective farms and farms, micro-firms, and small enterprises established to conduct business as a legal person - the equivalent of USD 10,000.

Micro-loans are granted by commercial banks for

up to three years for the following purposes:

- To acquire mini-equipment;
- To develop and expand one's own production;
- To do primary processing of raw materials and physical materials;
- To purchase work tools, raw materials, semi-finished materials and furniture;
- To produce folk arts and crafts articles and applied arts articles;
- To develop the arts and crafts movement, to organize cottage industries;
- To develop service industries and personal services for the public;
- To develop public health;
- To develop the tourist industry;
- To organize small-scale manufacturing; and
- To engage in other kinds of entrepreneurship, not prohibited by legislation of the Republic of Uzbekistan, associated with the production of goods of mass consumption and with the services sector.

The interest rate on micro-credits is established by mutual agreement between a borrower and a bank on the basis of a loan agreement not to exceed the officially established Central Bank refinancing rate.

When commercial banks issue micro-loans from the special Preferential Credit Fund, interest rates are set at an amount not to exceed 50% of the Central Bank's refinancing rate on the date of issue of the micro-loan.

For purposes of obtaining a loan, a borrower may present to a bank security in one of the following forms:

- Property or securities;
- Bank or insurance company guarantee;
- Third party surety;

- Insurance policy of an insurance company to insure against the risk of the borrower's defaulting on the loan [24].

Development of micro-crediting in Uzbekistan was given major impetus following the May 2006 Decree of the President of Uzbekistan on the Creation of the Commercial Joint Stock Bank Mikrokreditbank [28], whose principal goals were defined in the Decree as follows:

- To grant micro-loans, to provide the full spectrum of banking and consulting services to small businesses, private entrepreneurs, farms and collective farms to enhance and expand their productivity;
- To promote the expansion of the entrepreneurial sector by fostering and supporting through micro-crediting and micro-leasing the development of micro-firms, family businesses, and working at home; and
- To continue to develop, particularly in rural areas, the financial infrastructure through a system of subsidiaries and mini-banks, pro-

viding additional opportunities for serving small businesses and private entrepreneurs.

Mikrokreditbank will grant:

- Soft micro-loans for business start-ups for a period of up to 18 months for up to 200 times the minimum monthly salary at an interest rate not to exceed five percent;
- Micro-loans for expanding small business operations and replenishing current assets for up to 24 months for up to 500 times the minimum monthly salary at an interest rate not to exceed the Central Bank refinancing rate; and
- Micro-licensing services for small businesses for up to three years for up to 2000 times the minimum monthly salary at an interest rate not to exceed the Central Bank refinancing rate.

These recently created micro-crediting options can be used for developing renewable energy in Uzbekistan, particularly in rural areas.

7.3 Assessment of renewable energy development mechanisms

Existence of a major renewable energy potential is a necessary but not sufficient condition for incorporating renewable energy in a country's energy balance on a large scale.

International experience in the adoption of renewable energy technologies bears out the fact that each country has its own specific legal, economic, technological, psychological, informational and other barriers that militate against the adoption and development of renewable energy sources technologies. Not all of them are directly related to renewable energy technologies but they still manage to inhibit the large-scale development of renewable energy potential.

Strategic and legislative mechanisms

The Government of Uzbekistan's long-term goals for using renewable energy sources have not yet been defined.

A single national strategy and a carefully thought out comprehensive targeted program must be adopted if the Republic's renewable energy tech-

Identifying and eliminating or overcoming these barriers often requires significant and long-term government efforts and there must be organizations and individuals with a stake in the adoption and subsequent development of renewable energy technologies.

Specific mechanisms conducive to renewable energy technologies development on a greater scale in Uzbekistan identified in recent studies have served as the basis for a series of recommendations for removing or overcoming barriers to the development of renewable energy technologies.

nologies are to develop successfully. The Development of Small Hydropower in the Republic of Uzbekistan Program, adopted at the end of 1995, focuses on the development of the hydropower potential of artificial watercourses and reservoirs only, to the exclusion of rivers.

The Law of the Republic of Uzbekistan on the Rational Use of Energy (1997) now in force addresses the following issues regarding the use of renewable energy sources: access of independent power producers to energy utility grids, accelerated return of capital investments in renewable energy technologies, and opportunities for individuals using renewable energy sources to obtain subsidies from the non-budget cross-sector Energy Saving Fund. Al-

though the provisions of the Law are being implemented, the Law calls for the enactment of other documents which have not been enacted.

The lack of official certification and associated national technical standards for renewable energy technologies is an important factor holding back the development of renewable energy.

Economic and financial mechanisms

Economic conditions and financial incentives are important prerequisites for the successful adoption of new technologies. However, the reality of the situation is that a large number of economic and financial issues remain unresolved.

Domestic natural gas and electricity prices in effect in Uzbekistan are significantly lower than world market prices and prices for energy resources in European countries. For example, at the end of 2005 the wholesale price for natural gas in Uzbekistan was nearly 15 times lower than the world price, and for household consumers the price was over 50 times lower than the world price [24].

Such energy resources prices sharply undercut the competitiveness of renewable energy technologies. What is more, electricity and heating consumption are still being subsidized and those subsidies influence the behavior of potential renewable energy consumers when choosing energy supply systems.

Customs duties on imported renewable energy system components and systems and the lack of tax incentives for local producers who make and consumers who use renewable energy technologies make renewable energy technologies in Uzbekistan uncompetitive.

The lack of familiarity potential consumers of renewable energy technologies have with the criteria and rules for obtaining financial support (including how much support is available) from the non-budget cross-sector Energy Saving Fund and the lack of grants, subsidies and loans from other sources are other factors limiting the development of renewable energy.

Furthermore, the financial ability of many of Uzbekistan's enterprises to buy imported equipment is limited, while the banking system's renewable energy technology transfer efforts are not sufficient.

Institutional and other mechanisms

The presence of a requisite institutional base is a key factor in the successful adoption of new technologies. Without a government body with responsibility for resolving renewable energy issues, it is impossible to coordinate efforts to draft and implement a renewable energy development strategy or promote the development of an renewable energy market and overcome barriers that arise [24].

Only certain enterprises and organizations (small hydro power plants, solar heating) have experience in working with renewable energy systems. Most renewable energy technologies in Uzbekistan (photovoltaic facilities, micro hydro power plants, wind-driven generators, biogas generators, boilers run on biomass, etc.) have yet to be adopted or are used minimally.

With its large number of well qualified managerial and scientific and technical personnel experienced in developing, planning and using renewable energy technologies, Uzbekistan's efforts to develop and adopt renewable energy technologies on a large scale can succeed.

To develop and adopt renewable energy technologies on a large scale specific efforts are necessary to *strengthen the legislative, legal and institutional framework* and to create favorable economic conditions and incentives.

It has been the experience of certain countries (e.g., Germany and China) that passage of a special renewable energy law lends great impetus to the use of renewable energy sources technologies.

It would be expedient to consolidate all of the rights and terms of reference scattered in various legislative acts of the Republic of Uzbekistan regarding separate renewable energy issues into a *single renewable energy act*.

To speed up the process of adopting renewable energy sources, it is imperative that a *government body be designated* as explicitly charged with the responsibility to manage and coordinate efforts to implement a renewable energy development strategy. That government body, in cooperation with all stakeholder organizations and the mass media, is to devise and implement plans for fostering the use of renewable energy sources.

The national and regional renewable energy *development strategy* as well as medium-term and long-term renewable energy *development goals* must be clearly formulated, otherwise it will be impossible to provide for the sustainable development of the renewable energy sector. Nor can the strategy be successful unless the renewable energy sector's major organizations participate in its formulation and unless energy utilities contribute to achieving renewable energy development goals and solving renewable energy development problems.

Issues regarding relations between utilities and legal and physical persons in selling (marketing) to centralized energy grids fuel and energy produced

using renewable energy sources must be resolved through legislation.

To make locally produced renewable energy technologies equipment competitive it must meet national and international standards. Hence, the technical standards required for the development and use of renewable energy technologies and energy produced using renewable energy sources need to be drawn up immediately.

To promote the success of renewable energy technologies, *incentive schemes* compatible with conditions in Uzbekistan, need to be developed. Specifically, a special non-budget Renewable Energy Development Fund can be established which would support research and development in renewable energy and construction of renewable energy facilities and provide incentives for local production of renewable energy technologies equipment.

Furthermore, producers of renewable energy technologies equipment and manufacturers of products (services) made with the use of renewable energy sources can be granted *tax and customs incentives*, while monetary resources of local banks can be marshaled by encouraging financial organizations to grant soft loans to renewable energy projects.

Clearly, implementing such measures will require no small amount of time and effort. Hence, it would be advisable to immediately devise an appropriate *action plan* identifying high priority measures.

The renewable energy facilities and technologies listed below are already competitive and turning a profit in conditions in Uzbekistan today:

- Small hydro power plants functioning as part of the energy system and stand-alone micro hydro power plants in remote mountain villages;
- Wind-driven generators connected to low-capacity electricity grids of the electricity system in regions remote from the center;
- Solar water heating plants for producing hot water for household consumers and low ca-

capacity plants of public services facilities;

- Binary biogas generators for producing heat and fertilizer; and
- Hybrid wind-solar stand-alone plants as sources of electricity for small-capacity devices in remote piedmont pasturelands and for communications systems.

Devising a long-term renewable energy strategy and renewable energy development goals and as-

sociated incentive schemes would create a foundation conducive to wide-scale development of a new economic sector in Uzbekistan and, above all, solar energy which accounts for 99% of its total renewable energy potential.

It is no accident that Uzbekistan is described as “sunny” and the merger of hundreds of thousands of solar devices could become the symbolize Uzbekistan’s economic growth and prosperity in the 21st century.