

# **Application of clean energy technologies for rural areas in Central Asian countries**

Concept note

Economic Commission for Europe

**(\$68,600)**

## **Background**

The Sustainable Energy for All (SE4ALL) Initiative of the UN Secretary-General is expected to catalyse major new investments to speed the transformation of the world's energy systems, eliminate energy poverty, and enhance prosperity. UN Secretary-General launched this initiative to mobilise stakeholders to take concrete action toward three critical objectives to be achieved by 2030: (1) ensuring universal access to modern energy services; (2) doubling the global rate of improvement in energy efficiency; and (3) doubling the share of renewable energy in the global energy mix.

While all Central Asian (CA) countries have higher than the global average energy access rates, some rural areas in these countries still have no access to the electricity network and use inefficient biomass unsustainably. For example, In the Murgab area of Badakhshan, in eastern Tajikistan the local “teresken” plant is the only source of fuel, and it has been almost nearly eradicated within an 80 kilometers radius of villages. More generally, uncontrolled deforestation causes land degradation, and the elimination of trees and other plants leads to erosion, landslides, avalanches, floods and mudslides, and hence dust storms.

Electric power is necessary for irrigation and light industry in rural areas, and the private sector will not invest in small and medium-scale industries unless they have assured power supply. In the near term, the lower-cost technological solutions, including non-conventional and renewable energy sources, could be suggested for off-grid communities.

Recently UNECE completed activities under the project “Analysis of Advanced Technologies in Energy Efficiency and Renewable Energy in the Framework of the Global Energy Efficiency 21 Project and Preparation of Recommendations on its Application with Special Emphasis on Central Asian Region” sponsored by the Government of the Russian Federation.

The proposed study will expand scope of the mentioned project and target clean energy mini/micro-grid solutions for rural and industrial applications. This topic is relevant not only to the completed project but also to one of the Action Areas, which support SE4ALL objectives: Providing access to electricity through off-grid, micro- and mini-grid solutions, including targeted applications for productive uses.

**Objective:** To contribute to the development of enhanced access to electricity through off-grid, micro- and mini-grid solutions in rural and remote areas in CA countries.

**Relationship to the Strategic Framework for the period 2014-2015, the internationally agreed development goals, the Millennium Development Goals, and major UN conferences and summits**

The project is directly linked to the Sustainable Energy for All (SE4ALL) Initiative of the UN Secretary-General

**Expected accomplishments**

EA1. Strengthen capacity of Governments and other stakeholders in the CA countries to meet SE4ALL Initiative objectives and to enhance access to electricity through off-grid, micro- and mini-grid solutions in rural and remote areas.

**Indicators of achievement**

IA1.1 Increased number of national officials and experts able to develop policies aimed at SE4ALL objectives;

IA1.2 Increased number of recommendations on the most sustainable arrangements for clean energy technologies application in off-grid remote areas.

**Main activities**

The main activities of the project will include:

A1. Conduct an assessment of access to energy services provided also by off-grid solutions with the focus on rural and remote areas of the CA region countries in order to identify:

- the sources of energy (technologies, equipment) which are still used in the country but could not be considered as modern and sustainable sources of energy according to the national standards and approaches;
- the quantity of people using such sources of energy;
- the amount of investments needed to provide 100% access of population of the country to modern and sustainable energy services according to the national standards and approaches.

A2. Identify potential renewable energy sites close to productive use loads in rural and remote areas in the countries. These may include sites with unreliable electricity distribution or off-grid;

A3. Conduct on site analysis on potential utilization of remote small scale renewable energy equipment applications for identified sites and estimate the cost of production of power for each kind of installations;

A4. Develop a prefeasibility study for future implementation as a pilot project. Project proposal preferably should be based on national technologies and installations on renewable sources of energy and aimed at providing sustainable energy services (heat and/or electricity supply) for rural and remote areas or some specific type of economic units (like highland and remote pastures) relevant to the country and CA region as a whole;

A5. Based on conducted assessments to develop set of recommendations on the most sustainable arrangements for clean energy technologies application in off-grid remote areas;

A6. Present the results of the project at the end-of-the-project workshop for experts and Governmental officials from Central Asian countries.

#### **Detailed Description for each budget line**

##### **National Consultants (\$18,000)**

###### National / Regional consultants

- National consultants for preparing assessment of access to energy services and evaluation of alternative scenarios for RE technologies application in remote rural areas in Central Asian countries, in support of activities A1-A3 (3 WM) x (\$1,500 per month) x (4 countries) = \$18,000

##### **Contractual services (\$11,000)**

###### Completion of prefeasibility study

- Institutional contract with sub-regional energy institute for development of prefeasibility study for future implementation as a pilot project in one of the CA countries in support of activities A4 - A5.

##### **Travel of staff (\$7,500)**

###### UNECE Staff

- Organising, coordinating and contributing to workshop, in support of activities A6 (\$2,500) x (3 persons) = \$7,500

##### **Workshop (\$24,000)**

###### Workshops

- End-of-the-project workshop in the CA region, in support of A6. (\$1,200 per participant) x (25 participants) = \$24,000

##### **Operating expenses (\$200)**

###### Communications

- In support of A1 – A6 and A6. \$200

**Total: \$60,700**

**13% programme Support Cost: 7.900**

**Total project budget: US\$ 68,600**