

## **CASA-1000 Project** **List of FAQs**

### **1. What is the objective of the project?**

The objective of the CASA-1000 project is to provide for the export of the available summer electricity surpluses from Tajikistan and Kyrgyz Republic to Pakistan and Afghanistan.

Both Tajikistan and the Kyrgyz Republic have substantial (about 80,000 MW) hydropower potential, only a relatively small proportion of which (about 10 %) has been developed to date. A major part of the river flows occur during the summer period; and thus both countries face electricity deficits in the winter when demand is greatest, and have surplus electricity in the summer.

Afghanistan, the Kyrgyz Republic, Pakistan and Tajikistan have been pursuing the development of electricity trading arrangements and the establishment of a Central Asia - South Asia Regional Electricity Market (CASAREM) for a number of years. One of the key components of this initiative is the development of the cross-border transmission interconnection linking the countries to facilitate the transfer of surplus power between the regions. The CASA-1000 project would enable a trade of 1000-1300MW of clean electricity between the two regions.

### **2. What are the recommended project components?**

The feasibility study update commissioned by the World Bank to address residual issues and update the costs and economic analysis of the CASA-1000 project has recently been concluded by the Consultants (SNC-Lavalin of Canada). The study confirms both the soundness of the considerations that led to the initiative to develop CASAREM and the economic viability of the CASA-1000 project. Based on the analyses carried out for the study, the recommended project is as follows:

- A 500 kV AC line from Datka to Khoujand (477 km) to transfer the surplus power from the Kyrgyz Republic to Tajikistan, with the Tajikistan internal network transferring this power to Sangtuda;
- A 220 kV single circuit AC line (80 km) in Tajikistan between Nurek and Sangtuda substations;
- A 1300 MW AC-DC Converter Station at Sangtuda;
- A 750 km HVDC line from Sangtuda to Peshawar via the Salang Pass and Kabul;
- A 300 MW DC-AC Converter Station at Kabul; and
- A 1300 MW DC-AC Converter Station at Peshawar.

The HVDC line has a length of 117 km in Tajikistan, 562 km in Afghanistan and 71 km in Pakistan.

### **3. What is the estimated project cost?**

The total project cost, including contingencies and interest during construction, is estimated at US\$953 million. The project will adhere to international standards and will be bid internationally.

The country-wise allocation of costs, based on the understanding that each country will bear the cost of the facilities on its territory, is as follows:

<b><u>Country</u></b>	<b><u>Project Cost (US\$ M)</u></b>
Afghanistan	309
Kyrgyz Republic	196
Pakistan	197
Tajikistan	251
<b>TOTAL</b>	<b>953</b>

#### **4. What is the foreseen implementation period?**

The Consultants have estimated that the project can be completed within a minimum of 58 months, but also note that the completion period may be extended by up to twelve (12) months depending on a number of different factors, including the timely selection of qualified commercial advisors for each of the countries.

#### **5. Is the project technically and economically viable?**

The feasibility update study confirms the soundness of the considerations that led to the CASAREM initiative to develop a regional market, i.e.

- sufficient quantities of surplus electricity are available in the Central Asian countries (the Kyrgyz Republic and Tajikistan);
- a significant need for electricity imports exists in South Asia (particularly Pakistan) to meet existing and projected demand; and
- differences in the cost of electricity between the importing and exporting countries potentially provide a justifiable rationale to make transmission investments in order to support the electricity trade.

The study gives a positive assessment of the technical and economic viability of the project even with the very conservative assumption of no new generation being added to the Kyrgyz and Tajik systems over the life of the CASA-1000 project. Only generation from existing plants and from those new projects that are already under construction, have committed financing, and can be reasonably expected to be commissioned in the next few years is considered in the base case economic analysis, which gives a benefit-cost ratio of 1.34 (for a discount rate of 10%) and an EIRR of 15.6%. Given the substantial winter shortages already existing, it is almost certain that new generation capacity will have to be added, and thus the project has significant economic upside. The existence of this transmission facility, with some unutilized capacity and with commercial arrangements already in place, could in itself attract private sector investment in new generation projects in Central Asia.

#### **6. What are the foreseen environmental and social impacts, and how will these be mitigated?**

The Environmental & Social Impact Assessment (ESIA) is in progress and is expected to be completed by September 2011. The study would build on the previous work done by SNC-Lavalin on environmental and social impacts, which had indicated low environmental and social footprints due to the nature of the project, the steps already taken to avoid any potentially sensitive areas, and the flexibility available to locally adjust the alignment of the transmission line and the location of individual tower foundations. The study is also expected to recommend measures to benefit the communities along the CASA transmission link.

The project cost estimate includes a provision for environmental and social mitigation costs based on the previous work done by SNC-Lavalin, suitably escalated. These provisional costs will be updated on completion of the ESIA Study.

#### **7. What will be the impact of the project on the winter energy deficits in Tajikistan and the Kyrgyz Republic?**

As the project is designed to export the available summer surpluses from the two countries, it will have no direct impact on the winter energy deficits.

However, there are the following two potentially positive impacts:

- The revenues generated by the export of the summer surpluses could be used to undertake measures to reduce the winter deficit.

- As these countries develop additional generation capacity to meet their winter demand, they will generate additional summer surpluses; the ability to export these additional summer surpluses through the CASA-1000 project will improve the viability of these projects and reduce the cost of supplying winter energy to domestic consumers.

**8. *What will be the potential benefits for each of the four countries?***

For the two exporting countries, the project will generate valuable foreign exchange revenues from export of surplus summer electricity – it is expected that appropriate and transparent mechanisms will be in place to monitor that these revenues are optimally used for the benefit of the people of Tajikistan and the Kyrgyz Republic. The project will also create a direct transmission link between these two countries and this will improve the overall transmission network in the region.

For Afghanistan, the project will provide a valuable source of additional clean summer energy that could be used for meeting domestic demand and/or for re-export to Pakistan.

For Pakistan, shortage of electricity is a major constraint to economic growth and consumers are subject to frequent and extended blackouts. The peak demand in Pakistan is in the summer and thus the CASA-1000 imports will be quite beneficial.

Successful implementation and operation of the project will also create a precedent for exports from future generation projects in Central Asia through new transmission projects to other regions.

**9. *What are the regional implications of the project?***

The CASA-1000 project, which is proposed to be the first phase of this market development, will be a transformative project for both Central and South Asia. It will:

- Set the stage for a much greater degree of energy trade between Central and South Asia.
- Establish Afghanistan's role as a viable transit country, enhancing its growth prospects.
- Ensure a steady source of export revenues for Tajikistan and the Kyrgyz Republic.
- Alleviate electricity shortages in Pakistan during the peak summer season.

**10. *What are the immediate next steps visualized in project preparation?***

The immediate next steps are expected to be the following:

- Each of the four countries will seek internal approvals to proceed with the project.
- The countries will then seek financing for the project from the international financing institutions and other potential co-financiers.
- The countries will review and have updated, as necessary, the work previously carried out on the implementation structure for the project.
- The countries will hire commercial advisors (primarily legal) and commence negotiations to finalize the commercial/contractual agreements.

**11. *Who will finance the project?***

As stated above, one of the next steps to be taken by the countries is to seek financing for the project from the international financing institutions and other potential co-financiers. Completion of the feasibility update study and the resulting positive assessment of the technical and economic viability of the project was a prerequisite for this next step.

## **12. What implementation arrangements are foreseen?**

Significant work on the implementation structure for the project was carried out earlier. The recommended structure was as follows:

- On behalf of the Governments, the development efforts would be coordinated and led by the Inter-Governmental Council (the “IGC”) established by the Governments to oversee development and implementation of the project.
- IFC InfraVentures would assist the Governments in the co-development of the project (i) by providing the perspective of a potential commercial partner until such time as the Commercial Sponsor was selected, and (ii) by performing and funding certain preparatory activities that might normally be provided by a Commercial Sponsor.
- Development, construction, operation and maintenance of the project would be undertaken by a private sector company to be selected through competitive bidding, which would result in the awarding of a long-term concession to the “Commercial Sponsor”.
- A special purpose company (“Concession Company”) would be established by the Sponsor to construct and operate the project.
- Each country would establish a special purpose entity to own the facilities to be constructed on its territory under the project (each a “Line Company”).
- Each Line Company would lease the relevant transmission line facilities and all the land on which they are constructed to the Concession Company.
- IFC InfraVentures would make equity investments in the Concession Company by conversion of the development expenses incurred by them into common shares of the Concession Company.
- The Concession Company would make an equity investment in each of the Line Companies.
- An Account Bank Agreement would be signed to consolidate all payments and disbursements made in connection with the project under one agreement and to establish accounts to hold the funds received from these payments and the funds allocated for distribution to various parties.

Broad agreement on this recommended structure was reached between the four Governments in 2008, and certain aspects were identified that needed further consideration.

## **13. What commercial agreements are visualized?**

The following commercial agreements are currently visualized:

- Concession Agreement between the Concessionaire and the Governments.
- Power Purchase Agreement between buyers and sellers of power.
- Transmission Services Agreement between the Concession Company and the initial users of the transmission facilities.
- Facilities Lease Agreement between the Concession Company and each country's Line Company.
- Account Bank Agreement under which a trustee bank will administer cash flows between all relevant project participants.

## **14. Who will be responsible for operation of the project?**

From an operational perspective, there are significant differences between AC and DC interconnections. Power and current orders can be selected ahead of time and programmed in a DC interconnection, whereas in an AC interconnection the desired transfer level has to be maintained by continuously

adjusting the generation levels in the connected AC systems to cater for changes in the demand and supply in each system. Thus, a DC interconnection can be more easily controlled and operated as an independent facility.

It is envisaged that development, construction, operation and maintenance of the project would be undertaken by a private sector company (the Concession Company) to be selected through competitive bidding. The responsibility for operation of the DC facilities will be with the Concession Company. It has yet to be decided whether the AC facilities -- in particular the Datka-Khoujand 500 kV AC line -- would be operated by the Concession Company or by existing high-voltage transmission operators as a part of the regional AC grid.

**15. How will the exports be shared between Tajikistan and the Kyrgyz Republic?**

The exports will be shared between Tajikistan and the Kyrgyz Republic in accordance with the terms negotiated in the commercial agreements. It is envisaged that, in the eventuality that the available summer surplus is greater than the capacity of the CASA facility in a particular period, the exports will be shared according to specified percentages.

**16. How will variations in the available surplus be handled?**

There will be significant variability in the available summer surpluses due to variations in river flows. This will be particularly critical in a dry year when the available summer surplus will be reduced. To an extent, the impact can be mitigated by scheduling the exports at the peak hours of the receiving systems so as to maximize the value of this energy for the importing countries. Nevertheless, this variability in the export quantities will have to be appropriately reflected in the commercial terms to be negotiated between the exporting and importing countries governing the supply of electricity. It is expected that different quantities and prices will be negotiated by the parties for 'firm' and 'non-firm' energy.

**17. What measures are foreseen to mitigate security risks?**

Security is a key issue for the project, both during construction and operation. Security issues are primarily related to landmines, sabotage and theft of equipment. The feasibility study update recognizes that while these issues can be addressed with proper planning, they cannot be completely eliminated. Contingency plans will have to be in place to mitigate the impact of security-related issues. An additional US\$ 10 million has been included in the cost estimate to take into account the fact that construction of the line will have to take place on land that may not be totally cleared of landmines, and higher operation and maintenance costs have been assumed for the project because of security risks.

An Outage Fund to compensate for lost revenue due to outages caused by sabotage etc. is one of the options being considered, with different possibilities being examined for the financing of such a Fund.

Due diligence on the security risks will continue during project preparation, and a community benefit-sharing program is foreseen to foster project 'ownership' by the communities along the route of the line.

**18. What are the financial risks for each of the countries and how will these be mitigated?**

For the exporting countries, the main financial risks are the following:

- Failure of the importing countries to take the agreed level of exports.
- Failure of the importing countries to make timely payments for the electricity supplied.
- Failure to deliver power and incurring associated 'supply or pay' contractual penalties.

The failure of buyers to pay or make timely payment will be mitigated by appropriate 'take-or-pay' provisions in the power purchase agreements, with timely payments guaranteed by one or more of the

main project financiers. The failure to supply risk will need to be managed carefully by the exporters, both during negotiations of the commercial terms and during actual operation of the project.

For the importing countries, as alluded to above, the main financial risk is failure of the exporting countries to supply the agreed level of exports. Such a failure to supply by the exporters will result in the importers either facing a shortage of that amount of power or being compelled to turn to more expensive sources. This risk will be mitigated by appropriate 'supply-or-pay' provisions in the power purchase agreements.

***19. What measures are foreseen to address governance concerns regarding revenues generated by the project?***

As stated earlier, it is expected that appropriate and transparent mechanisms will be in place to monitor that the revenues generated by the project are optimally used for the benefit of the people of Tajikistan and the Kyrgyz Republic. One of the measures already foreseen is the creation of an Account Bank Agreement under which a trustee bank will administer cash flows between all relevant project participants.

It is likely that agreement on such mechanisms will improve the prospects for financing of the project.