September 26, 2013

This report documents the United States Agency for International Development (USAID) Affirmative Investigation for the World Bank Partial Risk Guarantee (PRG) that is under possible consideration for a lignite-fired power plant in Kosovo. USAID performed this investigation in compliance with its obligations under the International Financial Institutions Act, Title XIII, Section 1303(a)(3), requiring review of multilateral development bank projects with substantial adverse impacts.

This Affirmative Investigation began before the Environmental and Social Impact Assessment has begun but after the period for public comments on the terms of reference. USAID provided comments to the draft terms of reference (TOR) in August, 2012, and the final TOR has since been finalized and made available to the public[1].

Recognizing the potential environmental consequences of the proposed project, USAID's Environmental Team, with some participation and input from the Departments of Treasury and State and the Environmental Protection Agency compiled its Affirmative Investigation report based on interviews with select stakeholders and a review of public documents.

USAID notes that from a development perspective, energy sector development is critical to economic growth, national security and human welfare in Kosovo. USAID also notes that environmental and social analyses are an important consideration during decision-making and encourages environmental and social due diligence as part of that decision making process. With limited electricity import options, Kosovo depends on aged and inefficient coal-fired plants for the majority of its electricity supply -- resulting in chronic energy shortages. These shortages hamper the economy and lead to environmentally unsound fuel use for heating (e.g., coal and wood burnt in-home stoves) and backup power (e.g., diesel). Kosovo state transmission company analyses predict expected electric demand growth to reach peak values greater than 1,700 MW by 2030 even though Kosovo's projected generation capacity is expected to remain under 1000 MW. The economic and environmental consequences of the imbalance are expected to worsen without additional near-term base-load generation, even with the implementation of aggressive energy efficiency measures. Protests last winter further indicate the potential for social instability stemming from poor electricity sector performance.

Kosovo has developed a strategy to improve its energy sector, focused on the following:

- Closure of the least efficient base-load coal-fired power plant;
- Rehabilitation and privatization of the remaining coal-fired power plant to meet European Union Large Combustion Plant Standards;
- Privatization of the electricity distribution system;
- Private investment in a new coal-fired power plant and mine; and
- Development of energy alternatives, including renewable energy and energy efficiency.

USAID supports the Government of Kosovo's energy strategy and has focused our recent assistance on the privatization of the electricity distribution system in addition to providing support for improved

[1] ttp://www.worldbank.org/en/country/kosovo

energy sector reliability and operations. Though not engaged in the transaction for the new power plant, USAID recognizes that Kosovo has limited potential for economically-sound, near-term electric generation investments that would significantly deal with the energy shortfall. We also recognize that the World Bank PRG under consideration could encourage the necessary private investment. While it is too early to make a definitive determination, at this time this transaction appears not to be inconsistent with President Obama's decision to call "for an end to U.S. government support for public financing of new coal plants overseas, except for a) the most efficient coal technology available in the world's poorest countries in **cases where no other economically feasible** alternative exists"[2] [emphasis is added by authors]

Other options to a lignite-fired plant have been studied and considered by multiple parties. Options for natural gas supply, including an extended trans-Adriatic pipeline with a branch running through Kosovo are not expected in the near-term given project development and construction timeframes and the need for new cross-border agreements. Expanded natural gas supply would also entail building infrastructure to supply industrial and residential demand, which would be necessary to obtain project financing for the branch line. Finally, relying on natural gas would require Kosovo to allocate scarce domestic resources to the external suppliers of the gas, as opposed to taking advantage of the one energy resource it has an abundant supply of within the country.

USAID expects that, in accordance with the Government of Kosovo's energy strategy, renewable energy will be developed to serve some long-term electricity requirements in Kosovo. Indeed, USAID has several programs designed to increase the production and use of renewable energy across the region. However, the relatively low documented resource potential of solar and wind in Kosovo and the technical challenges of balancing intermittent wind and solar power with other forms of power, limit the extent to which renewable energy can currently play a role in filling Kosovo's near-term energy deficit.

Though under consideration, large-scale hydropower development is also only a long-term option. Transboundary and environmental flow issues will take time to resolve, requiring multinational agreements that would likely take significantly longer than the development of the current proposed project.

Current information indicates that while energy efficiency and renewable energy projects will help bring electricity supply and demand into equilibrium, these options will not be sufficient for Kosovo in the immediate future, and neither large-scale hydropower nor natural gas-fired plants are expected to be feasible in the near term. The existing 49% unemployment rate in Kosovo and evidence that lack of energy is holding economic growth back, makes it quite clear that significant energy supply needs to be economically developed now.

The attached Affirmative Investigation Report is limited to available information and focused solely on approaches to improve the scope and quality of the pending World Bank Environmental and Social Impact Assessment (ESIA) for the project. The results of the ESIA and the alternatives analyzed will inform the decision makers when the project comes to a vote by the Bank's Board of Directors. Except for the recommendations to improve the ESIA, this report reflects public discourse without judgment or modification by the authors.

The attached report is not a comprehensive review of the proposed PRG, and this letter only provides the development context for this proposed project. Although we will need to review all of the documentation before coming to a final recommendation on a board vote, we believe that the

[2] Page 20 http://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf

project has strong merit and that the World Bank's engagement in Kosovo's energy sector would be beneficial.

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Kosovo re Coal-fired Power Plant Project Trip Report
(December 2012)

The International Financial Institutions Act, Title XIII, Section 1303(a)(3), requires USAID to review Multilateral Development Bank (MDB) projects with potential adverse environmental and social impacts.

This review, or Affirmative Investigation, gathers information from publicly available documents, interviews and site visits. It is not a comprehensive review of the subject and only includes information available through December 2012.

The Affirmative Investigation, to the extent possible, concentrates on topics identified in section 1303 paragraph (a) sub-paragraph (2 and 3) of the International Finance Institutions Act, namely the economic viability of the project, adverse impacts on the environment, natural resources, public health, and indigenous peoples.

In addressing the potential adverse impacts on the environment, the Affirmative Investigation gathers information on potential:

- Project alternatives, including the no-project alternative, alternative methods of achieving project objectives and reasonable site and design alternatives;
- Associated facilities, i.e. new or additional works or infrastructure essential for an MDB finance project to function;
- Cumulative impacts of the proposed project, combined with the existing and reasonably foreseeable future investments in the area; and
- Data and information needs to determine the adverse impacts.

The information gathered during the Affirmative Investigation and review of project documentation culminates in an informational document that presents information collected and provides recommendations that, if followed, could eliminate or mitigate adverse environmental impacts. Other U.S. agencies, the MDBs and the Government of Kosovo may find this information and the recommendations useful when performing the Environmental and Social Impact Assessment (ESIA) and/or making decisions about the proposed project. The information presented is intended to provide context to the overall development of the project ESIA. This information and the recommendations developed during the Affirmative Investigation are made available to the public and used in the development of the Title XIII Report to Congress.

This document presents information gathered during an Affirmative Investigation for the potential World Bank (WB) Partial Risk Guarantee (PRG) that is under consideration for a coal-fired power plant in Kosovo (Kosovo C, or KC). As part of the Affirmative Investigation, USAID/Washington staff, accompanied by U.S. Treasury and USAID/Kosovo staff, conducted a site visit, interviewed project stakeholders and reviewed documents related to the proposed Kosovo C Power Plant project. The team visited the existing power plants of Kosovo A and Kosovo B and the associated coal mining operation, all of which are located near Pristina. Because the final terms of reference (TOR) for the ESIA had not been released to the public prior to the site visit, this effort is considered part of USAID's MDB early engagement strategy. The draft TOR was made available for public comment in August 2012, and the U.S. Government, including USAID, provided comments.

This document reports the information collected and observed during the early engagement phase of the Affirmative Investigation, including information obtained from meetings with stakeholders in Kosovo. Representatives from the following sectors were interviewed:

- Government of Kosovo
- U.S. Government individuals involved in the project
- U.S. Government contractors
- Representatives from the World Bank
- Non-governmental Organizations
- Donor Community
- Businesses in Kosovo

The following documents and reports were reviewed as part of this early phase of the Affirmative Investigation:

- WB – Lignite Power Technical Assistance Project Environmental and Social Safeguard Advisory Services (2007)
- WB – Lignite Power Technical Assistance Project Draft Final Strategic Environmental and Social Assessment (SESA) (2008)
- WB – Background Paper: Development and Evaluation of Power Supply Options for Kosovo (2011)
- WB – Project Appraisal Document – Agriculture and Rural Development Project (2011)
- WB – Kosovo: Kosovo Power Project Report of the Strategic Framework for Development and Climate Change (SFDCC) External Expert Panel to the World Bank (2012)
- WBG Kosovo Power Project TOR ESIA (2012)
- WB Implementation and Results Report – Lignite Power Technical Assistance Project (2012)
- WB Kosovo Country Partnership Strategy FY12-15
- WB Water Security for Central Kosovo Ibër River Basin and Ibër Lepenc Water System (2012)
- World Bank Inspection Panel request and Report
- WB Letter from VP LeHouerou to Prime Minister Thaci (March 13, 2012)
- Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control
- Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants
- EU Energy Community Treaty
- EU Commission Staff Working Document – Commission Communication of a Feasibility Study for a Stabilization and Association Agreement between the European Union and Kosovo (2012)
- Energy Community – EU Report 2011
- Energy Community – Decision of the Ministerial Council of the Energy Community – D/2012/04/MC-EnC: Decision on the implementation of Directive 2009/28/EC and amending Article 20 of the Energy Community Treaty
- EU-funded Study for Decommissioning of Kosovo A Power Plant (2010)
- USAID Kosovo – Emergency Preparedness of Kosovo Electricity Network (2012)
- USAID Kosovo "B" investment requirements and rehabilitation feasibility study (2010)
- USAID December 2012 presentation "The effect of unreliable power supply and quality on Kosovar businesses"
- USAID Qualitative Assessment of Preparations for Transition to Local Management within Korporata Energjetike E Kosoves (KEK) (2006)

- U.S. EPA Environmental Impact Assessment (EIA) Guidelines for new source fossil fueled steam electric generating stations (1994)
- Kosovo Water Law – Law No. 2004/24
- Republic of Kosovo Law No. 03/L-043 on integrated prevention pollution control
- Republic of Kosovo – Energy Strategy Of The Republic Of Kosovo For The Period 2009 – 2018
- Kosovo – Kosovo Transmission System and Market Operator (KOSTT) Annual Report 2010-2011
- Kosovo – Resettlement Policy Framework For Land Acquisition For The New Mining Field Zone
- Kosovo – Energy Community Infrastructure Priority Projects, August 2007
- Kosovo – The Spatial Plan for the Special Economic Interest Area "New Mining Field" (2011)
- United Nations Interim Administration Mission in Kosovo (UNMIK), Ministry of Energy and Mining – Kosovo Priority Infrastructure Projects (2007)
- Pacific Northwest National Laboratory – Sustainability Assessment of Coal-fired Power Plants with Carbon Capture and Storage (2011)
- International Energy Agency (IEA) Clean Coal Centre – Performance and risks of advanced pulverized coal plant (2008)
- IEA Clean Coal Centre – Update on lignite firing (2012)
- IEA Clean Coal Centre – Economics of retrofit air pollution control technologies (2006)
- IEA Clean Coal Centre – Air pollution control technologies and their interactions (2004)
- IEA Coal Research – Flue Gas Desulfurization (FGD) installations on coal-fired plants (1990)
- Compliance Advisor Ombudsman Appraisal for Audit of International Finance Corporation (IFC) (2012/2013)
- Environmental Defense Fund – Estimating the health impacts of coal-fired power plants receiving international financing (2009)
- Kosovar Institute for Policy Research and Development (KIPRED)/ Forum for Civic Initiatives (FIQ)/ Institute for Advanced Studies (GAP) Institute – Energy Projects in Kosovo (2011)
- Cradle to Grave: The Environmental Impacts from Coal – Clean Air task Force (2001)
- Pathology of a delay – Ten mistakes that undermine Kosovo's energy perspective (Forum 2015 – 2012)
- Swiss Renewable Energy & Energy Efficiency – Wind Resource Assessment (2010)
- Sustainable Energy Options for Kosovo – Renewable & Appropriate Energy Laboratory, Energy & Resources Group, University of California, Berkeley (2012)
- Wbc-inco.net – Co-ordination of Research Policies with the Western Balkan Countries – National Background Report on Energy for Kosovo (2012)
- Great River Energy – Lignite Fuel Enhancement (2010)
- National Renewable Energy Laboratory – Life Cycle Assessment of Coal-fired Power Production (1999)
- World Bank Project Information Document, November 23, 2010
- World Bank Kosovo Power Project Environmental and Social Impact Assessment: Comments on the Kosovo Ibër Lepenc Water System Study, H. Mainhardt and N. Sinani, January 2013 (final)

Methodology

This document reflects information available in December 2012. Activities and circumstances may have changed since that time.

The approach used for the site visits was a standard interview procedure that is commonly used to identify people relevant to the project and guide the discussion. In order for the discussion to be as informative as possible, interviews followed a semi-structured format intended to allow stakeholders to provide additional information that flowed naturally from the discussion. Prior to beginning the interviews, USAID/Kosovo provided meeting attendees with background about the visit. The lead interviewer then initiated the questions. The scope of the questions was based on the subject area/expertise of the organizations/entities interviewed.

The report reflects the views of those interviewed. USAID has not substantiated these views, but includes footnotes for statements that have alternative perspectives. In all cases, names are withheld.

This report is divided into the following sections:

Section 1. Background from Document Reviews

1. Energy Sector
2. Energy Sector Entities
3. Environmental and Social Impacts of Power Plants and Coal Mines
4. Renewables
5. Kosovo A
6. Kosovo B
7. Kosovo C
8. Coal Mine
9. Water and Agriculture
10. Public Health

Section 2. Stakeholder Comments

1. Purpose and Need of the project
   a. Economic Development and Energy
   b. Renewable Energy
   c. Kosovo A
   d. Kosovo B
   e. Kosovo C
   f. Coal Mines
   g. Kosovo Electricity Distribution and Supply (KEDS)
   h. ThermoKos
   i. Kosovo Transmission System and Market Operator (KOSTT)
   j. Energy Regulatory Office (ERO)
2. Potential adverse impacts on the environment, natural resources, public health, and indigenous peoples.

These stakeholder sections is broken into two categories:

- Category A: Governments and Multilateral Organizations
- Category B: Businesses and Non-Governmental Organizations

Section 3. Recommendations/Conclusions

For reasons of confidentiality, some stakeholder comments have been redacted or summarized in a way that reflects the key point of the comments but protects the identity of the interviewee. The summaries focus on the following categories: health, range of alternatives, role of NGO's and businesses in the process, and defining the proposed action. The redacted and summarized comments may have also contributed to the development of recommendations that are included in this report.

Section 1: **Background**
This section reflects information gathered during an assessment of documents in the public domain. Comments gathered during interviews and visits to sites are presented in Section 2 of this document.

Kosovo declared its independence in 2008 and is still considered a post-conflict country. With the exception of Serbia, all of Kosovo's immediate neighbors have recognized its independence. However, so far only half of the world's governments have recognized Kosovo, and its membership in the United Nations has been blocked. The government has control over most of its territory with the exception of Serb enclaves near the capital and in northern Kosovo, which contains four Kosovo Serb-majority municipalities and is largely under the control of institutions of the Republic of Serbia or illegal parallel structures subsidized by Serbia. Kosovo's economy continues to be highly dependent on aid and remittances with current unemployment rates at 45 percent – and youth unemployment at 76 percent. One third of Kosovars live in poverty; one eighth live in extreme poverty.

The World Bank Group Country Partnership Strategy describes Kosovo as follows: "A potential candidate for EU membership, the Republic of Kosovo is a lower-middle-income country with a solid economic growth performance since the end of the war in 1999. Starting from a low base as the poorest country in Southeastern Europe, it is one of only four countries in Europe that recorded positive growth rates in every year during the crisis period 2008-12, averaging 4.5 percent. The resilience of Kosovo's economy reflects (i) limited international integration into the global economy that shielded it from the world economic crisis; (ii) the success of its diaspora in the labor markets of, especially, the German-speaking countries of Central Europe, resulting in a steady reflux of remittances; (iii) a generally pro-growth composition of the budget, allowing for about 40 percent of public expenditures to be spent on public investments; and (iv) a steady influx of donor support."

"Kosovo's growth model has thus far been based largely on public investment and the availability of external sources of financing—especially donor assistance and remittances. This model is likely to be unsustainable for the longer term, implying the need for a viable alternative approach. Private-sector investment, which has begun to emerge, is the most promising avenue for generating accelerated growth and jobs in the future but is affected critically by infrastructure bottlenecks, especially persistent shortages of energy. Besides acting as a brake on business growth, frequent load shedding (power cuts) deprives people of light, space heating, refrigeration and cooking fuel—with obvious implications for health, education, and the overall quality of life. Addressing the energy crisis in a comprehensive way is thus a critical component of Government's strategy for creating a hospitable climate for investment, jobs, and better living standards."[1]

Energy Sector:
The Government of Kosovo (GoK) ratified the Athens' Energy Community Treaty, legally binding Kosovo to meeting the EU Directives on energy, environment, and competition. Based on current emissions outputs from the existing power plants, EU regulations require a reduction of NOx emissions by 75 percent to 200 mg/Nm3; SO2 emissions reduced by 94 percent to 400 mg/Nm3@6% O2 and dust emissions reduced by 88 percent to 50 mg/m3. The GoK has committed to meeting the following EU 2020 targets on climate change/energy:

- Reducing greenhouse gas emissions 20 percent lower than 1990 (or by 30 percent if there is an "ambitious and comprehensive global agreement" by developed and advanced developing countries to achieve comparable emission reductions. This condition has not yet been met.)

[1] World Bank Group Country Partnership Strategy (FY12-FY15)

- Using 26 percent of energy from renewables[2]
- Achieving a 20 percent increase in energy efficiency

Kosovo's Energy Strategy is multi-pronged and aims at achieving effective management of existing energy supplies and protection of the environment. It focuses on enhancing the security of energy supply and the diversification of energy resources. The policies and reforms are designed to attract private investment and integration of Kosovo into the regional energy market. The WB conducted a study entitled "Development and Evaluation of Power Energy Supply Options for Kosovo"[3] (2011) and concluded the components below broadly support the GoK's strategy:

- Private sector investment in a new lignite-fired power generation project (600 MW) – KC and a new lignite mine (estimated at $1.2-1.5 billion)
- Privatization of Kosovo's electricity distribution and supply business (KEDS)
- Private sector participation in rehabilitation and environmental upgrade to EU standards of KB power plant (increasing each unit from current 270-280 MW to 305-320 MW)
- Decommissioning of KA power plant by 2017 to comply with the Athens' Energy Community Treaty (estimated cost of €60-65 million)
- Development of renewable resources, including the possibility of 305 MW from a new hydropower plant, 60 MW from small hydropower plants, and 395 MW in wind, biomass and biogas-fired power generation[4]
- Devoting significantly greater resources to the promotion of energy efficiency of the systems
- Promoting and supporting Kosovo's connection to regional gas supply projects over the next 10-15 years, such as the Gas Ring Project for Southeast Europe, to import natural gas [5,6]

Kosovo's energy needs are seasonally dependent with a high and sustained peak load from October to April and low energy loads the rest of the year. KOSTT's 2010/2011 Annual Report presents information on consumption expressed through the load duration curve: the "load duration curve is presented for 8,760 hours in 2011 starting with a maximal load of 1150 MW to the minimal annual load (173 MW). There were 540 hours per year, or 6.16 percent, with maximal loads (peak) of over 950 MW. Variable load is between 400 MW and up to 950 MW, with a total of 7,388 hours per year, or 84.33 percent. There were 832 hours with a minimal load of less than 400 MW, or 9.49 percent."

Two coal-fired power plants largely meet Kosovo's energy demand: Kosovo A (KA) and Kosovo B (KB). KA and KB are located on the outskirts of the town of Kastriot/Oblic, about eight km northwest of the capital city, Pristina. Both power plants were designed for baseload operation. The WB Options Paper stated that an "analysis of the supply-demand balance (see Section 3 of the report) shows that Kosovo needs about 950 MW of new, firm capacity by 2017. This need grows to about 1,000 MW by 2019 and about 1,500 MW by 2025. "

During the winter of 2011-12, peak demand was 1,300 MW; however, maximum capacity for KA and KB was at 800-900 MW, resulting in a 400 MW gap. During this period, Kosovo Energy Corporation (KEK) imported 90,958 MWh at an average cost of €89.80/MWh. Seventy percent of the import was at fixed price transactions; 25 percent of the imports were met by "Day-Ahead" transactions and emergency transactions accounted for about 5.74 percent. The weighted average price was

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[2] EU Commission Staff Working Document – Commission Communication of a Feasibility Study for a Stabilization and Association Agreement between the European Union and Kosovo (2012)
3 Kosovo: Development and Evaluation of Power Energy Supply Options for Kosovo (2011)
4 Kosovo: Kosovo Power Project Report of the SFDCC External Expert Panel to the World Bank
5 Energy Strategy of the Republic of Kosovo for the period 2009-2018.
6 WB – Kosovo –Country Partnership Strategy FY12-15

€136.89/MWh. By 2017, the projected annual amount of imports will be $260-520 million, according to USAID analysis. While a one-month analysis cannot reflect the fluctuations of yearly requirements, USAID's analysis concluded that the total quantity of imports in February 2012 did not appear to be unusual and the prices of imports were not due to the severe weather conditions.[7]

During 2011, the average time per day customers were load shed was:

- Category A 10 minutes
- Category B 1 hour 25 minutes
- Category C 3 hours 45 minutes

Category "ABC program customers are reviewed monthly utilizing a computer software program. ABC is still somewhat flawed, as it relies on reduction at the feeder level, which means a mix of good, medium and worst paying customers."[8]

KEK's load shedding program is designed to respond to emergency conditions as needed. Reports provided by USAID consultant advisors showed that in recent years, customers have experienced less load shedding. The customer demand not served due to capacity shortages, by year, has been as follows:

- 2008 12.8 percent
- 2009 6.9 percent
- 2010 3.4 percent
- 2011 5.6 percent

World Bank Group Activities:
The WB has been assisting the GoK through the following programs:

- Lignite Power Technical Assistance Project (LPTAP) in 2006 ($8.5 million)
- The World Bank-funded Environmental Clean-up of Kosovo A (KA) project: this project has been under implementation for more than four years and has helped re-vegetate the ash dump associated with the older power plant and remove hazardous chemicals from an old coal-gasification plant. The contribution by the WB, as of the approval date in May 2013 was $4,200,000.[9] Component costs add up to approximately $14,700,000.
- Technical assistance project for environmental monitoring and institutional capacity, low carbon energy growth strategy, carbon capture and storage

In addition to the proposed future PRG, WB projects proposed in the Country Partnership Strategy (2012-15) include:

- Proposed energy efficiency and renewables project (energy efficiency in public buildings and capacity building, credit enhancement for wind, solar, geothermal, biomass; financing support for biogas at household level). A stated milestone is to put in place at least three bankable projects prepared for private sector investment in renewable resources and a financing mechanism for private sector renewable energy projects

[7] USAID Emergency Preparedness Report 2012
[8] USAID Emergency Preparedness Report 2012.
[9] http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/ECA/2012/12/25/090224b08183bcb1/1_0/Rendered/PDF/Kosovo000Energ0Report000Sequence011.pdf

- Institutional strengthening of a to-be-created Energy Efficiency Agency to promote energy efficiency
- Water resources project for improving supply to households, agriculture and the new power plant

The WB conducted a review of Kosovo's energy options and the associated economics. The WB concluded that Kosovo's firm base-load capacity "can only be provided by fossil-fuel thermal options" and that lignite "is the least expensive thermal option, even when the relatively higher environmental costs are priced it. In addition to lignite providing firm base-load, the World Bank concluded that there is considerable potential for energy efficiency and some potential for renewable energy within Kosovo that "cannot provide the firm capacity Kosovo needs."

In 2008, the World Bank adopted a Strategic Framework for Development and Climate Change (SFDCC). This document establishes the WBG policy on any future participation in coal-based power generation projects. The SFDCC outlines the following criteria based on which the WBG could support a particular coal project:

(i) there is a demonstrated developmental impact of the project including improving overall energy security, reducing power shortages, or increasing access for the poor;
(ii) assistance is being provided to identify and prepare low-carbon projects;
(iii) energy sources are optimized, looking at the possibility of meeting the country's needs through energy efficiency (both supply and demand) and conservation;
(iv) after full consideration of viable alternatives to the least cost (including environmental externalities) options, and when the additional financing from donors for their incremental cost is not available; then
(v) coal projects will be designed to use the best appropriate available technology to allow for high efficiency and, therefore, lower GHG emissions intensity; and
(vi) an approach to incorporate environmental externalities in project analysis will be developed.

A WB-convened External Expert Panel evaluated the proposed project's compliance with the screening criteria. The Panel included three experts in the fields of (a) power systems planning and economics, (b) energy policy including evaluation of low-carbon options for the energy sector, and (c) power technologies. One of the members was appointed as the Panel Chair.

The Expert Panel found that the project complies fully with the screening criteria developed in the SFDCC. However, the Panel did raise concerns over the need for increased effort to reduce energy demand and the technical and commercial losses related to electricity supply (in the context of Criterion 3). The panel suggested modifications to the project specifically related to achieving the highest possible efficiency for the new plant (Criterion 5) and pointed to an urgent need to improve the environmental monitoring capabilities in the country and, in particular, around Pristina, the plants and the mine (Criterion 6).[10]

The World Bank Group indicated to the GOK that that it would, in principle, be willing to consider providing financial support for the proposed Kosovo Power Project, comprising (1) construction of a new thermal power plant of about 600 MW; (2) development of the associated Sibovc lignite mine; and (3) rehabilitation of the Kosovo B thermal power plant. The International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA) are also prepared to consider supporting this project. The Bank Group's potential support for the project is predicated on Kosovo's growing

[10] Kosovo Power Project, Report of the SFDCC External Expert Panel, to the World Bank

electricity demand, the planned closure of the highly polluting Kosovo A power plant and limited options for the import of power. Any Bank Group support would be subject to approval by the World Bank's Board of Directors and depend critically on compliance with all the applicable requirements of the World Bank Group, including conformity with the recommendations contained in the report of the external expert panel appointed pursuant to the WB SFDCC; assessment and suitable mitigation of other social and environmental impacts; and acceptability of the transaction documentation and procedures for the competitive selection of the investor. IDA would be prepared to provide its partial risk guarantee (PRG) and IFC would be prepared to consider providing financing and supporting mobilization from commercial banks and other international financial institutions if the project meets the necessary technical, economic, environmental, social, legal and financial criteria. MIGA would provide guarantees to qualified investors based on similar criteria.

After consulting with transaction advisors, the government concluded that the new power plant and the rehabilitation of Kosovo B (KB) should be separated. The WB PRG under possible consideration would cover bidders against the risk of the Government failing to perform its obligations with respect to the project, ensuring payment of a portion of outstanding principal and accrued interest. Payments would only be made if the default were caused by risks specified under the PRG. The possible PRG is projected to be at $56 million for the estimated $1.2-1.5 billion project. IFC, MIGA and EBRD may also propose support for this, provided their respective policies are met.

The initial structure of the PRG was the inclusion of both the rehabilitation of KB and the new construction of KC. The GoK made a decision in 2012 to separate these two activities. A new Request for Proposals (RFP) has been issued for a plant of two units of 300 MW each, and includes an indication of a potential PRG for the winning bidder. The RFP for the development of the 2x300 power plant is not available to the public domain because it contains business confidential information.

Kosovo's Energy Sector Entities

This section provides an overview of the entities that are involved in the energy sector and directly or indirectly involved with KC. The information is provided for context and for use during the ESIA preparation when assessing alternatives, cumulative impacts, financial factors and determining entity responsibilities for mitigation measures.

- Kosovo Energy Corporation (KEK) – Government owned, it is organized into four main divisions: Mines, Generation, Imports and Exports. It currently operates KA and KB.
- Kosovo Transmission System and Market Operator (KOSTT) – Government owned, it manages and operates the electricity transmission system of Kosovo and is responsible for the bulk transmission of electricity on the main high voltage electric networks, for the organization and administration of trades in electricity and the management of the settlement processes.
- Kosovo Electricity Distribution and Supply (KEDS) – Until recently, KEDS was government owned. The privatization agreement with Turkish operators, Limak-Calik, was signed on October 17, 2012. As of March 2012, the turnover process was expected to be completed on May 6, 2013.[11] KEDS is responsible for Kosovo's entire electricity distribution network, and the privatization is expected to result in a substantial investment program to improve efficiency of the distribution system and modernize collections.
- TermoKos – The public district heating company that is responsible for central heating in Pristina, Gjakova and Mitrovica.

[11] In May 2013, the turnover was completed.

Kosovo A
The Kosovo A (KA) power plant consists of five units built between 1962 and 1975. KA has a total installed generating capacity of 800 MW, but only three units, with a combined capacity of 275 MW, are operational. Sulphur oxide emissions are relatively low due to the coal composition, but elevated NOx emissions are attributed to inefficient boilers. The NOx emission levels are 800 tons, but EU requirements are that the emission levels be below 500 tons for both KA and KB. Water for KA operations is extracted from the Llap River except when flow rate is too low (in the summer), when it is extracted from the Ibër Lepenc canal. Due to the water quality requirements, it is processed prior to usage in the plant operations. The solid residuals from the water treatment are disposed together with the ashes. The cooling tower blow down is discharged to the Sitnica river without treatment. A wastewater treatment plant carries out partial treatment of wastewater through sedimentation and neutralization. Without adequate wastewater treatment, power plants can be a major source of pollution. Examples of pollution include potassium permanganate, pH and particulate matter exceeding water quality guidelines.

Kosovo B
KB consists of two units built between 1983 and 1984. Each unit was originally designed to produce 350 MW. The units share a common coal yard, common water treatment plant, common draft cooling tower and stack. Currently, dust emissions for B1 and B2 are 160 and 260 ug/m3, respectively. However, to meet EU requirements, emissions for both stacks need to be less than 50 ug/m3. Installation of each electrostatic precipitator (ESP) requires approximately 8 months, so it is ideal to rehabilitate the entire unit at the time of installation. In the United States, this would be accomplished by rehabilitating the boiler or adding equipment to the emissions exhaust stack to lower the emissions.

It is expected that by the end of 2024, both KB units will have logged about 300,000 equivalent running hours, which is considered the life span of a steam turbine. As noted in the USAID KB Feasibility Study, experience in the United States has shown that with appropriate repairs and replacements, steam turbines can be kept in operation beyond 300,000 hours and are a viable option to extend the life to the end of 2040. To extend the life of the turbines, three additional overhauls would be required at an estimated cost of €47 million for both units. It is estimated that each boiler system will require an investment of approximately €43 million by 2024 and an additional €25 million by 2040.

Water for the KB operation is extracted from the Ibër Lepenc system. The cooling tower blow down is discharged to a pond, used to prepare slurry for ash transportation, and then discharged to Sitnica River. Similar to KA, the wastewater treatment plant carries out a partial treatment of wastewater through sedimentation and neutralization processes. There is no desulphurization or denitrification process for KB.

Kosovo C
KC is a project under consideration by the GoK that would become the third power plant in operation in Kosovo. The first plant, KA, would subsequently be decommissioned. KC would be privately owned. The WB PRG under possible consideration is being developed under the assumption that the facility will have two 300 MW units. The development of KC would also require that the existing coalmine be expanded to support the increased demand. There will also be increased draw on local water sources.

In 2011, the WB developed a detailed Options Paper that synthesized many existing technical studies by the WB, the EU, USAID and others, and concluded that in Kosovo, "firm base-load capacity can only be provided by fossil-fuel fired thermal options...[and] [t]he lignite option is the least expensive thermal option, even when relatively higher environmental costs are priced in." The methodology in the study included environmental costs calculated as the cost of carbon dioxide (CO2) emissions, priced

according to recent forecasts by the International Energy Agency. Local environmental costs included the costs of NOX, SOX and particulate emissions, as well as various other local pollutants harmful to human health, based on ECOSENSE model which uses epidemiological studies to assess the human health impact of power plant pollution.

The WB's contracted External Panel of Experts that reviewed the consistency of the possible new coal power plant in Kosovo with the SFDCC concluded that this project is the best way forward for Kosovo and is consistent with the SFDCC

The WB is financing the ESIA for KC. The TOR was released for public review and comment, including by USAID, in 2012.[12] The TOR states that the ESIA is not intended to serve as the document to inform national permitting and that assessment will be prepared under the responsibility of the investor as a Supplemental ESIA under a separate TOR. The ESIA prepared under the WB TOR will lay the groundwork on the baseline data and, once the bidder is selected, will include analysis of the design and technology alternatives. The ESIA will focus on the requirements of the EU, the WBG, the EBRD, and other funders. The WB's involvement, however, will require that any investor meet its safeguard standards, which include resettlement and environmental safeguards – including emissions, water, and health safeguards.

As part of the WB's initial involvement in the development of KC, three air monitoring stations were set up and functioning at the end of December 2012. There are 13 different air-monitoring stations set up across Kosovo that are financed by the EU. The three WB stations are specifically to monitor air quality as part of baseline data for the ESIA. USAID has set up several non-continuous air monitoring stations as well.

There are 20-24 towns and villages near KC, and the majority of the populations in the villages are Kosovo Albanian. However, there are some villages with populations that identify as Kosovo Serbs – Babimoc/Babin Most; Milosheve/Milosevo; Plemetin/Plemetina; Palaj/Crkvena Vodica. In March 2012, the WB Inspection Panel received a request by representatives of the inhabitants of the villages of Darshishte, Lajthishte/Sibofc, Cerna Vidoca, and Hade of Obiliq Municipality and the town of Obiliq in Obiliq Municipality, the Kosovo Energy Corporation's independent Kosovo Energy Trade Union and three Kosovar civil society organizations – Institute for Development Policy (INDEP), Institute of Advanced Studies, and Forum for Civic Initiative. The request raised several social, economic and environmental concerns, and related issues of compliance with Bank policies and procedures concerning the proposed KC and mine development.

Examples of the concerns and assertions raised in the Inspection Panel complaint included the following:

- 70 percent of Obiliq municipality – Hade, Darshishte, Lajthishte – has been declared a zone of national interest, resulting in stagnation of their socio-economic development. Effectively, the economic development of the Obiliq has been paralyzed since 2004
- Resettlement will have to occur in the remaining 30 percent of Obliq territory and there are concerns of whether sufficient fertile land exists for resettlement (SESA executive summary supra note 8 at 31). This means that any household that is to be resettled will be resettled in the remaining percentage of Obliq territory.
- Hade resettlers are located in apartment complexes with no access to land and little assistance to integrate into their new situation.
- Resettlement will harm the social and cultural fabric of communities.

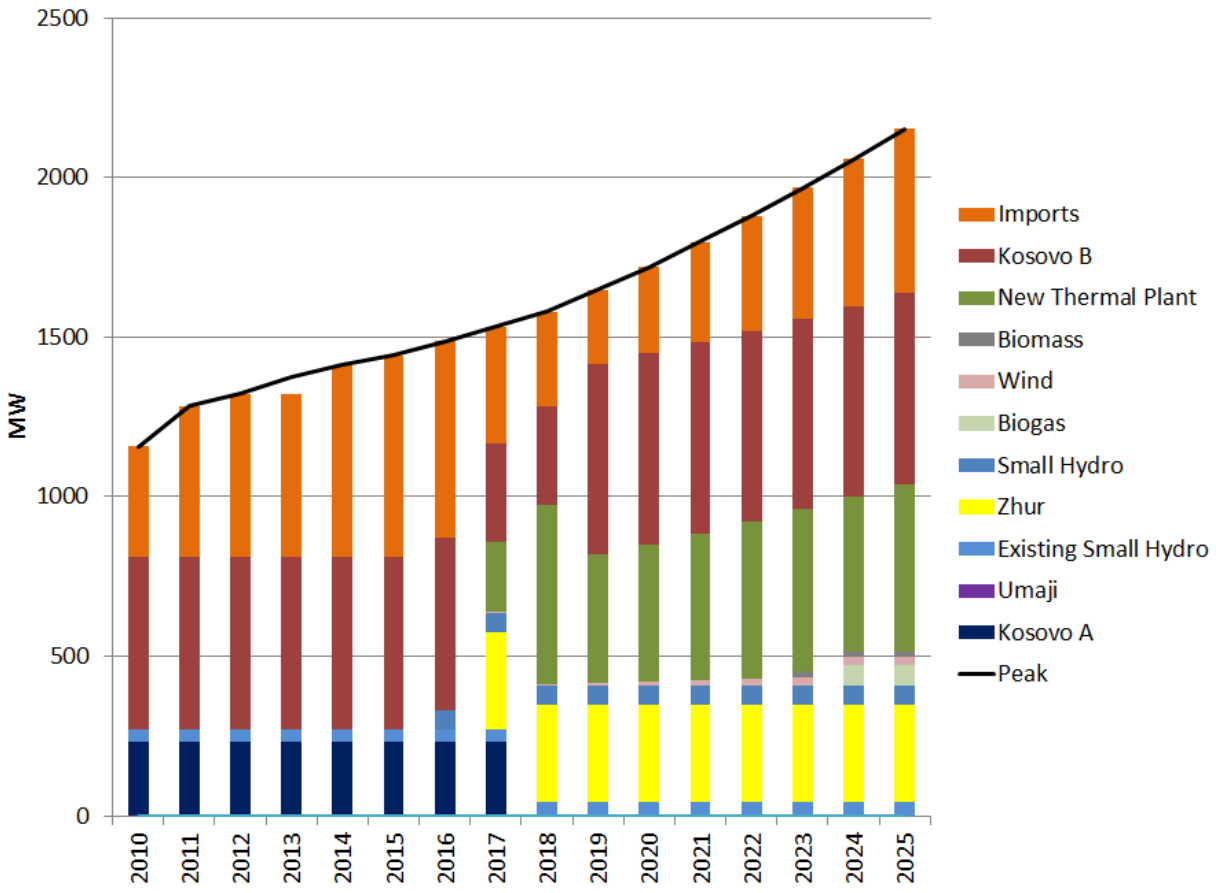
[12] In June 2013, the final version was made available to the public on respective websites of the Government of Kosovo Ministry of Environmental and Spatial Planning and the World Bank

- Increased efficiency of power plants will also increase production capacity and it is unclear – absent strict pollution controls, which are undecided – how much the project will result in diminished pollution overall.

The Panel recognized the legitimacy and significance of the Requesters' concerns about the potential future impacts of the proposed project. The Panel's assessment was that at this early stage in the project preparation process and prior to the start of the project's ESIA, there were no key World Bank activities or decisions relevant to the concerns raised in the request. Due to this reasoning, the Panel did not recommend an investigation of whether the Bank has complied with its operational policies and procedures. However, the Panel noted that affected people will have recourse to the Panel at a later stage in the project cycle if they so wish.

Renewable energy

As conveyed in the below graphic from the World Bank commissioned "background paper: development and evaluation of power supply options for Kosovo", renewables – primarily hydropower – could meet one-third of current peak energy demand after 2017, but, as the graph suggests, a growing energy deficit may remain.



Based on activities of the WB and the EU, renewable energy sources are being emphasized. The WB Options Study estimates that there is only 170 MW of firm capacity that can be supplied by renewable energy in the country (excluding Zhur), which includes all wind, solar, biomass and biogas potential.

The options study considered the following renewable energy sources:

Hydropower

- Large Hydropower – the study considers the 305 MW Zhur hydropower project the only moderately-sized hydropower project in Kosovo, which could provide a potential renewable source of energy for peak demands.
- Small hydropower power projects – there are an estimated 18-20 sites with about 60 MW total capacity.

Wind

- According to the WB contract background paper, "Development and Evaluation of Power Supply Operations for Kosovo", fewer than two MW of wind generation has been installed to date in Kosovo, and the potential for new wind capacity appears to be limited. On the other hand, the Sustainable Energy Option for Kosovo Paper asserted that there are over 200 MW wind projects waiting for approval in Kosovo.
- The Swiss Cooperative Renewable Energy & Energy Efficiency Promotion in International Cooperation (REPIC[13]) financed a wind resource map covering a large part of the country (2010). The results of the study provide estimates of the wind conditions within the country. The study concluded that :

  (a) In general, the average wind speeds within the country are considerably too low to provide commercially viable options, due to the topographic location of the country.

  (b) However, several sites at higher altitudes have been identified with sufficient wind speeds for wind energy projects.

  (c) Due to the lack of renewable energy developments in the country, the high degree of environmental impact due to the current energy production methods and an insufficient energy supply, it is highly recommended to support further renewable energy developments in the country.

  (d) Policies have been introduced and established, but knowledge and the ability to implement the policies, especially at the local level, is lacking. It is critical to provide training at the municipal level for the promotion of wind energy.

  (e) A 2010 study funded by the Swiss Renewable Energy and Energy Efficiency Promotion in International Cooperation and carried out by the consulting firm NEK Technologies concluded that there were very few areas with wind speeds exceeding 6m/s, a minimum wind needed for commercial potential in the region.[14]
- The private Kosovo-German company, Wind Power, received authorization from the Energy Regulatory Office (ERO) to construct three power generation wind mills with a capacity of 450 KW each (1.35 MW total) on Mt. Golesh (near the Pristina airport) on December 29, 2009. In accordance with a power purchase agreement signed with KEK in June 2010, which called for a tariff of 84 Euros per MW, the windmills were connected to the grid. However, ERO ruled that the tariff applied for this generator would be 48.16 Euros per MW because the windmills were not new and thus had a shorter life. Wind Power appealed this decision, stating that they (Wind Power) had miscalculated the potential for generation of power. ERO's response was that this is a risk that the investor, not customers, must bear. An unverified online news report claims that the initial investment for the project went from €800,000 to €2.4 million.[15] In 2011, KEK

[13] Renewable Energy and Energy Efficiency Promotion in International Cooperation - is an interdepartmental platform for the promotion of renewable energy and energy efficiency in developing and transition countries.
[14] Swiss Renewable Energy & Energy Efficiency - Wind Resource Assessment (2010)
[15] http://www.balkaninsight.com/en/article/kosovo-wind-turbines-shut-in-power-dispute

ordered the shutdown of the project and disconnected it from the country's energy network until the tariff dispute is resolved.

Biomass and biogas
Biomass from forestry products and residue is a potential source of distributed generation; manure-based biogas from livestock a possible source of distributed lighting and heating. The WB Background Paper: Development and Evaluation of Power Supply Options for Kosovo (2011) has identified potential of 70 MW of biogas and 20 MW of biomass. The cost effectiveness of a coal-fired power plant to co-fire with biomass is uncertain due to the lack of sufficient biomass and the relatively low heat content of the lignite.

Geothermal
A 2008 EC report found low potential for electricity generation but also found that additional exploration is planned. The World Bank Options study reported "[d]ata available to date suggests that ***geothermal energy*** is not viable due to low water and soil temperatures."[16]

The IFC has a Balkans Renewable Energy Program[17] that aims to:

- Improve the regulatory framework for the renewable energy sector; build capacity in the sector by improving the designs and business plans of renewable energy sponsors and make them more attractive to capital; and
- Build capacity for renewable energy and project financing of financial institutions.

Alternatives to Coal
Natural Gas – Natural gas availability, such as through the proposed Balkan Gas Ring or one of the proposed natural gas supply routes from the Black Sea Region, would also increase supply diversity. A recent news report has stated that there is a draft agreement between Skopje and Moscow to provide Macedonia a branch of the proposed South Stream gas pipeline, which will transport Russian natural gas to Greece, Italy and Austria. It is reported that both Kosovo and Albania are potential markets for the gas. Construction of the South Stream gas pipeline is planned to be finished by 2017[18]. The World Bank Options Study considered natural gas as a possible option. The Study concludes that Kosovo "does not have any gas resources or a gas transmission system." In addition, given the political considerations and seasonality of gas demands, it would be "extremely difficult to negotiate a gas supply agreement in the near term." At the same time, the Expert Panel Report stated that "the opening up of new natural gas pipeline routes through the Caucuses would make the increased use of gas in Kosovo more attractive than a network having to rely simply on Russian gas. A regional gas grid would accelerate the introduction of renewable energies as it could provide the necessary back-up generating capacity. This possibility should be studied further."[19]

Coal mines
Kosovo has the world's fifth-largest proven reserve of lignite containing 9.84-21.32 percent ash, 38-48 percent moisture, 0.64-1.51 percent sulfur and a heat value of 6.28-9.21 MJ/kg. The coal is easily accessible in that the stripping ratio of overburden to lignite recovered is 1.3m3 to 1 ton, contributing

[16] WB - Background Paper: Development and Evaluation of Power Supply Options for Kosovo (2011)
[17] The Balkans Renewable Energy Program (BREP) is a regional Advisory Services (AS) Program initially implemented in Albania, Bosnia and Herzegovina and Macedonia. In July 2012, the Program has been expanded and now also includes Serbia, Kosovo and Montenegro
[18] Plans for natural gas supply to the region are evolving and sources and construction timeframes cannot yet be accurately predicted. Since the site visit, the competing Trans Adriatic Pipeline (TAP) Project was selected by Azerbaijan's Shah Deniz Consortium to supply natural gas to Italy, routed through Turkey, Greece, and Albania.
[19] WB – Kosovo: Kosovo Power Project Report of the SFDCC External Expert Panel to the World Bank (2012)

to its relatively low cost. The KEK purchases 99 percent of its coal from the mines located in close proximity to KA and KB. After more than 60 years of production, both Mirash and Bardh mines were depleted. The adjacent SW Siboc field was opened in 2010 to supply KA and KB at 9 million tons/year, which is estimated to last until KB is out of production in 2024/5. SW Siboc produces 30,000 tons coal production/day and with 700,000 tons of coal is stockpiled. The SW Siboc field supplying KA and KB will be maintained as KEK property.

The rest of the Siboc field is expected to be included in the KC project investment package. When KC was designed for the original two-phase development of 2,000 MW, it was estimated that the field had 990 metric ton reserves to supply the plant.

Agriculture and lignite-based energy are inextricably tied to the water sector. Both sectors are not only priority sectors for the GoK but are also both dependent upon the availability of sufficient supplies of water for their success and actual operation. The key source of water for both of these sectors is from the transboundary Ibër River that is captured in the Gazivoda reservoir built in the late 1970s. The WB has financed a study looking at water security for Central Kosovo, in particular the Ibër River Basin and Ibër Lepenc Water System. The report found that "climate change will worsen the already declining water supply and will pose an unprecedented water challenge after 2020." To mitigate the challenges of climate change's effect on Kosovo's water sector, the WB is implementing a number of water-sector and water-related projects. The Bank's strategy is outlined in its Country Assistance Strategy, of which water quality is under Pillar II. The WB has funded an Agriculture and Rural Development Project ($20.15 million) to support the GoK efforts in developing the agriculture sector. Below is an overview of the status of the agriculture sector followed by an overview of the water sector, focusing on the Ibër Lepenc system.

Environmental and social impacts of power plants and coalmines
The following information is provided as context for the reader and provides the basis of the TOR's inclusion of environmental health factors into the development of the ESIA.

The average coal-fired power plant consists of the following main equipment/process steps: pulverized coal boiler, baghouse filter, conventional limestone flue gas clean-up system, heat recovery steam generator and steam turbine.

Coal power plants produce emissions, liquid and solid wastes that have both environmental and social impacts. Power plant air emissions include NOx, SOx, CO, CO2[20], particulates and VOCs.[21] [22] Trace toxic element emissions include: antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, selenium and vanadium. The amount of

[20] CO2 is a part of a class of compounds that contributes to global climate change
[21] Volatile organic compounds (VOCs) – Health impacts include Eye, nose, and throat irritation; headaches, loss of coordination, nausea; damage to liver, kidney, and central nervous system. Some organics can cause cancer in animals; some are suspected or known to cause cancer in humans. http://www.epa.gov/iaq/voc.html#Health Effects
[22] Sulfur dioxide (Sox) can react with other compounds in the atmosphere to form small particles. These particles penetrate deeply into sensitive parts of the lungs and can cause or worsen respiratory disease, such as emphysema and bronchitis, and can aggravate existing heart disease, leading to increased hospital admissions and premature death. EPA's NAAQS for particulate matter (PM) are designed to provide protection against these health effects. Oxides of nitrogen (NOx) - Current scientific evidence links short-term NO_2 exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects including airway inflammation in healthy people and increased respiratory symptoms in people with asthma., lead (Pb), carbon monoxide (CO), ozone - Ozone is formed when NOx and volatile organic compounds react in the presence of heat and sunlight. Children, the elderly, people with lung diseases such as asthma, and people who work or exercise outside are at risk for adverse effects from ozone. These include reduction in lung function and increased respiratory symptoms as well as respiratory-related emergency department visits, hospital admissions, and possibly premature deaths., and particulate matter (PM)

these trace elements depends on the type of coal. With exceptions, e.g. arsenic, mercury, selenium, the majority of trace elements leave the plant as part of solid waste (boiler bottom ash).

Human exposure to power plant pollutants may occur from direct inhalation, absorption through the skin or indirect exposure – e.g. ingestion of contaminated water or food product. Pollutants for which indirect exposure impacts health includes toxic metals such as mercury, arsenic, dioxins, cadmium and lead. Additionally, fine particulate matter is implicated in serious health impacts. Some examples of health effects of power plant pollutants include:

- Particulate matter (PM 2.5) – cardiovascular disease, chronic obstructive pulmonary disease, heart attacks. For instance, in the United States, it is estimated to cut short the lives of 30,000 Americans each year
- Arsenic – known human carcinogen with high potency – inhalation causes lung cancer; injection causes lung, skin, and bladder cancer
- Mercury – inhalation to elemental mercury results in central nervous system effects, methyl mercury ingestion causes developmental effects; chronic exposure to inorganic mercury may cause kidney damage

Air pollution control devices remove particulates and acid gases contained in the flue gas stream. When coal is burned, a portion of the un-combusted material remains entrained in the flue gas stream as it passes to the stack – this material is referred to a fly ash and is collected through electrostatic precipitators (ESP) or scrubbers to minimize the concentration of solids exiting the stack. Scrubbers, dry sorbent injection systems and other flue gas desulfization devices may be fitted to the boiler to reduce sulfur emissions. To reduce NOx emissions, boiler-operating conditions, special burners and downstream control devices may be used. Sulfur emissions controls range from lime/limestone scrubbers, double alkali scrubbers, dry sorbent injection systems and fluidized bed combustion. Nitrogen oxide emissions controls include modification of the combustion process, staged combustion, flue gas treatment, etc. As stack emission controls become more effective, the amounts and toxicity of solid wastes typically are expected to increase because more particulate matter is removed from the air emissions and collected by the filters.

The highest concentration of CO2 is emitted when the coal is combusted. Because of the amount of CO2 emitted from coal combustion is large, it masks CO2 produced from other process steps within the lifecycle of a power plant. A very significant portion of CO2 not produced during the combustion of coal is generated during the manufacture and transport of limestone and lime and during the limestone scrubbing reaction. For newer power plants, the copper oxide sorbent replaces the traditional limestone scrubbing system and associated CO2 emissions are not present. However, CO2 is produced during combustion for copper oxide regeneration.

The volume and characteristics of the solid waste depends heavily on the composition of the fuel and on boiler operation. Fly ash is made up of the smallest particles of ash and accounts for 70-85 percent of total ash generated by weight. Bottom ash is the heavier ash particles that fall to the base of the boiler. Both types of ash can be managed in either dry landfills or wet surface impoundments. Impoundments are designed as water retention basins into which ash is deposited by means of a slurry pipeline. With the exception of burning low sulfur coal, flue gas control technologies result in the generation of solid wastes. Fly ash often exhibits surface enrichment of volatile metals present in the coal feed – such as arsenic, chrome, cadmium, copper, lead, mercury, and selenium. The resulting leachate depends on specific conditions such as precipitation, leachability of the fly ash, type of fly ash, soil factors, and residence time at the landfill. Water emissions can contain high concentration of most elements in the leachate samples that can exceed drinking water standards. It is important that the ash disposal site

have an appropriate liner that protects groundwater and streams/rivers from contamination. It is also ideal to have comprehensive monitoring systems for ground and surface waters.

Power plants have substantial water requirements. Water requirements vary significantly depending on the size and type of coal-fired power plant: a once-through cooling system withdraws between 70 and 180 billion gallons of water per year and consumes 0.36 to 1.1 billion gallons of that water whereas a wet-recirculating cooling system withdraws fraction of that but consumes 1.7 to 4.0 billion gallons of water per year. Boilers require very clean water due to extreme operating conditions, impurities in boiler water may lead to boiler tube scaling and corrosion. Because most natural water supplies do not meet these quality requirements, power stations must have on-site water purification systems. Condenser cooling of turbine exhaust represents the largest single use of water and the type of heat rejection system employed determines both the cooling water intake and discharge rates. Power plants can be a major source of pollution of river waters.

In addition to the water that is required for the functioning of the plant, water usage also varies with the type of control device used. For example, wet limestone flue gas desulfurization (FGD) is an efficient SO2 scrubber. However, this type of technology requires large quantities of clean water. Whereas if a different technology was used such as circulating fluidized bed boilers, SO2 is removed dry in the furnace and water is not required for the scrubbing process although the dry process requires larger amounts of limestone for reaction with SO2.

In the future, experts believe that the standard for coal-fired power plants will be the use of supercritical and ultra-supercritical pulverized coal technologies.[23] Supercritical and ultra-supercritical technologies achieve high efficiencies and subsequently use less fuel, resulting in reduced air pollutants and greenhouse gas emissions. A 2008 report stated that efficiencies of 47 percent were being achieved with hard coal and ultra-supercritical technology and 43 percent with lignites (LHV basis). More advanced ultra-supercritical technology is viewed as the future technology for pulverized coal power plant that can compete with integrated gasification combined cycle and natural gas combined cycle. The remaining technological barriers are mostly related to moving to future systems with much higher steam temperatures and demonstrating CO2 capture and storage at full flow.[24] Given recent advances in drying technologies for lignite, it should be possible for lignite to fuel ultra-supercritical power plants.[25]

IFC Contributions to Kosovo's Energy Sector

Under this program, IFC is supporting Kosovo's energy sector, as a transaction advisor, through the Privatization of Kosovo's Electricity Distribution and Supply Project to upgrade the distribution networks in accordance with international standards and improve the efficiency of billing, collection, and customer service. Additionally, the GoK has submitted a number of grant proposals, including proposed studies on energy efficiency in public buildings, to the Western Balkans Investment Framework Project Financiers Group.

The KEDS transaction goes directly towards the economic viability of KC since if there is not an economically viable off-taker to purchase the electricity then it would have implications for the economic viability of KC.

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[23] Performance and risks of advanced pulverized coal plant Hermine Nalbandian (2008); Update on Lignite Firing Qian Zhu (2012) IEA Clean Coal Center; personal communication DOE

[24] Performance and risks of advanced pulverized coal plant Hermine Nalbandian (2008); Update on Lignite Firing Qian Zhu (2012) IEA Clean Coal Center; personal communication DOE

[25] Performance and risks of advanced pulverized coal plant Hermine Nalbandian (2008); Update on Lignite Firing Qian Zhu (2012) IEA Clean Coal Center; personal communication DOE

Agriculture

Agriculture is an important sector for the GoK.[26] It is well known that increased use of water by both a power plant and a mine could affect the availability of water. It is important to understand the draw and flow of water from the river by both a power plant and a mine to understand the impact on Kosovo's agricultural sector. Sufficient water for agriculture is essential for the sector's sustainability.

As background, approximately 60 percent of the population lives in rural areas with agriculture providing the main source of income. Overall, this sector accounts for 35 percent of total employment and contributes 12 percent to the GDP. About 90 percent of the population has land for cultivation, 55 percent have livestock and 15 percent grow food primarily for self-consumption. "The sector faces several challenges that are reducing competitiveness and preventing it from meeting its production potential. The sector is characterized by unfavorable farm structures (average land holding of less than two ha per family spread into eight plots), outdated farm technologies, lack of technical expertise, sub-optimal use of inputs, outmoded farm management practices, weak rural infrastructure, a rudimentary rural advisory system and limited access to credit and investment capital. Kosovo now imports most of its food and other products. Agricultural imports from Kosovo's trading partners, who receive production and export subsidies, place Kosovo farmers at a disadvantage. Production and export subsidies are used to support agriculture by many of Kosovo's trading partners. Agricultural subsidies in these countries facilitate the entrance of better quality products at lower prices into the Kosovar market."[27] Further, the "annual review of the grant program will seek to establish a balance between crops and livestock enterprises and not to glut the local market with surplus production. For instance, research conducted by USAID indicates that only 130 ha of greenhouse would be needed to substitute imports of three crops (tomatoes, peppers and cucumbers) during the late spring and summer (peak time for imports). By increasing the number and the quality of greenhouses, tomato harvests could be advanced from the last week of June to the beginning of June and imports could be substituted from June to November. Pepper harvests could be moved from late July (open field) to the second half of May. Greenhouses could also positively influence the price and volume of export crops destined for Europe and the region."[28] The agriculture budget has more than doubled and is expected to continue in this direction. As an indication of the importance of sustainable agriculture in the region, the IFC, reportedly, will explore options to deepen its advisory services work in the agribusiness sector. The WB has funded an Agriculture and Rural Development Project ($20.15 million) to support the GoK efforts in this sector; and to ensure sustainability in the agriculture sector the EU is supporting the alignment of Kosovo's agriculture sector to the EU Common Agriculture Policy.

Water

The Ibër-Lepenc Canal (ILC) operations are under the Ibër-Lepenc Canal Corporation (Ministry of Agriculture). Therefore, it is publicly owned and acts according to the public law on commercial enterprises.

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[26] World Bank Project Information Document, November 23, 2010

[27] http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2010/12/08/000104615_20101208165016/Rendered/PDF/PID.pdf

[28] http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/05/26/000333038_20110526010530/Rendered/PDF/614970PAD0P1120e0only0900BOX358362B.pdf

The 50 km long Ibër-Lepenc canal conveys water from the Gazivoda reservoir in north Kosovo. The system was built in the late 1970s. The reservoir's water supply comes from the transboundary Ibër River.

The WB conducted a water security study for Central Kosovo, and the general conclusion based on simulation modeling is that water resource shortages are increasingly likely to occur in future dry years if no adaptive action is taken. Based on simulations, the following conclusions were reached:

- The simulations showed that for the Gazivoda dam, shortages in dry years will occur by or around 2035, especially in the months of April through August during the irrigation season.
- The Badovc reservoir, under current conditions, does not provide sufficient water resources to meet the demand from 35 percent of Pristina even under average precipitation conditions. For the Batllava reservoir (which supplies the City of Pristina), the structural shortages in dry years will likely start occurring already from 2020.
- The report noted that the simulations for the Gazivoda reservoir assume that unmet demand for the Badovc and Batllava reservoirs from the areas south and east of Pristina would not be shifted to the Gazivoda/Ibër-Lepenc canal system. These simulations did not anticipate that growing land and pollution pressures on these reservoirs might actually depress their supply capacity. "It is likely, however, that over the next two decades a growing demand from this part of the basin will be effectively shifted to the Gazivoda/Ibër-Lepenc canal, which would irrevocably lead this system to meet its maximum supply capacity sometime between 2020 and 2030."[29]
- The study recommended additional storage capacity along the Ibër-Lepenc canal to provide the buffer to secure water supply under extreme circumstances to the new and larger New Kosovo power plant as well as the refurbished Kosovo B plant.
- The World Bank has included water quality and supply as part of its second pillar in its 2012-2015 country assistance strategy. It will support both goals through two projects, the Energy Efficiency and Renewables Project and the Energy Sector Clean-Up and Land Reclamation Project.

Environmental and social impacts of coalmines:
Any evaluation of coal-fired power plants must include an evaluation of the fuel source. When the coal lies close enough to the surface, it is mined by either open-cut or strip mining at a relatively low cost. Surface mining involves the fracturing and removing the overlying soil and rock – referred to as overburden, breaking the coal by either blasting or mechanical means and transporting it to its final destination.

Surface mining significantly alters the topography of the surface and destroys the usefulness of the land for agriculture and other purposes. Therefore, following mining operations, the land should be restored and reclaimed for agricultural use or other specified uses. As a general rule, the use for which the land can best be reclaimed for use depends on several factors including, the percentage of hard rock/shale in the overburden, the amount of toxic materials in the rock, the percentage of soil size particles and amount of lime, phosphate and potash available for plant growth.

Coal preparation normally involves some size reduction of the mined coal and removal of some ash-forming material and rocks. Jig washing is most widely used of all cleaning methods, where refuse is separated from the coal by a pulsating flow of water. Once cleaned, the coal is dewatered with vibrating screens and centrifuges and transported to the power plant. The refuse is sent to the landfill.

[29] http://siteresources.worldbank.org/INTKOSOVO/Resources/Report_SCE_WSCK.pdf

Methane is emitted from the coal seam during mining operations. The amount of methane stored is controlled by the pressure and temperature of the coal seam and will remain stored until the pressure is reduced during erosion of overlying strata or coal mining activities. Different types of coal release different amounts of methane because of physical factors including pressure (depth), coal rank,[30] and moisture. The higher the pressure, the more methane is kept in the coal seams. A high coal rank, which is determined by high carbon content, indicates higher methane content. An increase in moisture in coal decreases methane concentration, therefore, lignite produces less methane than hard coal. [31]

The development of KC and the expansion of mining will require resettlement of a number of villages/households. Resettlement planning and activities are located within the Ministry of Environment and Spatial Planning. Through the WB 2006 Lignite Power Technical Assistance Project support was provided for the Resettlement Policy Framework (RPF). The RPF is for the zone of New Mining Field defined with Government decision no. 02/57 of March 13, 2009, and establishes the Government of Kosovo's policies concerning the resettlement of populations that will be relocated due to the development of major infrastructure and mining activities that will require the acquisition or expropriation of real property. In particular, this RPF is intended to apply to all aspects of the lignite mining and power project known as the Lignite Power Project, including any resettlements required due to land acquisition for mining operations and ancillary facilities. The WB project also supported the development of Spatial Planning to be used by the Ministry of Environment and Spatial Planning in order to provide projects the basis for economic development in general and the specific area of interest in particular, as well as to inform decision makers about the possibilities, options and implications of developments.

The resettlement process is following WB standards, and relocations have occurred without any conflicts with the local population. It was stated that there are no issues with land tenure. Determining land tenure is dependent of understanding the distribution of land assets. Currently, there is conflicting information whether or not the GoK received the cadastre from Serbia to use in understanding the distribution of land assets. However, Serbia does not have the entire cadastre so some records remain in Kosovo. The WB SESA (2008) report estimated that a significant number of residents in the rural areas do not have legal title for land and property in Hade and other communities.

Section 2: Stakeholder Comments

USAID visited both KA and KB facilities, in addition to the mine site. Due to weather conditions, the site visit was limited to visiting the main plant area of KA and KB and tour of existing mine and future mine area. Extensive work was ongoing in KA with the installation of ESP and other maintenance activities (described below). Visually KA Unit 5 emissions, because of its having an installed ESP, were significantly reduced in comparison to emissions from the other units.

Stakeholder comments are conveyed in the following categories: Category A – Governments and Multilateral Organizations, and Category B – Businesses and Non-Governmental Organizations.

For reasons of confidentiality, some stakeholder comments have been redacted or summarized in a way that reflects the key point of the comments but protects the identity of an interviewee. These summaries are within the following categories: health, range of alternatives, role of NGOs and businesses in the process, and defining the proposed action. The redacted and summarized comments may also have contributed to the development of recommendations that are included in this report.

[30] Classification of coals according to their degree of progressive alteration from lignite to anthracite.
[31] Update on Lignite Firing Qian Zhu (2012) IEA Clean Coal Center;

Purpose and Need of the Project

Economic Development and Energy
Stakeholder comments
Category A: Governments and Multilateral Organizations

- Stakeholders believe that Kosovo drives its own development strategy.
- A stakeholder stated that peak demand electricity gaps in the winter are especially difficult to cover due to the regional energy shortage.
- A stakeholder stated the costs incurred by businesses due to unreliable energy supply are estimated at €365 million per annum ($475 million), so from that perspective, some stakeholders believe that KC almost pays for itself.
- During discussions, it was estimated that the lack of energy costs approximately $456-475 million[32] to business throughout Kosovo, but primarily in Pristina.
- NGOs are getting money from abroad so they do not care about the economy, only about the environment.
- KEK's focus is to work with the capacity that is currently in place and has prepared a joint management plan up to 2017. The management plan provides information on day-to-day and month-to-month production for both plants.
- KEK's operating budget relies on the GoK budget subsidies, although in recent years the budget allocated to KEK has been reduced.
- KEK has been able to increase production every year between 5-8 percent and has reduced commercial losses.
- In the past, there were a number of unplanned outages, which were very difficult for the country to manage. As a result, KEK is employing continuous efforts to avoid unplanned outages as much as possible. In 2012, there were 12-15 unplanned outages at KB and 10-12 unplanned outages for KA. The number of unplanned outages at KA is less than KB because KA has enough generation sets to enable one unit to be able for stand-by for emergency operation.
- Recently, KEK acquired 100,000 "smart meters" for initial installation for customers with the worst credit risk because the meters have the capacity to remotely connect or disconnect service to enable KEK to more effectively reduce electricity theft.
- Other stakeholders commented that the cost of rehabilitation of KA for longer term operation as a reliable base load unit was considered economically less attractive than a new, efficient, plant that could operate for 30 years.
- Some stakeholders reported that it was not feasible to rehabilitate KA and referred to a study that was not available for review at the time of this report.
- Some stakeholders believe Kosovo C needs to be built to provide reliable energy to Kosovo from a less-polluting power plant than Kosovo A.
- It was stated that the NGOs have a louder voice than the business community does in this dialogue. Industry needs to get its voice heard in order to counter the NGO dialogue. It was recommended that the industry needs to attend NGO meetings, and not only talk to the GoK.
- Some stakeholders believe that the NGOs represent someone else's agenda so it is not worth industries' time to engage with NGOs because, from their perspective the arguments are not convincing. It was also stated that the NGO arguments are convincing some stakeholders and that NGOs are getting money from abroad so they do not care about the economy – only the environment.
- The biggest mistake the country made was not going forward with the original proposal of the 2,000 MW power plants.

[32] USAID presentation – The Effect of Unreliable Power Supply and Quality on Kosovar Businesses (2012). The study analyzed data from 553 randomly sampled private sector businesses from 40,594 active registered businesses across Kosovo.

- Some stakeholders believe that Kosovo needs to take a more proactive role in its future development and that the country cannot let its development follow the United States and EU. (This is a summary statement that reflects comments made by both Category A and B stakeholders.)
- In several meetings, concerns were expressed about the lack of electricity and stated that without energy it is difficult for citizens and private companies. Without reliable electricity, payment collections will drop so the most important is energy supply.

Category B: Businesses and Non-Governmental Organizations

- In various conversations, statements were made that the country may need to build a power plant with 2,500 MW capacity or two power plants with 500 MW capacity to meet Kosovo's future energy demand.
- There is concern about the environmental and health impacts of power plant emissions but generators, for which filters cannot be installed, are seen as 10 times worse polluters.
- Examples of business sectors affected by energy shortages include brick-making, metal-bending, construction, wood processing, beer, food, and the nickel industry.
- Some stakeholders said that it is typical for a business owner to have an alternative energy source such as a generator. For example, a restaurant needs a generator, which costs €10,000, and the value of the restaurant is €100,000, so the generator is 10 percent of the value of the business. The real estate sector is seeing the need to include an inverter/generator in each house sold. Investments in generators are not tax deductible and subject to additional VAT because they are imported.
- Some stakeholders believe that Kosovo should have not only KC but also plans for power plants D, E and F.
- There is concern about the environmental and health impacts of power plant emissions but generators are seen as10 times worse polluters for which filters cannot be installed. Some stakeholders believe that rehabilitating KA is less costly than other options and could create flexibility for the GoK to pursue other energy options and security of supply for long-term development needs.
- Reliable energy supply is seen as the main impediment to Kosovo's development and its ability to attract private investment. It is believed that Kosovo's huge trade deficit can only be reduced when the country is competitive and that will only happen when it has reliable energy supplies.
- More than 98 percent of Kosovo firms cited unreliable electricity supply as a major obstacle to daily operations and influencing job creation.
- Some stakeholders believe that Kosovo needs to take a more proactive role in its future development and that the country cannot let its development follow the United States and EU. (This is a summary statement that reflects comments made by both Category A and B stakeholders.)

Renewable energy

Stakeholder comments

Category A: Governments and Multilateral Organizations

Many believe that renewables will never be able to replace coal because of the minimal potential for wind, hydro, and solar potential in the country.

- One stakeholder reported that a foreign investor looked to invest in wind farms in Kosovo, but after searching for the locations, expected that there is only 70 MW of wind potential in all of Kosovo. Additionally, it will not be easy to influence households to be energy efficient unless there is an active and sustained education campaign.
- One stakeholder said that if renewable energy was used, the electricity tariffs would be too high for Kosovo, given the high cost of renewable energy generation in the country.

- Several stakeholders reported that thermal power is needed to allow the country to exploit what renewable capacity it has, as any renewable energy needs to be matched by reserve capacity that can be turned on in case the renewable supply ceases. Across the EU, this reserve capacity is usually coal-fired thermal plants.

Some stakeholders have the following comments about large hydropower projects:

  - Some stakeholders believe that Zhur HPP will never happen because it depends on a transboundary river originating from Albania and there is no feasibility study.
  - Other stakeholders report that the project feasibility study was done years ago and needs to be redone. However, stakeholders raised the issue of political ramifications with Albania but felt those could be resolved. The question that needs to be answered is whether Zhur HPP makes sense because this would be a very expensive investment.

- The GoK only needs to show that it is committed to having a balance of energy sources but it is clear that renewables cannot serve as base load.
- The GoK has signed on to EU2020 at 25 percent level of renewables, not 20 percent.
- Other stakeholders have estimated that realistically only 10 percent of the energy mix will be renewables and that 25-35 percent is unrealistic. (This is a summary statement that reflects comments made by both Category A and B stakeholders.)

Category B: Businesses and Non-Governmental Organizations

- Large Hydropower:
  - Some stakeholders believe that Zhur should be developed to provide cleaner energy rather than thermal.
  - Some stakeholders believe that Zhur has been delayed too long and Kosovo should not rely on it happening.
- There are a number of stakeholders who view renewables as more costly than coal and because Kosovo is a poor country and there is not significant potential for significant of renewable sources; the perception is that the country needs to rely primarily on coal.

Views were expressed that:

- The GoK has signed on to EU2020 at 25 level of renewables, not 20 percent.
- Other stakeholders have estimated that realistically only 10 percent of the energy mix will be renewables and that 25-35 percent is unrealistic. (This is a summary statement that reflects comments made by both Category A and B stakeholders.)

Kosovo A

Stakeholder comments

Category A: Governments and Multilateral Organizations

- There were no investments in maintenance between 1990-99, and as a result only three of the five units continue to operate – A3, A4, and A5 – providing 140-170 MW/each.
- KA official power generation efficiency estimates each unit operates at 27 percent of capacity. KEK has invested resources in the maintenance of the remaining three units in recent years, including €25 million for electrostatic precipitators (ESP).
- The ESP for A5 is installed and operating, A3's ESP is installed and was reported to be operational within days of USAID's site visit and the A4 ESP will be installed the end of March 2013 and is expected to be operational in June/July.
- During discussions it was stated that when all ESPs are installed and operational, all three stacks will meet EU requirements of PM 10[33] emissions of under 50 ug/m[34]. However, it was also

[33] PM 10 - includes particles with a diameter of 10 micrometers or less. Major concerns for human health from exposure to PM-10 include: effects on breathing and respiratory systems, damage to lung tissue, cancer, and premature death.

[34] Directive 2001/80/EC – limitation of emissions of certain pollutants into the air from large combustion plants.

stated that even with potential rehabilitation of Kosovo A, the plant could not meet the EU requirements for NOx.

- In addition to the ESPs, KEK continues to invest in maintenance to improve the efficiency of the plant. KA replacement parts are much cheaper to purchase than KB parts because the parts can be purchased from Poland (as opposed to France for KB parts).
- Examples of recent maintenance include the following:
    - New compressors for A3, A4, A5
    - Two block transformers for A3, A4 (€1.3/1.4 million with lifespan of 20-30 years)
    - A3 unit – need to work on turbine and boiler
    - Other work includes – hydraulic transport (€10 million), A5 new pump, compressor
    - Two supply pumps for A3, A4 (life span of 20-30 years)
    - Investment in water treatment and improve efficiency.
- This work is considered routine maintenance and will be done with KEK resources.
- In the absence of both KA and KC and without reduction of commercial and technical losses, the costs of importing electricity would be prohibitively expensive. Estimates provided during discussions ranged from €300-500 million to purchase imported electricity.

The prospects of rehabilitating versus decommissioning KA were raised in discussions. Below are comments from stakeholders:

- One stakeholder noted that the EU treaties require that KA be decommissioned.
- Stakeholders recognize that KA needs to close by 2017 because of the Athens' Energy Community Treaty.
- Several stakeholders believe that the Quantum-Risk Engineering. LLC (QRE) is not a credible project.
- The 2005 EU report on decommissioning A states that Kosovo A "units have essentially exceeded their lifetime and large investments would be needed for rehabilitation to bring them close to the required environmental standards. Given the limited operation time still available, this is simply not economically viable."
- Some stakeholders expressed that there have been changes to the strategy for KA, KB and KC over time and that the rehabilitation of KA could still be considered as a viable alternative to KC. (This is a summary statement that reflects comments made by both Category A and B stakeholders.)
- Stakeholders indicated that the construction and operation of KC, the decommissioning of KA and the rehabilitation of KB need to be carefully timed to ensure there is no reduction in electricity. This stakeholder questioned how these efforts will work given the current schedule for KC.
- Based on discussions with stakeholders, the decommissioning of KA may be interrelated with the start-up of operations of KC and considered by some stakeholders is a precondition to WB involvement in KC.[35]

Category B: Businesses and Non-Governmental Organizations

- There was one online report that the American-Bulgarian consortium, "Quantum-Risk Engineering. LLC (QRE)" was interested in rehabilitating KA but the GoK did not pursue this option.
- Multiple people were under the impression that it was reasonable to rehabilitate KA; however, in 2009, an analysis was provided to the public to decommission the power plant.

[35] In a letter from the World Bank Vice President for Europe and Central Asia, dated March 13, 2012, the World Bank indicated that the Bank Group's potential support is "predicated on Kosovo's …planned closure of the highly-polluting Kosovo A power plant…"

- All stakeholders agreed that the GoK commitment to the Athens' Energy Community Treaty requires the closing and decommissioning of Kosovo A by 2017. Stakeholders stated that this commitment was subject to parliamentary approval. Stakeholders stated that the reasoning provided to them for this commitment is that KA is the most polluting power plant in the region and its closure is required for Kosovo to meet EU environmental (large combustion) standards.
- Some stakeholders expressed that the rehabilitation of KA could be considered a viable alternative to KC. (This is a summary statement that reflects comments made by both Category A and B stakeholders.)
- The EU's priority is the decommissioning of KA to ensure that EU standards are met by 2017. To encourage combined and complementary efforts in Kosovo's energy sector, a donor conference has been considered.[36]
- Some stakeholders reported that the environmental clean-up of the KA site has been ongoing with support from the WB and other donors. The removal of more than 18,000 tons of liquid and solid hazardous waste (e.g. tar, benzene, phenol) at a cost of €5.2 million is almost completed. The next project to be completed will be the hydraulic wet ash transport for all functioning units at an estimated cost of €9 million. The WB has contributed €1 million towards this effort. An additional investment of €7 million is needed to integrate the plant's ash landfill with surrounding fields.

Kosovo B
Stakeholders' comments
Category A: Governments and Multilateral Organizations

- One stakeholder suggested that, similar to KA, a lack of maintenance during the war and afterwards resulted in the plant's operation at low production capacity. However, with recent investments in maintenance, the stakeholder asserted that plant is in good shape and running at the same capacity as in comparable plants in the EU.[37]
- Another stakeholder indicated that, unlike KA, both KB units are in continuous operation to meet the country's electricity needs.
- A different stakeholder indicated that substantial maintenance is required in order for each unit to reach maximum capacity. Major repairs and improvements that have taken place include the overhaul of the B2 turbine, the installation of online air monitoring system, and system for wet ash transportation in enclosed pipelines. Official estimates of KB power generation efficiency are 30 and 32 percent for each unit.
- In stakeholder discussions, it was stated that over the next years, operations and maintenance for KB will focus on meeting the EU's Large Combustion Plant[38] Law (2001/80/EC) on the limitation of emissions of certain pollutants into the air from large combustion plants – specifically particulates, SO_2 and NOx by December 2017. To achieve these reductions the plant needs new low-NOx burners, selective catalytic reduction system, wet limestone flue gas desulfurization (FGD) system, and repair of existing ESPs.
- One stakeholder discussion noted that the online emissions data monitoring system that was recently put in place would provide information as to what additional repairs and mitigation measures are required to achieve these standards. Additionally, a new wastewater treatment plant with adequate monitoring of water discharge quality into the river will need to be installed. One stakeholder noted that installation of each ESP requires approximately eight months, so it is ideal to rehabilitate the entire unit at the time of installation.

[36] In May 2013, a donors conference was held.
[37] While this is true, KB still requires substantial investment to meet EU emissions standards.
[38] USAID Kosovo B Rehabilitation Study; EU's LCP Directive's aim is to reduce emissions of acidifying pollutants, particles, and ozone precursors whose rated thermal input is equal to or greater than 50 MW.

- Stakeholders estimated the cost to rehabilitate each unit at approximately $150 million +/- 20%. It is also critical to rehabilitate KB to lower NOx emissions to meet EU requirements.
- One stakeholder stated that at this point, there are no identified investors to undertake the rehabilitation of KB. It might be possible to look towards the Gulf States for investors. The rehabilitation of KB will require a new steering committee and a new project implementation unit (PIU) head. However, before that occurs, the GoK needs to decide how to structure the investment based on one of these three options – privatization, public-private-partnership or public company. Once a decision is made on the structure, then a transaction advisor will be required and the process can move forward.

Category B: Businesses and Non-Governmental Organizations

- One stakeholder stated that some power generation should be identified for export. This stakeholder stated that if the size of the units and the type of technology changes then it is expected that the WB would redo its least cost study.

Kosovo C

Stakeholder comments

Category A: Governments and Multilateral Organizations

- Additionally, some stakeholders believe that a different set of investors will be attracted to KB than to KC.
- Another stakeholder reported that MEM's[39] Kosovo Priority Infrastructure Projects Report (2007) planned for Kosovo C as a 1000 MW plant with an option for a second plant (1,100 MW) which was originally export-oriented.
- Stakeholders stated that during this period there were a number of investors who considered the project a strategic investment.
- It was reported by a stakeholder that the production capacity was reduced based on a 2009-10 transmission study.
- Some stakeholders believe that the WB options study acts as an alternatives analysis for the project.
- Other stakeholders did not raise concerns with the World Bank's Options Study, and said that it may have actually overestimated the power that alternatives to lignite coal could provide.
- It was stated further that investors need the flexibility to determine the final size, technology (e.g. pulverized lignite firing or circulating fluidized bed lignite firing technology) and pollutions control devices (e.g. selective catalytic converters for NOx and wet limestone FGD for SO_2 and ESP for particulates) associated with the plant.[40]
- Stakeholders estimated the timeline for the project is to have the investor in place in 2013; another 6-12 months to put in place the financing and another 4-5 years for construction. Additionally, financial close could take a substantial amount of time.
- A stakeholder stated that there are three solid second tier investors – two of which are U.S. based.
- Another stakeholder indicated that the RFP states that the best available technology which meets EU directives for the environment would need to include CO2 capture and sequestration ready. They expect this additional requirement to add 5-10 percent more to the overall budget. The GoK met with prospective investors at WB offices in Washington, DC and expects financing from the WB. European Bank for Reconstruction and Development (EBRD) is also reportedly interested in the energy sector

[39] This Ministry was the predecessor to the Ministry of Economic Development.

[40] If the investor seeks WB or EBRD support, the project will have to meet the requirements set out by these institutions in the project proposal, which will include the production capacity of the project

- Several stakeholders argued that, as currently proposed, KC will not be able to cover peak energy loads. (This is a summary statement that reflects comments made by both Category A and B stakeholders.)
- One stakeholder indicated that while controversial, KC is an integral part of the country development strategy and could provide reliable, cheap and cleaner energy but that it may be difficult to balance KC against the other needs of the country (such as social, health, affordability and environment).
- One stakeholder indicated that the bidders for the project might want to adjust the potential power plant design and output.
- One stakeholder reported that the WB has an understanding of where the households will be resettled and that generally people like the location and the compensation package. This project is expected to establish high resettlement standards for Kosovo.
- Although no community members were interviewed, one stakeholder indicated that the current resettlement compensation package might drive people to move into the area of influence.
- One stakeholder stated that the GoK understands that approaching resettlement under the WB safeguards is the appropriate way and no one wants to "repeat the tank/riot incident" that was associated with another resettlement project.
- Some stakeholders are concerned that any additional requirements for further alternatives analysis will delay the project even further.
- Some stakeholders believe that KC and its associated mine have the head start because it is a more extensive project than rehabilitating KB and with fewer risks.
- One stakeholder indicated that the government does not currently monitor public health impacts of the existing coal-fired power plants, but should invest in monitoring health given the potential health impacts.
- One stakeholder indicated that the WB has been working on KC at some level for over 11 years but to date, the WB has not made any on-the-ground investments.
- For KA, land reclamation and ash/toxic material removal has been largely completed. Completion of the work required additional IDA credit, which was complemented by a Dutch grant. The additional IDA credit includes financing the project ESIA and the procurement of three stationary air-monitoring units. The importance of collecting one year of monitoring data in order to prepare a robust ESIA was recognized. It will be critical to link the air quality data collected with the operation of the power plants.
- The air monitoring data will be assessed in mid-2013 to determine whether there is enough information at that time to incorporate into the ESIA. Water and soil data collection is part of the ESIA but will not require an extensive amount of time to collect. The ESIA needs to be ready in early 2014 since the project is projected to go to the Board in mid-2014. This is not an unrealistic timeline.
- One stakeholder indicated that the WB has been working on KC at some level for over 11 years but to-date the WB has not made any on-the-ground investments.
- The WB will be opening an office in Obliq to support the project. There is a basic agreement between Ministry of Environmental Special Planning (MESP), Obliq Municipality and the WB that the WB will provide staff and the Obliq will provide the facilities.
- One stakeholder stated that in the political landscape, politicians need to more directly address NGO concerns and issues.

One stakeholder reported that:

- Some stakeholders state the Balkan Natural Gas Ring is only a concept at this point, and it will not happen within the next 10 years. It is a long-term option, but is not a viable near term option.

Category B: Businesses and Non-Governmental Organizations

- Another stakeholder indicated that the project's production capacity was decreased from 2,100 MW developed in two phases to 600 MW.
- Some stakeholders believed that reliable, cheap, and far cleaner energy is in the best interest of Kosovo's economic growth and environmental impact as it will replace KC with a new, cleaner power plant.
- In late April 2012, the WB regional vice president wrote a letter signaling that if everything was done, the WB was ready to go ahead with the project and in principle; there is support from IFC and MIGA. This support was further strengthened when the WBG's three vice presidents visited Kosovo. The process for project preparation has been initiated.
- A stakeholder suggested that in general, the WB does not support coal-fired power plants except for International Development Association (IDA) only countries. The KC proposal fits in with the WB's Strategic Climate Framework. It was reported that there is agreement with senior WBG management for project preparation to start which is reflected in the minutes from the Country Strategy meeting.
- During discussions, issues with the Options Study were raised that included the perspective that the study is not an alternatives analysis, that the focus should be on peak, not base load, and that the decision to go forward with KC was made before the ESIA was completed.
- Several stakeholders argued that, as currently proposed, KC will not be able to cover peak energy loads. (This is a summary statement that reflects comments made by both Category A and B stakeholders.)
- One stakeholder commented that there are too many unknowns to determine when to move forward with the rehabilitation of KB, such as local markets and elections.

Coal Mines

Stakeholder comments

Category A: Governments and Multilateral Organizations

- Kosovo's resettlement law has changed and new criteria are in place for compensation. The law is based on the WB standards.
- KEK has fulfilled more than what is required for resettlement and compensation. The Ministry of Finance established a PIU committee to deal with compensation.
- There are now about 123 households but in 2003, there were about half this number, however, one stakeholder stated that the GoK has to provide compensation for all established households.

Category B: Businesses and Non-Governmental Organizations

- For some stakeholders it is not clear if there is adequate replacement land and how much of the land is currently used for subsistence farming. Some stakeholders reported that municipalities outside of the borders of the resettlement area have indicated their desire for relocation.
- During various interviews, reasons cited for household's interest in relocation was to obtain new houses and money. (USAID/Washington did not meet with these households.)
- A stakeholder indicated that there are no issues with land titles with the resettlement associated with the new mine.
- In 2003/2004, the area surrounding the power plants and mines were declared a special zone of interest for the state for the development of KC and mine expansion. However, even with this declaration, the number of households in the area has doubled. Committees with representation from KEK, Ministries, and affected communities were established to measure land and make records for compensation.

- Each household can decide which package they want – either land in new area with home built or take the money and move elsewhere. During the discussion, it was raised that it is traditional for households to stay/move with their neighbors.
- Information about the move has been made available to the public for a long time so stakeholders feel that the homeowners are taking advantage of the situation.
- During several different discussions, statements were made that replacement land needs to be identified and that plots have been identified for agricultural land.
- The remaining issue is the decision regarding who relocates to what area.

Kosovo Electricity Distribution and Supply (KEDS)
Stakeholder comments
Category A: Governments and Multilateral Organizations

- One stakeholder indicated that due to losses of over €20 million annually through technical losses and low collection rates, it was determined that KEDS needed to be privatized. Privatization should allow the system to be modernized and become more competitive. The privatization process required extensive consensus building among the various stakeholders (government ministries, NGOs) and establishing the foundation for citizens to understand why decisions were made. Given the capacity requirements to undertake the privatization transaction, the GOK requested the assistance of the IFC.
- One stakeholder indicated that four companies pre-qualified through the tending process and the Turkish consortium, Limak-Çalik, won the tender in a transparent bidding process carried out in accordance with Law No. 03/L-087 on Publicly Owned Enterprises. The consortium has committed to invest €300 million to modernize and operate KEDS.
- One stakeholder commented that the purchase price for KEDS was €26 million, which many NGOs consider low, but the price is reported to reflect the investments that need to be made to the improve the efficiency of the system.
- A stakeholder indicated that KEDS does not have any control over recovering costs in a portion of northern Kosovo that is heavily influenced by Serbia.
- Reportedly, in various meetings concerning KC, the NGOs raised issues about this transaction (and the airport privatization).
- A stakeholder indicated that the cornerstone of KEDS privatization is to reduce the technical and commercial losses that are estimated at 17 percent and 24 percent, respectively. Northern Kosovo accounts for three to four percent of the total estimated losses. The distribution company has had difficulty recovering the losses due to Serbian control in the region. The private investor is expected to address the losses through investing €300 million over15 years into the system. Some report that most losses can be reduced through management controls with metering and other system investments. Reducing the commercial losses will be easier than the technical losses because all the load services are at low voltage with 65 percent of customers consisting of households and small businesses. There is limited large commercial infrastructure that uses the transmission lines operated by KEDS. Improvements in the system would require transformer efficiency, increased capacity and the addition of 10 kV feeders. At this point, 95 percent of the electricity produced by KA is being lost in the system. There are certain limitations when dealing with technical losses.
- A stakeholder indicated that there is greater potential of reducing commercial losses in the system through incentives provided by the tariff structure. One component of reducing commercial losses has been the investments in installing meters. Commercial losses are expected to drop from 16 percent to 2 percent over the next 6-8 years.
- A stakeholder said that it is expected that the privatization of KEDS will help underpin the KC transaction because there needs to be a competent off-taker in order to attract investors for both KC and rehabilitating KB.

- A stakeholder said that the proposed activities are expected to significantly reduce power outages and government subsidies for imported power.
- Several stakeholders stated that the NGOs had access to all of the public data but never visited the public information center as a group. There was a public meeting on the tariff structure but NGOs did not attend the hearing. Reportedly, there was a special hearing for NGOs but only one person showed up.

Category B: Businesses and Non-Governmental Organizations

- In 2011, a complaint was filed with the IFC Compliance Advisor/Ombudsman Office raising a number of concerns including: job losses because of the privatization of the distribution company, negative impacts on the rights of association, and lack of compliance with IFC policy on social and environmental sustainability and policy on information disclosure. Based on IFC documentation, the CAO's appraisal found that there is potentially insufficient guidance to staff to inform their decision on defining the scope of an Advisory Services project and the extent to which the guidelines for the definition of this scope comply with broader IFC policies on sustainability. This resulted in a compliance audit and the report is currently being prepared for public release.[41]

TermoKos

Stakeholder comments

Category A: Governments and Multilateral Organizations

- TermoKos is a publically owned company responsible for the central district heating of Pristina. At least one stakeholder reported the following:
- The company is essentially bankrupt. KfW is working with TermoKos to develop a project where steam is pulled off KB boilers to provide central heating for downtown Kosovo. This will reduce the capacity of KB by 27 MW. This project is viewed with concern because KB was never designed to be a combined power source. Reportedly, off-take agreements have not been signed. The system does not include newer buildings or the surrounding areas of Pristina. Additionally, with the old infrastructure there are high technical losses, combined with high commercial losses.

Category B: Businesses and Non-Governmental Organizations

- No comments were made

KOSTT

Stakeholder comments

Category A: Governments and World Bank Organizations

- Because of obstruction from Serbia, KOSTT continues to find it difficult to participate as an equal partner in regional commercial power supply mechanisms and consequently, losses incurred are passed on to consumers. KOSTT filed a complaint against EMS (the Serbian Transmission System Operator) with the Energy Community Secretariat. The Energy Community Secretariat, in its preliminary view, considers that EMS "failed to fulfill its obligations under the Energy Community Treaty." With the support of EU and other donors, KOSTT has made progress on increasing its transmission network capacity and network security. However, pending resolution of its dispute with Serbia, KOSTT cannot participate in the regional mechanisms. In addition to manipulating the capacity of the lines, Serbia does not pay transit costs for using lines going through Kosovo.

[41] The report was released in April 2013. http://www.cao-ombudsman.org/

- Kosovo is a Contracting Party to the regional Energy Community and is linked to the regional system via interconnections with Serbia, Macedonia, Montenegro, and Albania. The electrical transmission system is interconnected with all neighboring systems at the 400 kV levels, except the interconnection with Albania that currently is at 220 kV level. Kosovo is going forward with its portion of constructing the line. The new line will provide Kosovo current capacities for electricity exchange to be substantially upgraded. The line will contribute towards optimization of the cooperation between Kosovo's thermal power based system and Albania's hydropower based system. It will take 2-3 years to harmonize a legal framework between the two countries. The 400 kV line will also enhance electricity exchanges in the region. Apart from upgrading their transmission capacities, KOSTT is actively working in reducing the transmission losses that are in the range of 2-2.5 percent.

Category B: Businesses and Non-Governmental Organizations

- No comments were made

Energy Regulatory Office (ERO)
Stakeholder comments
Category A: Governments and Multilateral Organizations

- A stakeholder explained that the Energy Regulatory Office (ERO) is an independent entity established in 2004, created in line with Kosovo's obligations under the ECSEE Treaty. As an independent entity, its decisions should not subject to political pressure.
- A stakeholder said that the ERO is functioning well and actively scrutinizing regulatory risks. The ERO concluded that there were no regulatory risks associated with the KEDS transaction.
- A stakeholder said that the GoK and IMF are committed to raising money, which has resulted in significant increased royalty payments on coal. The royalty payments have been increased from 27 cents/ton to €3/ton, which translates into a 33 percent increase in the price of coal. This has resulted in the cost of mining to increase to €9/ton, resulting in an 8-9 percent increase in electricity costs to consumers. The rule was passed by Parliament and the ERO increased the tariff 3 percent, to 8.9 percent. The 3 percent does not cover the increase in the royalty. The tariff will be increasing, but the ERO does not know the extent of the increase.
- One stakeholder stated that the GoK has a cap on tariff increases – 8.9 percent in the first year, with a 9 percent limit each subsequent year. The remainder of the tariffs will go into effect in 2013. The royalty is a one-time increase and after that, incremental costs will need to be covered increases in other areas.
- A stakeholder said that the EU Commission wants Kosovo to implement cost reflective tariffs. Historically, the tariffs did not follow inflation rates so now the country is moving towards cost reflective tariffs and the 9 percent increase will be economically difficult for citizens.
- A stakeholder said that the electricity costs are low but high compared to peoples' living rates.
- Other stakeholders indicated that renewable energy would significantly increase tariffs and that coal provides the cheapest and most secure energy available.
- A stakeholder said that there are approximately 30,000 households classified as social cases. They are provided with a cash allowance and ~250 kW/month from the GoK. The GoK has continued to maintain a reserve of € 4.5 million for the safety net but there are increasing numbers of vulnerable households, resulting in less money and electricity going to each household. During one discussion, the question was raised whether the use of best technology for KC will increase tariffs or, if renewables were used, the tariffs would go down. One stakeholder stated that the answer is not known because a feasibility study will need to be done. They continued to state that renewables would need stable regulation. They also stated that initially, there might only be an energy output of 300 MW of renewable energy.

Category B: Businesses and Non-Governmental Organizations

- No comments were made

Potential Adverse Impacts on the Environment, Natural Resources, Public Health, and Indigenous Peoples

This section reflects comments made by stakeholders concerns and thoughts about health, environmental monitoring, agriculture, and water. These comments may contribute to the ESIA study structure, alternatives analysis, and cumulative impacts.

Agriculture and Water Sectors
Stakeholder comments
Category A: Governments and Multilateral Organizations

- The Gazivoda Reservoir lies partly in Serbia, but its dam and the entirety of the canal lie inside Kosovo. The reservoir capacity is 350-370 million/m3 while current demand is 60 m/m3 annually, including losses. The nominal capacity at its inlet is more than 10m3/sec but with losses of above 50 percent, its delivery capacity declines along its run.
- The minimum environmental flow from the Reservoir is reportedly based on a Yugoslavian treaty where the flow can neither be stopped nor increased. Other discussions indicated that there is no valid international water treaty for the Ibër River.
- In general, normal losses for this type of a canal system range between 15 and 20 percent. The canal is currently operating at less than 20 percent capacity, due to the extended period without investments in the maintenance of the system.
- Therefore, considerable investments are now required to reduce the losses. System priorities to rehabilitate the canal include repairing structural defects, providing protection against land-based pollutants and landslides and eliminating dumping of solid waste. Financial resources for this work are a combination of ILC budget and a €22 million WB loan.
- The maintenance is difficult and expensive because the flow of water in the canal cannot be stopped, so a majority of the structural work must be accomplished under water.
- The Canal supplies water for a wide variety of uses including:
    - Water supply for KEK operations
    - City of Pristina's water supply
    - Water supply for mining operations
    - Irrigation
- The Ibër-Lepenec Canal is a key component to KC because it will provide water for the power plant. When KC was initially discussed, an initial study looked at water supply needs and consumption rates and concluded that there is sufficient water supply for all three power plants even without the full capacity of the Ibër-Lepenc Canal.
- Additionally, the canal provides irrigation to five municipalities. The canal was designed to irrigate 20,000 ha but now it is reduced to 10-11,000 ha.
- The reasons for this decrease is a combination of factors: the irrigation pipeline network in the fields was destroyed during the war and following the war, and construction occurred in arable land, further reducing the area available for irrigation because the municipalities did not have a development strategy. Approximately 7,500 ha have been rehabilitated in the last seven years.
- It is estimated that at maximum there will only be 14-15,000 ha for irrigation. The amount of land will never be able to go back to the original 20,000 ha because of construction.
- The municipalities have changed land use over time, thus new circumstances have created this situation. Of the 11,000 ha currently available about 1,900-2,000 ha is irrigated based on farmer

demand. Requests for irrigation are increasing because five years ago, only 600 ha were irrigated and now 2,000 ha are irrigated. For 2013, estimates are that 2,500 ha will be irrigated.

- The Ministry of Agriculture has a countrywide target of 18,000 ha irrigated land.
- There is plenty of water in the Iber Lepenec Canal for the government's expansion of agriculture and the new power plant. This stakeholder said that the canal had enough excess water to supply multiple new Kosovo Cs.

Category B: Businesses and Non-Governmental Organizations

Stakeholders' concerns with the WB Water Security for Central Kosovo study (2012) include the following:

- Data used for the simulations is incomplete in that recent hydrological data was either lacking or not reliable enough for including in the study.
- Agriculture
    - Agricultural water requirements were based on potato crops, not on high-end horticulture crops (vineyard, greenhouse crops) that the WB and other donors are supporting.
    - The study assumed only 8,000 ha of irrigated land, while stakeholders suggested that there would be 14-15,000 ha available for irrigation.
- Power plants
    - The study did not take into account water requirements for the expansion of the coal mining operations and associated activities (conveyance to the power plant, coal washing to remove impurities).
    - Given that the technologies (including pollution controls and water purification system) and final size of the power plant are not known, the study appeared to only consider water requirements for the cooling process, although the various types of cooling technologies require different amounts of water.[42]
- Other stakeholders indicated that other external factors that could influence water security include Serbia's plans to increase its power generation through hydroelectricity in the Ibër River Basin. However, some stakeholders stated that it is unlikely that any hydropower plants will be upstream of the Kosovar section of the Iber River. In a long-term perspective, the energy and water demand of towns close to the Gazivoda reservoir may have an influence on the optimal use of its waters. In several follow-on discussions, Kosovo stakeholders were not aware of plans for hydropower in Serbia on the Iber River.

Environmental Monitoring and Health Sector

Stakeholder comments

Category A: Governments and Multilateral Organizations

- The Hydrological Institute monitors both air and water quality throughout Kosovo. The EU is supporting 13 air-monitoring stations throughout the country. All air monitoring stations met EU standards for data collection and EMMA software is being used to process the data.
- The air standards used are from the EU and reflected in the Kosovo administrative instructions. For example, the EU Directive for ambient air No 02/2011 and a similar Directive for emissions is used. The ambient air Directive also determined the locations for the air monitoring. However, the Institute only measures ambient air quality, not emissions.
- USAID air samples are sent to the United States for analysis, so this information is not incorporated into the database. In the future, it would be ideal to incorporate USAID results with the rest of the data.

[42] These comments were based on discussion and a draft copy of a report released by Heike Mainhardt and Nezir Sinani, January 2013.

- Water quality for every river is monitored at 4-5 points for a total of 52 sites. Samples are taken once a month, resulting in 12 measurements for each point. Collection of samples from operators discharging wastewaters will occur above and below the discharge point in addition to the site of discharge.
- The same equipment is being used to measure air and water. It is desirable to have additional training because the initial training that was part of the tender for the equipment was not long enough.
- Stakeholders stated that they were aware that coal has potentially significant environmental effects, and that decommissioning KA and replacing it with KC would significantly reduce emissions and the resulting health impacts.

Category B: Businesses and Non-Governmental Organizations
Stakeholder comments

- Earlier in 2012, a World Health Organization (WHO) delegation performed an assessment and will be recommending a new project to develop Kosovo's capacity to study environmental impacts on public health.
- According to one stakeholder, the areas around the power plants are a critical environmental situation and a significant concern for the health sector. Despite the installation of the ESP filters, the environmental conditions around the power plants are still not satisfactory.
- Since Kosovo is not eligible to join the United Nations or most of its agencies, Kosovo has not become a member state of WHO[43] so there is no regular budget from the WHO. Funding opportunities could be through UN Trust Funds. The EU Commission may support specific projects.
- One stakeholder indicated that efforts in the short term to monitor environmental health impacts should include:
  - Continue installing the ESP filters on KA
  - Systematic health visits of all populations and determine health status in a snapshot

Section 3 - Recommendations for the Project/Conclusion

The energy sector in Kosovo is a critical aspect of the country's economic development, and energy security is a priority for the government. The following environmental recommendations are based on the site visit, and the review of documents. The Draft Terms of Reference (TOR) was available for public comment in August 2012. USG (including USAID) provided comments to the World Bank.[44] The following recommendations are based on the results of the Affirmative Investigation, which took place after the USG provided comment on the TOR, and therefore were not provided to WB during the TOR review. At this time, the WB has finalized the terms of reference (TOR) and is working toward initiating the ESIA for this project. Therefore, the purpose of these recommendations is to provide the WB, GoK and donors with possible approaches to advance the scope and quality of the ESIA for the proposed KC. Some of the recommendations require actions from different entities but are important components to consider for long-term sustainability.

- Consider that the proposed KC ESIA provides a clear statement of and rationale for the project. A clear statement will provide the basis for identifying and analyzing the alternatives, in addition to

[43] All countries which are Members of the United Nations may become members of WHO by accepting its Constitution. Other countries may be admitted as members when their application has been approved by a simple majority vote of the World Health Assembly. - http://www.who.int/countries/en/
[44] The TOR has since been finalized and is available to the public.

alternatives that look beyond location and design issues to consider alternative means of achieving the development objectives of the project.

- Consider that the environmental alternatives analysis includes an analysis of renewables, increased efficiency and reducing commercial and technical losses in the current system, includes a cumulative impacts analysis appropriate to the clear statement of and rationale for the project,
- Consider that baseline data may provide a sufficient basis for a full assessment of direct, indirect, cumulative and associated facilities impacts. If the existing information contains gaps in necessary data or is incomplete in ways that are material to the assessment of impacts, the additional information should be collected using internationally recognized and/or best practice methodologies.
- Concurrently with the ESIA for KC, consider conducting a strategic environmental assessment for the energy sector that serves as a systematic decision support process, with the goal to ensure that economic viability, environmental, social and other sustainability aspects are considered effectively in policy, plan and program design.
- Consider developing specific guidelines for national soil and groundwater quality standards; soil protection measures and waste discharge limits for surface water so KC will have specific standards by which it must operate.
- Establish clear guidance for national compliance limits on emissions and air quality so KC will have specific standards it must operate under, and incorporate that information into its ESIA.
- Consider performing a life cycle assessment for the deployment of carbon capture and sequestration (CCS) technology such that the power plant is designed and constructed with operational CCS sufficient to reduce the plant's carbon intensity. This life cycle assessment could provide a more comprehensive assessment of the sustainability of CCS and aid in identifying potential environmental, social or risk-related issues for incorporation into the ESIA (e.g. use of amine-stripping system, transportation and storage.)
- Consider an environmental health monitoring system to provide baseline data on air, soil and water emissions to inform the KC ESIA and prior to construction of the new power plant.

Based on the information to date, other potential recommendations that could be considered during the development of the project to assist in ensuring a sustainable energy sector and that could be based on information to date, or information collected during the ESIA preparation, include:

- Establish a specific timeline and with resources to improve the regulatory framework and transmission system for renewable energies to ensure that Kosovo meets its planned target to produce 25 percent of its energy from renewable sources by 2020 (up from the current level of less than 19 percent).
- Establish a timeline and milestone measurements for consideration of other potential thermal alternatives to coal, that could support the future demand of the country such as consideration for the EU Energy Community proposal for an Energy Community Gas Ring, which would provide the option of supplying Kosovo with natural gas. The GoK and WB have also referred to this strategy in their Energy Strategy, CSP and Options paper.
- Concurrent with KC development and requirement for carbon capture, consider establishing a process and resources for future CO_2 capture, transportation and disposal at storage site when the technology is available.
- Based on the critical importance of water for Kosovo's development in priority sectors – agriculture and power – and the conclusion of the WB water report that "climate change will worsen the already declining water supply and will pose an unprecedented water challenge after 2020," develop a single river basin management plan for the Ibër Lepenc system with upstream and downstream riparian countries as required for EU policy. This should be a part of the effort to strategically manage Kosovo's water resources given that the Ibër is a transboundary river.

- Establish a clear policy for the strategic allocation of water for various sectors (e.g. agriculture, water supply, power plants, industry) or issuing of long-term water usage agreements, and develop a well-defined mechanism for the resolution of competing water demands (for example, when there is a drought and water shortage, what is the defined mechanism for resolution?).