

Ex post evaluation – Kosovo

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Sector: Electrical transmission/distribution (CRS code 2331000)
Project: Energy for Kosovo sectoral programme Phase I, Peja 3 substation (BMZ no.: 2005 66 166)* and complementary measure* (CM) (BMZ no.: 2005 70 382)
Implementing agency: Kosovo Operatori i Sistemit, Transmisionit dhe Tregut (KOSTT)



Ex post evaluation report: 2019

		Investment (Planned)	Investment (Actual)	CM (Planned)	CM (Actual)
Investment costs (total)	EUR million	15.25	21.54	1.00	1.14
Counterpart contribution	EUR million	4.75	9.21	0.00	0.00
Funding	EUR million	10.50	12.33	1.00	1.14
of which BMZ budget funds	EUR million	10.50	12.33	1.00	1.14

*) Random sample 2018

Summary: Phase I of the open programme for the development of Kosovo's energy sector, as outlined in the appraisal report of 24 January 2006, focused on strengthening Kosovo's transmission network. The regional focus of the investments in Kosovo's electricity transmission system was the north and north-west of Kosovo. At the start of the programme, the 110 kV transmission lines that supplied this part of the country were too long and the wires too thin relative to the voltage level. The result was very high losses and voltage fluctuations, so the demand for electrical energy could not be sufficiently met. The investments in Phase I include the new Peja 3 substation to connect the north and north-west to the 400 kV line from Prishtina to Montenegro, expansion of the Peja 1 and Istog stations, a new transmission line between Peja 3 and Klina and an increase in capacity for the line between Peja 3 and Peja 1.

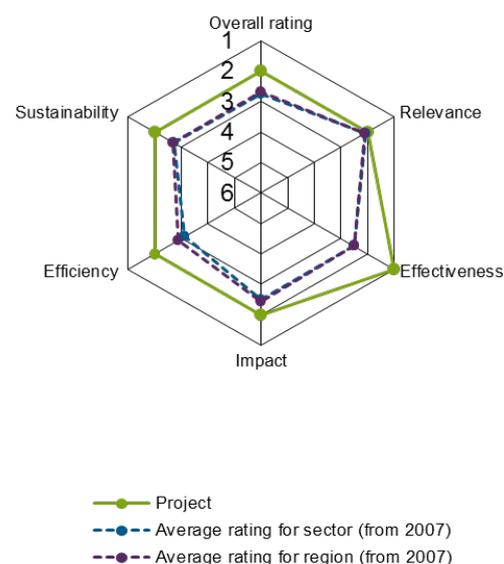
Objectives: The aim at outcome level was to stabilise the power supply in the underserved north and north-west of Kosovo via the Peja 3 substation. The aim at impact level was to make a contribution to the economic and social development of Kosovo. No special objective was set to reflect on the conflict context.

Target group: The target group was all electricity users in north and north-west Kosovo.

Overall rating: 2

Rationale: The problems and the impact chain assumed at the time of the project appraisal were relevant. The quantitative objectives of the project were exceeded efficiently. The intended overarching developmental impact, to the extent that it can be assessed, was achieved. At the time of the ex post evaluation, the structural investments were in very good condition and operating without disruptions. Maintenance and servicing are sustainable. The capacity building of the implementing agency is also sustainable.

Highlights: The political conflict between Serbia and Kosovo has a direct impact on the implementing agency KOSTT. One reason is that electricity tariffs in what in reality is Serbian North Kosovo cannot be enforced. As a result, KOSTT cannot completely cover its costs. On the other hand, KOSTT is not yet a member of the European network because Serbia has been vetoing it. This means that no revenue can be generated from cross-border electricity transmission. Despite these difficulties and short period of operation, KOSTT is perceived in the transmission sector as an exceptionally professional and competent company by regional standards.



Rating according to DAC criteria

Overall rating: 2

Ratings:

Relevance	2
Effectiveness	1
Efficiency	2
Impact	2
Sustainability	2

Preliminary remark

Kosovo is the youngest nation on the European continent. On 17 February 2008, the parliament in Prishtina declared Kosovo's secession from the Republic of Serbia, but this is not recognised by the Serbians. This affects the Peja 3 project indirectly. Electricity tariffs in northern Kosovo, which is mainly inhabited by Serbs, are generally not paid. The project addressed this situation with sensitivity to the conflict: stronger pressure by Financial Cooperation (FC) to force Serbian electricity customers in northern Kosovo to meet their payment obligations would have intensified the existing conflict potential. Since the conflict over tariffs is only indirectly linked to the project, dual objectives were not specified. However, the conflict context and its effects are explicitly mentioned in the relevant places.

Relevance

At the time of the project appraisal in 2006, the unreliable electricity supply was one of the main impediments to economic development in Kosovo and the project region. The transmission system exhibited significant inadequacies and was the main problem hindering efficient energy use in Kosovo's electricity sector. This was also confirmed in discussions with the implementing agency, government representatives and entrepreneurs during the ex post evaluation mission. According to the implementing agency, voltage fluctuations, power outages and scheduled shutdowns reached more than 5,409 hours per year in 2008, roughly 62% of the total time. Northern and north-western Kosovo (project region) was supplied via 110 kV lines with voltage losses and fluctuations, as there was no direct connection and the lines ran through northern Kosovo. The distance over which the electricity was transmitted (around 100 to 200 kilometres) was too far for a 110 kV line to bring the electricity to the region without significant losses or fluctuations. Damage to electronic equipment caused by voltage fluctuations and emergency diesel generators, which are harmful to air quality, were widespread in both urban and rural areas in the project region. As the most important donor in Kosovo, the EU acknowledged this situation at the project appraisal and invested in the transmission network in the eastern part of Kosovo during the same period.

The impact chain is described as follows: the newly constructed transformer station Peja 3¹, which connected the project region to the 400 kV line leading to Montenegro, was intended to transport electricity from the Prishtina generation centre directly through the project region. This would mean that the higher-voltage electricity and the higher associated transmission capacity would be routed halfway to the project region, thereby reducing the voltage fluctuations and losses in this region (outcome level). The assumption was that a more reliable electricity supply would improve conditions for businesses to create jobs, eventually increasing income and economic growth. At the same time, other social institutions such as schools or hospitals could also improve the quality of their services through improved electricity supply (impact level). This impact chain is plausible since improving the electricity supply in the project region is a necessary condition for making a positive contribution to the country's economic and social development. In addition to the regional project impact, the connection of northern and north-western Kosovo to the 400

¹ As the construction of the new transformer station Peja 3 constituted the main investment and the ancillary investments listed in the cover sheet were intended to achieve the same effect, references to Peja 3 below shall mean all investments.

kV line between Prishtina and Montenegro by building Peja 3 will contribute to greater grid stability throughout the country as the whole of Kosovo is supplied by the same electricity grid.

The complementary measure included the instruction and further training of the project managers at the implementing agency by the consultant as part of project implementation. Taking the investments financed by FC as an example, the aim was to develop skills in the planning, construction and maintenance of fixed assets. This was highly relevant at the time of appraisal since the implementing agency was created in 2005 as a spin-off of the national energy utility Kosovo Energy Corporation (KEK, abbreviation for its Albanian name) and, as a restructured company, it did not yet have a functioning project management system and the necessary technical staff. The skills acquired under the complementary measure are relevant beyond the FC programme, as KOSTT continuously invests in the electricity grid.

At the time of the project appraisal, the project was consistent with international development goals (SDG7 - “Ensure access to affordable, reliable, sustainable and modern energy for all”), the BMZ’s sector concept for energy, and the definition of Financial Cooperation priorities with Kosovo. They continue to be relevant. From today’s point of view, the relevance of the project results and impacts for the partner still applies, as a reliable electricity supply remains a prerequisite for economic development in the region.

Relevance rating: 2

Effectiveness

At the appraisal, the project objective (outcome) was defined as improving the electricity supply in the project region.

The quantitative target indicators are as follows:

Indicator	Status PA, target PA	Ex post evaluation
(1) Reduction of annual power outages due to voltage loss or fluctuations	Status PA: 400 hours; Target value PA: reduction by at least 80 hours	Cannot be determined
(2) Reduction of hours with voltage losses, power outages or scheduled shutdowns per year	Status and target value PA: Not available; Figure in 2008: 5,409 hours	Figure in 2017: 366 hours
(3) Reduction of absolute transmission losses per year	Target value PA: Not available; Figure in 2008: 210 GWh	Figure in 2017: 118 GWh
(4) Reduction of relative transmission losses per year	Status and target value PA: Not available; Figure in 2008: 2.43%	Figure in 2017: 1.46%

(1) Reduction of annual power outages caused by voltage stability

We calculated the basic and target values at the time of the programme appraisal. The target value was based on the specification that the base value was to improve by 20%. When the project was completed in 2016, a reduction of 330 hours was calculated, which represents an improvement of 82.45%. At the time of the ex post evaluation, the figure could not be determined because the calculation method proved to be unclear. The excessively high value is also an indication that the target value was not appropriate. As a result, the indicator is only meaningful to a limited extent in the ex post evaluation.

For this reason, the following three indicators were recorded as they can be verified by the implementing agency. The baseline year is 2008, as Peja 3 was commissioned during the year 2009. The indicators relate to the entire national electricity grid. We expect the same effects in the project region, as it is part of

the national electricity grid and has benefited directly from the project. Part of the positive development of the indicator values is probably due to EU investments in the electricity grid during the same period (construction of a new 400/110 kV transformer station southeast of Prishtina). An exact quantification is not possible.

(2) Reduction of hours with voltage losses, power outages or scheduled shutdowns per year

Prior to project implementation, bottlenecks in the electricity supply occurred for most of the day (62%). This value improved continuously until 2017 to 366 hours in 2017 (approx. 4.2% of all hours in the year). The biggest leap was recorded after Peja 3 was commissioned (2010: 2526 hours, improvement of approx. 53% compared to 2008). The development of this indicator suggests that the Peja 3 substation has made a significant contribution to stabilising the grid.

(3) Reduction of absolute transmission losses per year

The absolute transmission losses decreased significantly, especially between 2008 and 2010 (from 210 GWh to 131 GWh, improvement of approx. 38%). Since 2011, the values have stabilised at around 115 GWh.

(4) Reduction of relative transmission losses per year

The relative transmission losses have also fallen sharply and made the biggest leap between 2008 and 2010 (from 2.43% to 1.49%, improvement of around 39%). From 2011 to 2016 the values remained constant at around 1.3%, in 2017 the figure was 1.46%. KOSTT explains this increase by referring to investments, the construction of which has partially disrupted normal grid operation, and anticipates a return in 2018 to the value of the years before 2017.

The very good developments of the indicators reflect the quality of the facilities, their excellent condition and proper maintenance. Overall, the investments promoted by FC under the programme evaluated here made a significant contribution to improving the quality of electricity supply in Kosovo.

Effectiveness rating: 1

Efficiency

As far as production efficiency is concerned, the construction of the Peja 3 substation was the most efficient method of achieving the project objective. The programme investments, most of which involve the design and construction of the Peja 3 substation, were implemented efficiently. This is reflected in the costs of EUR 21.6 million, which are appropriate by regional comparison, with a significant counterpart contribution of EUR 9.2 million. Due to the good technical quality, the maintenance and repair costs are low or within the usual range for a substation.

The electricity tariffs for end customers are set annually by the independent regulator ERO and enforced by the monopoly supplier KESCO. When compared regionally, the electricity tariffs were relatively low at EURc 6.6/kWh in 2017 (EU average EURc 20.4/kWh, Western Balkans EURc 8.0/kWh). The tariffs nevertheless cover costs according to ERO. The grid fees allocated to KOSTT are reasonable and the operation of KOSTT is generally profitable. The problem, however, is that electricity tariffs cannot be fully collected because the Kosovar government cannot enforce its government authority in northern Kosovo, which is effectively an independent state, and thus cannot exercise fundamental functions such as the billing of electricity tariffs. This problem is a consequence of Kosovo's declaration of independence in 2008, supported by the NATO mission. This declaration is not recognised by Serbia and Kosovo is regarded as a Serbian province. The EU, as Kosovo's most important supporter, considers the country's borders, including northern Kosovo, to be definitive. In the rest of the country, however, households pay in full, so the collection efficiency can otherwise be rated as good. Ultimately, however, not all costs can be covered.

The basic profitability is remarkable given that KOSTT was spun off from KEK only in 2005 and had to restructure itself as an independent company. During this time, KOSTT modernised and expanded its fixed assets with the financial support of international donors like German development cooperation and the EU. It was therefore possible to reduce transmission losses to a level comparable with OECD countries (see indicator on relative transmission losses). In addition, KOSTT is recognised in the region as a very professional and competent company.

Another obstacle to cost recovery is the ongoing membership in the European Transmission System Operators Association (ENTSO-E). As a result, KOSTT cannot credit any transmission capacities to cross-border electricity transmission and therefore cannot generate the revenues from cross-border electricity transmission, although KOSTT pays for the maintenance of the lines. As the Serbian transmission system operator EMS is an ENTSO-E member, EMS can offset corresponding capacities and collect the revenues. This situation is also the result of the political conflict with Serbia. To become a member of ENTSO-E, a Serbian electricity supplier must be registered in Kosovo alongside KESCO. However, Serbia is blocking this registration because it does not recognise Kosovo as an independent state.

Overall, production efficiency can be rated as good despite the delays, but allocation efficiency can only be rated as satisfactory due to the insufficient cost recovery.

Efficiency rating: 2

Impact

The overarching developmental objective (impact) was to make a positive contribution to Kosovo's economic and social development. No indicators were defined.

A reliable electricity supply with fewer outages (outcome) is a necessary condition for economic growth, even if the contribution is not clearly quantifiable. The contribution made to social development by a reliable electricity supply is even more difficult to measure. However, discussions with two local companies and the vice-mayor of the region of the project location have provided anecdotal evidence for target achievement.

Before the construction of the Peja 3 substation, power outages were the main problem for business owners. Since the substation became operational, the reliability of the electricity supply has improved by leaps and bounds. Remaining inadequacies in the electricity supply are due to the distribution network, which is beyond the implementing agency's control. In recent years, several larger companies have moved to urban and rural areas in the project region or have invested more (e.g. dairy, fish farming, asphalt production). This has enabled production facilities to be set up and expanded, productivity increased and jobs created. In terms of social development, it can be said that medical facilities, schools, day care centres and sports facilities have also benefited or continue to benefit from the more reliable electricity supply. The contribution to a more stable electricity supply throughout the country also facilitates economic and social development at national level. The economy in Kosovo has grown by an average of 3.5% since 2010. Without being able to measure the exact contribution, the achievement of the indicators at outcome level, the anecdotal evidence and the positive development of economic growth suggest that the project has made a contribution. The overarching developmental objective can be considered achieved.

The climate impacts are limited and indirect. The efficiency of the electricity grid is increased by reducing voltage fluctuations and power outages. Since around 95% of Kosovo's electricity is generated from lignite, it can be assumed that greenhouse gas emissions will be reduced if the electricity grid becomes more efficient. In addition, it is important to consider energy imports and exports to and from Montenegro, as the project region can be supplied with electricity from Montenegro since Peja 3 was commissioned. Since the start of operations, electricity imports from Montenegro have risen slightly disproportionately compared to total electricity imports from Kosovo. Electricity exports to Montenegro fell slightly, although total exports more than quadrupled in the same period. As Montenegro has a much more sustainable electricity mix (about three quarters of the generation capacity comes from renewable energy sources, Kosovo about 5%), a limited indirect positive impact on the climate can be assumed.

Environmental impacts have not been identified; oil is handled properly at the substation. No unintended negative social impacts were found either. Random discussions with landowners whose plots of land were used to build the 110 kV line financed from project funds indicate that the landowners affected have accepted the compensation offers proposed by KOSTT. In one case, a disproportionately large amount may have been paid because the landowner took the case to court. The implementing agency, who had proposed what it thought was an appropriate amount, pointed out to us that the chances of success in this process would have been extremely low. As a result, KOSTT, which financed the compensation amounts from its own resources, refrained from further legal measures.

Impact rating: 2

Sustainability

At the time of the ex post evaluation, the Peja 3 substation was operating without disruptions. The project impacts at outcome level (see section on effectiveness) are ongoing and expected to continue. This is due on the one hand to the full capacity utilisation of the substation in line with expectations. Peja 3 will be the only substation in the foreseeable future that will allow electricity to be transported from Prishtina to the project region via the 400 kV line. On the other hand, the technical quality and maintenance of the facility are very good and integrated into the operational monitoring of the implementing agency via the control centre. There is potential for improvement in monitoring by the control centre, as not every operational warning message is clearly identifiable in the control centre and thus requires the continuous presence of a technician on site. If a warning message cannot be clearly identified and the technician on site is not available at this moment, malfunctions may occur. This has not yet occurred and the probability of it happening is very low, but it is advisable to transmit the warning messages to the control centre in a way that they can be clearly identified.

Two power transformers are installed in Peja 3 to guarantee the power supply even in the event of a transformer failure. This redundancy is, among other things, a minimum standard in ENTSO-E and one of the many prerequisites for membership. The transformers are called “autotransformers”. However, following an analysis of the configuration of the two transformers, it can be said that the transformer supplied first for the tertiary winding probably has physically higher performance data than indicated on the type plate. This issue could not be fully clarified to its technical complexity, but the possibility cannot be ruled out that the configuration of the two transformers was not optimal, which could have a negative impact on sustainability.

The overarching developmental impacts (see previous section) persisted until the time of the evaluation and are expected to continue in the future. The impact chain from outcome to impact level (achieving the indicators will create a more stable electricity supply as a basis for economic growth) is plausible and sustainable. Nevertheless, cost recovery is highly uncertain due to the situation in the Serbian part of northern Kosovo. However, this problem has only an indirect and relatively minor influence on the impacts of the project. This is mainly dependent on the functioning operation of the Peja 3 substation. As the maintenance and servicing of Peja 3 is relatively cost effective compared to new investments in the electricity grid, it is unlikely that the operation of Peja 3 would be significantly disrupted by KOSTT even in the event of possible financial bottlenecks.

In terms of the sustainability of the complementary measure, the effects are also of a sustainable nature. Project management at KOSTT continues to be centrally responsible for the operation and expansion of KOSTT's fixed assets and is the first point of contact for the ongoing FC programmes. The improved skills of the implementing agency that we are striving for exist today and will continue to do so.

Sustainability rating: 2

Notes on the methods used to evaluate project success (project rating)

Projects (and programmes) are evaluated on a six-point scale, the criteria being **relevance, effectiveness, efficiency** and **overarching developmental impact**. The ratings are also used to arrive at a **final assessment** of a project's overall developmental efficacy. The scale is as follows:

Level 1	Very good result that clearly exceeds expectations
Level 2	Good result, fully in line with expectations and without any significant shortcomings
Level 3	Satisfactory result – project falls short of expectations but the positive results dominate
Level 4	Unsatisfactory result – significantly below expectations, with negative results dominating despite discernible positive results
Level 5	Clearly inadequate result – despite some positive partial results, the negative results clearly dominate
Level 6	The project has no impact or the situation has actually deteriorated

Rating levels 1-3 denote a positive assessment or successful project while rating levels 4-6 denote a negative assessment.

Sustainability is evaluated according to the following four-point scale:

Sustainability level 1 (very good sustainability): The developmental efficacy of the project (positive to date) is very likely to continue undiminished or even increase.

Sustainability level 2 (good sustainability): The developmental efficacy of the project (positive to date) is very likely to decline only minimally but remain positive overall. (This is what can normally be expected).

Sustainability level 3 (satisfactory sustainability): The developmental efficacy of the project (positive to date) is very likely to decline significantly but remain positive overall. This rating is also assigned if the sustainability of a project is considered inadequate up to the time of the ex post evaluation but is very likely to evolve positively so that the project will ultimately achieve positive developmental efficacy.

Sustainability level 4 (inadequate sustainability): The developmental efficacy of the project is inadequate up to the time of the ex post evaluation and is very unlikely to improve. This rating is also assigned if the sustainability that has been positively evaluated to date is very likely to deteriorate severely and no longer meet the level 3 criteria.

The **overall rating** on the six-point scale is compiled from a weighting of all five individual criteria as appropriate to the project in question. Rating levels 1-3 of the overall rating denote a "successful" project while rating levels 4-6 denote an "unsuccessful" project. It should be noted that a project can generally be considered developmentally "successful" only if the achievement of the project objective ("effectiveness"), the impact on the overall objective ("overarching developmental impact") and the sustainability are rated at least "satisfactory" (level 3).