

Albania is highly dependent on hydropower which has historically been showing a high volatility; in 2010 electricity generation was ca. 2000 GWh higher than 2009, while 2011 electricity generation was ca. 3000 GWh lower than in 2010. Also in the future additional hydropower plants are planned that will increase the country's dependence on water. In the low growth electricity consumption scenario Albania will not be able to cover its electricity needs. In supply scenario 1 the country needs to import around 5000 GWh. Also in supply scenario 2 and 3 the country is short, however by a much smaller fraction. Only in supply scenario 4 the country is able to export electricity.

In the case of medium consumption growth, Albania would remain an energy importer under all scenarios but scenario 4. In the latter case the country would be able to export several hundred GWh. This scenario does, however, presume that significant advances in wind power generation are undertaken.

With high electricity consumption demand in Albania, it can clearly be seen that all production is insufficient for satisfying Albania's electricity demand. Even in the case of supply scenario 4 Albania would remain an electricity importer. Significant electricity capacity extensions and/or energy savings measures should be undertaken to satisfy national demand and to cushion electricity supply volatility relating to hydropower generation and wind.

In case of the low consumption growth scenario it is apparent that Albania is a net importer. It was only able to export electricity in 2010, which was a year characterized by heavy rainfall.

In the case of low consumption demand, supply scenario 1 would be insufficient to cover Albania's electricity demand. Scenarios 2 and 3 would enable the country to have a balanced position until 2019 and 2021 respectively. Only supply scenario 4 would enable Albania to become a net exporter of electricity.

In the case of the medium electricity consumption growth scenario it is evident that none of the first three supply scenarios is sufficient to satisfy Albania's electricity demand. In scenarios 2 and 3, Albania would have a slightly negative electricity balance. The country would require the electricity capacity extensions contained in scenario 4 to secure self-sufficiency during the period of examination.

The high electricity consumption growth scenario shows similar but more severe findings to those described in the medium growth scenario above. Only significant electricity generation would enable Albania to satisfy its future energy needs. Nevertheless Albania would remain a net-importer.

In 2014 Albania was in a short position and thus unable to export electricity. The case study

countries were in a net long position entailing that they could export electricity. Examining the Western Balkans and its immediate neighbours jointly, it is noteworthy that they are in a net short position requiring about 28000 to 35000 GWh of electricity. Widening the framework of reference to the Western Balkans and the EU shows that the region is in a slight long position.

In 2019 Albania is in a significant net short position or in a slight positive position and thus unlikely to export electricity. The case study countries would be in a slight long or in a short position entailing that there might be a small export market for Albanian electricity.

However, given the range of the net position, it appears more likely that the case study countries will be striving to export electricity. Again the Western Balkans and its immediate neighbours considered jointly are in a significant net short position and thus be importing electricity. Widening the framework of reference to the Western Balkans and the EU shows, however, that there is no excess demand expected in 2019.

Also in 2024 Albania is in a net short position and thus unable to export electricity.

The case study countries either be in a long or in a short position entailing that there might potentially be an export market for Albanian electricity. However, given the range of the net position, it appears more likely that the case study countries will be striving to export electricity. Again the Western Balkans and its immediate neighbours considered jointly are in a significant net short position or in a net long position. It is thus unclear if they would be importers or exporters of electricity. Widening the framework of reference to the Western Balkans and the EU shows, however, that it is unlikely that there will be a lot of excess demand in 2024.

It is apparent that significant investments in electricity generation have to be undertaken to allow Albania to meet its demand. Only in the case of low electricity demand growth and supply scenario 4 will Albania be able to export up to 2.000 GWh while in all other scenarios the country will be in a short position.

While the above situation would give rise to a substantial dependency on the export market, it may be an unlikely outcome given that in most supply scenarios Albania is a net importer. Stranded assets may therefore not be an immediate concern for the country. Should Albania become a net exporter it bears mentioning that the export analysis shows that the case study countries are likely to compete for exporting electricity to the neighbouring countries. Competition may in particular come from EU Member States, namely Bulgaria and Romania, and possibly in the near future Ukraine and Turkey. A high dependency on the export market would expose the country to the risk of stranded assets. From this point of view, a make-or-buy decision should also be investigated prior to new investments.

Concerning the peak load demand and supply analysis it bears mentioning that the country appears to be ill-prepared in all supply scenarios. The country is unable to satisfy its peak demand. Additional steps such as energy conservation, enhancing grid infrastructure and interconnections should be examined.

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Expanding the energy mix with additional energy sources, as envisaged in scenarios 3 and 4, is therefore evaluated positively as they will diversify Albania's energy mix.

It is not only the supply side that influences the long or short position of Albania, but also demand side. A demand side issue that is not examined in the case study but should be mentioned are the transmission and distribution losses. It has to be noted that Albania has an overall loss in transmission and distribution of more than 45%

An increased performance of the network will have a major impact on the security of supply as well as on Albania's net position. It needs to be noted that losses may also be attributable to electricity theft and may therefore not have an impact on the physical position of the country and its supply security. An analysis of an increased network efficiency would outline the full potential. Moreover, energy efficiency measures may lead to electricity savings and help to improve the country's net position.