



## Albania – the former Yugoslav Republic of Macedonia Power Interconnection (I): Grid Section in Albania

### Partners:

Transmission System Operator in Albania (OST sh.a.)  
The Ministry of Energy and Industry, Albania  
The Ministry of Finance, Albania

### EU contribution:

€14 million (20% of investment cost)  
€2.53 million (project identification and preparation costs)

### Estimated total investment:

€70 million

### Estimated KfW loan:

€50 million

### Beneficiary contribution:

€5 million

### Other grants:

€1 million

Energy

This project is part of the European Commission's initiative to establish an East – West electricity transmission corridor between Bulgaria, the former Yugoslav Republic of Macedonia, Albania, Montenegro and Italy.

The section between Bulgaria and the former Yugoslav Republic of Macedonia has been completed, and the construction of the submarine cable between Italy and Montenegro is underway. In addition, a new 400 kV connection between Albania and Montenegro is now in operation while an undersea cable between Albania and Italy is in the planning stages.

In Albania a 400 kV transmission system will connect Fier to Elbasan and from there to the border with the former Yugoslav Republic of Macedonia. Two substations will be upgraded as part of the project<sup>1</sup>.



Modern substation in Elbasan, Albania.

### Results:

Albanian power transmission system integrated into the European energy market.

Approximately 130 km of 400 kV overhead transmission line from Fier to the border with the former Yugoslav Republic of Macedonia.

Fier and Elbasan substations upgraded.



Existing 400 kV transmission lines in Elbasan, Albania.

<sup>1</sup> Subject to a final decision by the budgetary authorities.

**Estimated Start Date:**  
First quarter 2017

**Estimated End Date:**  
June 2020

**Estimated Loan  
Repayment Period:**  
11 years



Albania – the former Yugoslav Republic of Macedonia electricity transmission interconnections.

Significant increases in annual power load and several new generation sources added to the Albanian grid have put a strain on existing transmission systems, leading to frequent interruptions in electricity supply to domestic and industrial consumers alike.

The existing transmission systems would not be able to cope with the new power generation sources planned for development in southern Albania (e.g. hydropower plants in Devoll, Vjosa, and Osumi river cascades and new gas-powered electricity plants).

The new high voltage supply system will make the power supply system in Southern Albania more reliable and help connect the Albanian power transmission systems to the wider region. At least 800,000 people and numerous industries in the Fier and Berat/Kucova and Elbasan region will benefit from uninterrupted electricity supply.

The European Commission and the European Bank for Reconstruction and Development provided financial assistance for the project identification and preparation phases, as part of the Western Balkans Investment Framework.

The project is now at detailed design stage and the preparation phase is due to be completed in 2016.

No population resettlement will be needed and impact on biodiversity will be minimal since the new facilities will be built on degraded parklands or agricultural land with low productivity.

### Benefits

The investment is expected to generate an additional €314.7 million to Albanian Gross Domestic Product.

At least 800,000 people and numerous industries in the southern part of Albania will benefit from uninterrupted electricity supply.

Reduced transmission losses, leading to lower electricity prices for Albanian consumers, industry and investors.

Secure power supply in Albania by eliminating overloads in the system and so reducing the outages.

Reduced CO<sub>2</sub> emissions in Albania through increased capacity for production of renewable energy.



## Albania – the former Yugoslav Republic of Macedonia Power Interconnection (II): Grid Section in the former Yugoslav Republic of Macedonia

### Partners:

*Electricity  
Transmission System  
Operator of  
Macedonia (A.D.  
MEPSO)*

### EU contribution:

€12 million (24%, out of which €9 million investment and €3 million technical assistance costs)  
€1.8 million (project preparation costs)

### Estimated total investment:

€49 million

### Estimated EBRD loan:

€37 million

Energy

This project is part of the European Commission's initiative to establish an East – West electricity transmission corridor between Bulgaria, the former Yugoslav Republic of Macedonia, Albania, Montenegro and Italy. The section between Bulgaria and the former Yugoslav Republic of Macedonia has been completed, and the construction of a submarine cable between Italy and Montenegro is underway. In addition, a new 400kV connection between Albania and Montenegro is now in operation while an undersea cable connecting Albania and Italy is also planned for the medium term.

Investments<sup>1</sup> in the former Yugoslav Republic of Macedonia include a 400 kV transmission system from Bitola to Ohrid and from there to the border with Albania. It will thus complete the 400 kV electricity ring between Albania, the former Yugoslav Republic of Macedonia and Greece.



Existing 400 kV lines in the former Yugoslav Republic of Macedonia

### Results:

Balanced energy market between the former Yugoslav Republic of Macedonia and Albania.

95 km of 400 kV overhead transmission line between Bitola and the border with Albania (via the Bitola – Resen – Ohrid – Struga corridor).

Bitola substation upgraded and new Ohrid substation built and operational.



View of existing 110 and 400 kV transmission lines.

<sup>1</sup> Subject to a final decision by the budgetary authorities.



Albania – the former Yugoslav Republic of Macedonia Power Interconnections.

**Estimated Start Date:**  
First quarter 2017

**Estimated End Date:**  
June 2020

**Estimated Loan  
Repayment Period:**  
12 years

Electricity generation in Albania is predominantly based on hydropower, while approximately 85% of the power generated in the former Yugoslav Republic of Macedonia is from coal. Connecting the two systems will help to balance the two power markets and enable more efficient management of the reserve and emergency capacities in both countries. Moreover, the new transmission line will trigger better and less expensive energy supply to residents and businesses in the former Yugoslav Republic of Macedonia by normalising voltage levels, stabilising load flow and frequency fluctuations, and decreasing technical losses in the overall transmission system.

The new high voltage supply system will thus not only help complete the connection with the wider region but also improve the capacity and reliability of the power supply system in the former Yugoslav Republic of Macedonia.

The European Commission and the European Bank for Reconstruction and Development provided financial assistance for the project identification and preparation phases under the Western Balkans Investment Framework.

The section from Bitola to the border with Albania is now at detailed design stage; the project preparation phase is due to be completed in 2016.

Construction will not involve population resettlement and will have a minimal impact on existing biodiversity.

### Benefits

At least 270 jobs created by MEPSO and its contractors for the duration of building works, i.e. a minimum of 36 months.

Reduced transmission losses leading to lower electricity prices for householders, industry and investors in the former Yugoslav Republic of Macedonia.

Power supply in both countries secured by eliminating overloads in the existing systems and thus reducing the outages.



## Trans-Balkan Electricity Corridor (I): Grid Section in Montenegro

### Partners:

Montenegro Electricity Transmission Company (CGES a.d.)  
Ministry of Finance, Montenegro

### EU contribution:

€25 million (20% of investment cost)  
€3.5 million (project identification and preparation costs)

### Estimated total investment:

€127 million

### Estimated KfW loan:

€25 million

### Estimated EBRD loan:

€60 million

### Beneficiary contribution and other grants:

€17 million

Energy

This project contributes to the establishment of a Western Balkans regional electricity market through the creation of a 400 kV transmission corridor between Montenegro, Serbia and Bosnia and Herzegovina. The corridor would be further linked to the European Union via the Italy – Montenegro submarine cable which is due to be completed in 2017.

The investments<sup>1</sup> in Montenegro comprise the construction of a new 400 kV transmission line from Lasta to Pljevlja and then to the border with Serbia, including the construction of a new substation in Lastva, the grid connection from Lastva substation to the existing 400kV Podgorica – Trebinje line, and the upgrade of the 400/220/110 kV substation in Pljevlja. The project include the cost of dismantling the existing 220 kV overhead lines between the substation in Pljevlja and the Montenegro/Serbia border.



3D representation of the new 400/110/35 kV substation in Lastava.

### Results:

Montenegrin power transmission system integrated into the wider European energy market.

Approximately 165 km long 400 kV overhead transmission line from Lasta to Pljevlja and then to the border with Serbia.

A new 400kV substation in Lastva and upgraded substation in Pljevlja.



View of existing 400 kV transmission lines along the Trans-Balkan Corridor.

<sup>1</sup> Subject to a final decision by the budgetary authorities.

**Estimated Start Date:**  
Last quarter of 2017

**Estimated End Date:**  
End of 2020

**Estimated Loan Repayment Period:**  
12 years



Existing and planned transmission corridors in Montenegro.

The planned investments will reduce CGES's operational and maintenance costs. They will also help normalise voltage levels, stabilise load flows and frequency fluctuations, and decrease technical losses in the overall transmission system. The project will thus improve the quality and security of the electricity supply to Montenegro and the wider region.

The investment in Montenegro will be coordinated with similar projects in Serbia and Bosnia and Herzegovina: construction of new 400kV overhead transmission lines in Serbia and Bosnia and Herzegovina; decommissioning of existing 220kV lines in Serbia; and upgrading of substations in Bajina Bašta (Serbia) and Višegrad (Bosnia and Herzegovina). The entire corridor is expected to be completed by 2023.

The European Commission, together with KfW Development Bank and the European Bank for Reconstruction and Development, provided financial assistance for project identification and preparation, under the Western Balkans Investment Framework.

The feasibility study and preliminary conceptual designs for the Montenegrin project were completed in early 2015. No population resettlement will be required since the new facilities will be built on, or in the vicinity of, existing transmission corridors.

Specific mitigation measures have been identified for sections where the new investment may lead to forest fragmentation, with potential knock-on effects on the fauna and flora.

**Benefits**

Social welfare benefits associated with the investment on the Montenegrin part are estimated at €7.5 million in 2018 and €5 million in 2023.

Reduced transmission losses and additional electricity generators on the grid, leading to lower electricity prices for residents, industry and investors.

Secure power supply in Montenegro by eliminating overloads in the system and so reducing outages.



## Trans-Balkan Electricity Corridor (II): Grid Section in Serbia

### Partners:

Electricity  
Transmission System  
Operator in Serbia (JP  
EMS)  
Ministry of Mining and  
Energy, Serbia

### EU contribution:

€6.6 million (24%, out  
of which €5.6 million  
investment and €1  
million technical  
assistance costs)

### Estimated total investment:

€28 million

### Estimated KfW loan:

€14.27 million

### Beneficiary (national) contribution:

€7.13 million

Energy

This project<sup>1</sup> contributes to the establishment of a Trans-Balkan Power Corridor that would connect the electricity transmission systems from Serbia, Montenegro, Bosnia and Herzegovina to Croatia, Hungary, Romania and Italy through either 400 kV overhead lines or submarine cable. A new 400 kV transmission line between Kraljevo and Kragujevac will be built and the substation in Kraljevo will be upgraded to 400 kV. These investments are needed because the existing transmission system is seriously out-dated and thus prone to system failures and high operational and maintenance costs.

The Kragujevac – Kraljevo section is on the list of Projects of Energy Community Interest, being located in one of the Energy Community Treaty Contracting Parties (Western Balkans countries, Moldova, and Ukraine). It will upgrade the electricity distribution system in Central and Western Serbia and interconnect it with systems in the neighbouring EU states.



Low voltage transmission lines on the Kragujevac – Kraljevo route

### Results:

Secure and stable electricity supply to Central and Western Serbia and to the wider region by enabling interconnection with other transmission systems in the Western Balkans and the neighbouring EU states.

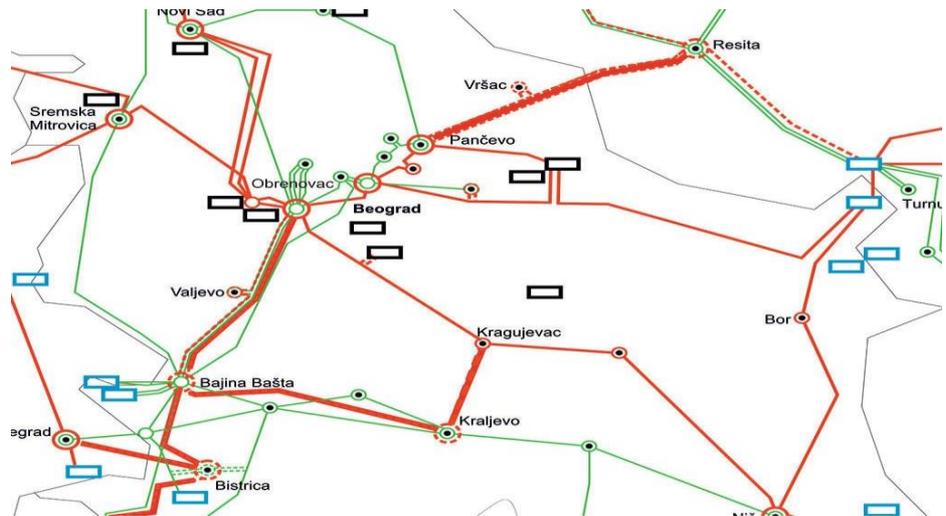
Approximately 59.4 km of 400 kV overhead transmission line from Kragujevac to Kraljevo.

Upgrade of the existing substation in Kraljevo (Kraljevo 3) to 400/220/110 kV.



View of existing 400 kV transmission lines in Kragujevac.

<sup>1</sup> Subject to a final decision by the budgetary authorities.



Existing and planned electricity transmission lines along the Trans-Balkan Corridor in Serbia.

#### Estimated Start

##### Date:

First half of 2016

#### Estimated End Date:

End of 2018

#### Estimated Loan

##### Repayment Period:

12 years

This project improves the security of the electricity supply for the one million residents of Zlatiborski, Moravipki, Rasinski and Raški districts, who are now connected, via 220 kV lines, to the hydropower plant of Bajina Bašta and the 400/220/110 kV substation in Niš. Moreover, the new transmission line is expected to reduce EMS's network losses by approximately 7,000 MWh/year, equating to annual savings of around €380,000.

Other investments in the Serbian electricity transmission network are being considered to capitalize on or complement the new Kragujevac – Kraljevo section of the planned Trans-Balkan Corridor. These include building 400 kV transmission lines (with ancillary upgrades of substations, if appropriate) from Pančevo to Resita (Romania), from Kraljevo to Bajina Bašta, and from Bajina Bašta to Višegrad and then to the border with Montenegro and undersea to Italy. EMS also plans to build a 400 kV interconnection between Serbia and Hungary.

The feasibility study together with the preliminary designs for the project are now complete. The new development will have a low to moderate social and environmental impact since the new facilities will be built in close proximity to the existing transmission corridors.

Statutory planning and land expropriation issues should be resolved by October 2015 and the construction permit granted by the end of 2015. The upgraded substation and overhead transmission line are due to become operational by 2020.

#### Benefits

Secure power supply in Western and Central Serbia for 1.05 million consumers (15% of the total population of Serbia) by eliminating overloads in the existing system and thus reducing outages.

Reduction of transmission losses by approximately 7,000 MWh/year, i.e. savings of around €380,000/year.

CO<sub>2</sub> emissions reduced by 5,832 tonnes/year.



## Mediterranean Corridor (CVc): Bosnia and Herzegovina – Croatia Road Interconnection

### Partners:

Federal Ministry of Transport and Communications, Bosnia and Herzegovina  
PC Motorways of the Federation of Bosnia and Herzegovina (JP Autoceste FBiH d.o.o.)

### EU contribution:

€22 million (20% of investment cost)  
€2.5 million (project preparation support)

### Estimated total investment:

€109 million

### Estimated EIB loan:

€45 million

### Beneficiary contribution and other grants:

€42 million

Transport

The Mediterranean Corridor links the Iberian Peninsula with the Hungarian – Ukrainian border. Its extension into the Western Balkans connects Central Europe, specifically Hungary and eastern Croatia, to Bosnia and Herzegovina and the Adriatic Sea.

The longest section of the Mediterranean Corridor (CVc) runs through Bosnia and Herzegovina – approximately 340 km in total. It consisted largely of two-lane roads until the early 2000s when a major road upgrading programme started on most of its route.

This investment project<sup>1</sup> concerns the construction of a border crossing, a cross-border bridge over the River Sava, as well as 10 km of motorway on the Svilaj – Odžak section that is being built between Bosnia and Herzegovina and Croatia, along the Mediterranean Corridor (CVc).



View of Corridor Vc in the vicinity of Sarajevo, Bosnia and Herzegovina.

### Results:

Modern and efficient border crossing facilities on the Svilaj – Odžak section of the Mediterranean Corridor (CVc).

600m cross-border bridge over the River Sava.

Completion of the Svilaj – Odžak motorway section, including the cross-border areas.



Upgraded interchange on Corridor Vc, Bosnia and Herzegovina.

<sup>1</sup> Subject to a final decision by the budgetary authorities.

**Estimated Start Date:**

ξ Mid 2016

**Estimated End Date:**

End of 2017

**Estimated Loan  
Repayment Period:**

25 years



Map of Bosnia and Herzegovina – Croatia Section of the Mediterranean Corridor (CVc).

The road network in Bosnia and Herzegovina covers more than 8,000 km, more than 1,000 km of which are European routes. Most of this network has been designed to accommodate a two-way single carriageway with a maximum speed of 80kph. Traffic lane width varied from 3.50 to 3.75m, and road shoulders from 0.5 to 1m wide. As average daily traffic volumes grew to over 9,700 vehicles, with a corresponding increase in freight volumes, Bosnia and Herzegovina embarked on a motorway construction programme in cooperation with its neighbours. It has been actively supported by the European Union and its partners, particularly under the Western Balkans Investment Framework.

The Svilaj – Odžak section is part of the motorway designed and partially built by Bosnia and Herzegovina along the Mediterranean Corridor (CVc) to Croatia. The route will accommodate 2x2 traffic lanes and speeds of 120kph. Construction works are ongoing for this section. The new bridge over the Sava and the border crossing facilities funded under this project will allow even increased traffic volumes to flow smoothly. Relying on existing infrastructure would undoubtedly have resulted in serious bottlenecks.

The funding granted to Bosnia and Herzegovina will be complemented and coordinated with EU financing allocated to the Croatian part of the project under Regional Funds.

**Benefits**

- Secure and efficient transport by road for an annual average daily traffic gradually increased to more than 9,799 vehicles per day.
- 2x2 traffic lanes and speeds of 120kph replacing single carriageways limited to of 80kph.
- Future border crossing delays avoided by the new bridge over the River Sava and modern border crossing facilities.
- Passenger and freight carrying capacity significantly improved, with reduced travel time.
- Lower operational and maintenance costs for motorway operators and users.
- The investment will facilitate trade, regional integration and sustainable growth and thus have a positive impact on the broader economy of Bosnia and Herzegovina.



## Mediterranean Corridor (R2a): Bosnia and Herzegovina – Croatia Interconnection<sup>1</sup>

### Partners:

Ministry of Transport and Communications of Republika Srpska, Bosnia and Herzegovina  
Motorways Company of the Republic of Srpska (JP Autoputevi Republike Srpske)

### EU contribution:

€6.8 million (20% of investment cost)  
€0.6 million (project preparation and institutional support)

### Estimated total investment:

€34.4 million

### Estimated EIB loan:

€10.8 million (out of an existing €65 million loan)

### Beneficiary contribution and other grants:

€16.8 million

Transport

The extension of the Mediterranean Corridor into the Western Balkans along Route 2a (R2a) spans 239 km, from Okučani in Croatia to Banja Luka and Lašva in Bosnia and Herzegovina. It connects Bosnia and Herzegovina (the Republic of Srpska) to the main transport routes in Croatia leading to the Adriatic ports.

The Mediterranean Corridor (R2a) integrates the Western Balkans into the transport flows which link the Iberian Peninsula to the Hungarian – Ukrainian border. Consequently, it accounts for most of the freight and passenger traffic in the Republic of Srpska, Bosnia and Herzegovina.

The present investment project<sup>2</sup> concerns the construction of a border crossing, a cross-border bridge over the River Sava, as well as motorway connections on the Banja Luka – Gradiška section.



View of Banja Luka – Gradiška motorway, Bosnia and Herzegovina.

### Results:

Completion of the Banja Luka – Gradiška motorway section, including the cross-border areas. Modern and efficient border crossing facilities on the Banja Luka – Gradiška section of the Mediterranean Corridor (R2a).  
Cross-border bridge in Gradiška.



Upgraded interchange in Mahovljanska, Bosnia and Herzegovina.

<sup>1</sup> This investment project in Bosnia and Herzegovina is subject to a full assessment by the national investment committee in the beginning of September 2015.

<sup>2</sup> Subject to a final decision by the budgetary authorities.

**Estimated Start Date:**  
First quarter of 2017

**Estimated End Date:**  
End of 2018

**Estimated Loan  
Repayment Period:**  
17 years



Map of Bosnia and Herzegovina – Croatia Section of Route 2a, with Gradiška Bridge.

Mediterranean Corridor (R2a) currently runs through the urban area of Gradiška for approximately 2km, with the existing 260m two-way bridge over the Sava leading to a small car park in the centre of the town. On the Croatian side the bridge carries traffic to a much larger parking and clearance area located to the east of the much smaller town of Stara Gradiška.

The new bridge will be built about 3 km to the west of the existing bridge and outside the urban area of Gradiška. It has been designed to accommodate a significant increase in overall traffic, projected to rise from 12,000 vehicles per day today to about 28,450 in 2024.

The new border crossing facilities will ease social and environmental pressures on Gradiška, by diverting traffic outside the city centre. It will also trigger reductions in journey times and vehicle operating costs.

Building the new bridge is expected to reduce border crossing times from 5 to 2 minutes for cars and from 30 to 12 minutes for trucks. It will adequately accommodate the traffic generated by the commissioning of a new motorway on this route in November 2011.

The overall costs of this project includes half of the shorter version of the bridge (€10 million), border crossing facilities (€16 million), as well motorway connections (€8.4 million).

Financing arrangements include €10.8 million from an overall €65 million EIB loan already in place for this motorway.

Estimates suggest economic benefits to the economies of Bosnia and Herzegovina and Croatia could reach €79 million by 2024.

The funding granted to Bosnia and Herzegovina will be complemented and coordinated with EU financing allocated to the Croatian part of the project under Regional Funds.

## Benefits

Safe and efficient road transport for more than 2,400 vehicles/day.

Passenger and freight carrying capacity significantly improved, along with reduced travel time.

Faster border crossing for cars and trucks between Bosnia and Herzegovina and Croatia.

Lower operational and maintenance costs for motorway users and operators.

The investment is designed to facilitate trade, regional integration and sustainable growth and thus have a positive impact on the broader economy of Bosnia and Herzegovina.



## Orient/East-Med Corridor (R10): the former Yugoslav Republic of Macedonia – Kosovo\* – Serbia Rail Interconnection

### Partners:

Kosovo Railways JSC  
(InfraKos Sh. A.)  
Ministry of  
Infrastructure and the  
Ministry of Finance,  
Kosovo

### EU contribution:

€38.5 million (48% of  
investment cost)  
€7.54 million (project  
preparation and  
implementation  
support)

### Estimated total investment:

€80.9 million

### Estimated EBRD loan:

€19.2 million

### Estimated EIB loan:

€19.2 million

Transport

The Orient/East-Med Corridor (R10) crosses Kosovo from the north to the south, from the border with the former Yugoslav Republic of Macedonia to the one with Serbia, and constitutes Kosovo's sole connection to the wider region by rail. The entire track is in poor condition, with serious structural limitations that do not allow for traffic in excess of 60km/h and in some areas 20 km/h.

This route is part of the Core Network Corridors of the Trans-European Transport network (TEN-T) extension into the Western Balkans and South East Europe Transport Observatory (SEETO)'s Comprehensive Network. It is thus part of the long-term sustainable development plans of the European Union and its partners.

This investment project<sup>1</sup> will enable outdated switches, tracks and trackbed, culverts, bridges and tunnels along the Fushë Kosovë / Kosovo Polje – border with the former Yugoslav Republic of Macedonia route to be replaced or renovated.



Freight transport on Route 10.

### Results:

Railway network in Kosovo integrated into the Orient/East-Med Corridor, connecting the Western Balkans to Austria, Greece and Bulgaria.

Railway transport systems in Kosovo interconnected to those in the former Yugoslav Republic of Macedonia and Serbia.

Approximately 64 km of railway track fully rehabilitated.



Passenger transport on Railway Route 10, close to Fushë Kosovë / Kosovo Polje.

<sup>1</sup> Subject to a final decision by the budgetary authorities.

\*This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence.

**EBRD grant:**

€0.8 million (project implementation support)

**Estimated Start Date:**

Last quarter 2015

**Estimated End Date:**

End of 2017

**Estimated Loan Repayment Period:**

20 years



Map of the Orient/East-Med Corridor (R10).

The Orient/East-Med Corridor (R10) is 256 km long, out of which 148 km are in Kosovo. It connects Kraljevo (Serbia) to Pristina (Kosovo) and Gorce Petrov (the former Yugoslav Republic of Macedonia). The first railway tracks were built in 1936 and the route was regularly maintained until the 1990s. No major investment has been made since then.

The rail connection with Serbia is no longer in operation (Fushë Kosovë/Kosovo Polje – Podujevë/Podujevo) since the Merdare tunnel, on the border, was demolished in the 1990s, cutting cargo and passenger links from Pristina to Belgrade.

The route will be renovated in three phases:

- Fushë Kosovë/Kosovo Polje–border with the former Yugoslav Republic of Macedonia
- Fushë Kosovë/Kosovo Polje – Mitrovicë/Mitrovica
- Mitrovicë/Mitrovica – border with Serbia.

All three sections are due to be completed by 2020.

This investment project concerns phase 1 only. With connections to the Orient/East-Med Corridor, passenger numbers on this railway route in Kosovo could reach one million and freight 206.8 million tonnes/year by 2040.

This project will give rise to an interoperable railway route in Kosovo providing safe transport services to people and businesses in the region and wider Europe.

The feasibility study and preliminary designs for the project have been completed. The new development will not have significant social or environmental impacts as the new facilities will be built on the route of the existing rail track. Detailed designs are being prepared and are due to be completed in the first quarter of 2016. Construction could start in the last quarter of 2016 and be finalised by the end of 2020.

**Benefits**

Secure and efficient rail transport for approximately 50% of the population of Kosovo.

An investment of €80.9 million that is expected to bring at least double that amount into the local economy in the medium to long term.

Passenger and cargo rail capacity and travel time significantly improved.

Reduced CO2 emissions.



## Orient/East-Med Corridor (R4): Montenegro – Serbia Rail Interconnection

### Partners:

Railway Infrastructure  
of Montenegro (ŽICG  
AD)

Ministry of Transport  
and Maritime Affairs,  
Montenegro

### EU contribution:

€20 million (50% of  
investment cost)  
€1 million (project  
preparation support)

### Estimated total investment:

€40 million

### Estimated EIB loan:

€20 million

The extension of the Orient/East-Med Corridor into the Western Balkans along Route 4 is approximately 580 km long and runs from Vršac (Serbia – Romania border) to Belgrade (Serbia) and then to Podgorica and Bar (Montenegro). Bar – Vrbnica (the latter at the Montenegro – Serbia border) is the most important section of the Montenegrin rail network, carrying about 20% of all passengers and about 60% of cargo. Rail as a whole is an important part of the Montenegrin economy, accounting for almost 60% of all freight and 10% of passenger travel.

The Bar – Vrbnica route opened to traffic in 1976 and since then there has been no major overhaul of the signalling systems, nor of the 91 concrete bridges located on the route.

With this investment project<sup>1</sup>, signalling systems covering approximately 9 km of line will be replaced in Podgorica, and about 5.3 km of bridges on the Vrbnica – Bar section will be renovated.



View of the longest bridge on the Podgorica – Bar railway line, on Mala Rijeka.

### Results:

167 km of electrified railway track between the port of Bar and the Serbian border at Vrbnica become fully functional.

Modern signalling on approximately 9 km of railway line and 5.5 km of renovated bridges.

Completion of a multimodal maritime-rail transport route from the port of Bar to the wider Western Balkans region.



Old and new passenger fleet in Podgorica Station, commuting between Belgrade and the Port of Bar.

<sup>1</sup> Subject to a final decision by the budgetary authorities.

**Estimated Start Date:**  
Last quarter of 2015

**Estimated End Date:**  
End of 2017

**Estimated Loan Repayment Period:**  
15 years



Map of Bar - Vrbnica route, Montenegro.

The Bar – Vrbnica railway line was constructed as part of the railway corridor to Belgrade and opened to traffic more than 40 years ago. The original design speed was 75-100 km/hour and the design axle load was for 22.5 tonnes.

The overhead electrical supply system was installed in 1976 and the original capacity of the line was about 80 trains per direction per day on the Podgorica – Bar line. Today, there are only 68 trains on the Podgorica – Bar line, and both speeds and cargo loads have declined.

Structural weaknesses and poor signalling have led to speed restrictions being introduced on about two thirds of the line, reducing capacity significantly compared to when it was first built.

The line also poses important safety risks: a total of 210 emergencies were recorded in the period January 2008 to December 2012. Moreover, faulty signals reduce the reliability of the system and caused about 250 hours of lost operation in 2012.

As part of a separate, but complementary, investment due to be implemented between 2015 and 2019, signalling will be replaced on around 11 km of line in Bar.

The Government of Montenegro has budgeted for further modernization

works on the railway track for the 2014 – 2020 period.

Detailed designs for the signalling system in Podgorica have now been prepared. Additional EU assistance is being provided for designing structural improvements to the bridges, for any additional studies required and for tendering the works.

### Benefits

Enhanced security and efficiency of rail transport for around 750,000 passengers using the Bar – Vrbnica railway route on an annual basis.

Passenger and cargo rail carrying capacity considerably increased, and travel times reduced.

Lower operational and maintenance costs for the railway operators, giving better services to passengers and cargo operators alike.

The investment will facilitate regional trade and integration and thus have a positive impact on the economy in the region.

CO<sub>2</sub> emissions will be reduced.

