“Excerpt of Updated Feasibility Study KOTOR - CETINJE CABLE CAR”

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1 INTRODUCTION

1.1 Overview

The European Bank for Reconstruction and Development (the "EBRD" or the "Bank") is considering providing financing to a private operator (hereinafter the "Borrower" or "Concessionaire") in the range of up to €15 million to construct and operate a new cable car from Kotor to Cetinje over the Lovcen Mountain in Montenegro on a Design, Build, Finance, Operate, Transfer ("DBFOT") basis, with the Concessionaire selected through an open international tender (the "Project").

The main aim of the Project will be to foster tourism growth in the area of south-western part of Montenegro and to collect those tourist flows from the coastal area that today do not visit the Lovcen Par Mountain Park and the historic Royal Capital of Montenegro: Cetinje.

The Project involves the construction of a cable car as an alternative to the present bus and car based solutions. The route will run from Kotor to Cetinje via the Lovcen Mountain National Park and close to the Njegos Mausoleum, a well-known national monument erected in memory of the poet and ruler of Montenegro, Njegos Petrovic II.

The Project foresees the establishment of a Public-Private Partnership ("PPP") involving the Government of Montenegro.

The Project will help to fulfil one of the main objectives of the Government of Montenegro and the municipalities of Kotor and Cetinje, which is to develop high-quality tourism amenities. The overall impact of the Project will be to further open this area to both regional and international tourists, drawing on the significant cruise ship activity in Kotor, as well as local and regional visitors to the Adriatic Coast, such as Dubrovnik, which is only 50 km away. The other impact will be to reduce car and bus traffic on the 55 km long main road between Kotor and Cetinje that goes around the Lovcen National Park. The Project is expected to have several, significant, positive economic effects due to the high economic multipliers associated with cable car projects, primarily through the additional spending and economic activity injected into the local and regional economy.

1.2 Scope of Work

Scope of the work undertaken by the Advisor is the review and update of the Feasibility Studies prepared in 2007 and 2008 including a review of the basic robustness of data, methodology and results to identify any fundamental concerns for the Project feasibility under a PPP scheme.

In particular in the following main issues have been reviewed:

- The technical design and the needed investment and operational costs in terms of structure costs, staff costs, routine maintenance costs and energy costs
- An analysis of the demand, the applicable fares and the consequent revenues
- The project benefits mainly in terms of additional contributions to national and local GDP
- The financial feasibility with relevant financial indicators (NPV, IRR, PBP)

1.3 Methodology

In undertaking the update of the Feasibility Study as set out above, our work has focused on the following areas:

Undertake a review and update technical design and costs (both capital and operating expenditure);

- Produce a robust demand and revenue forecast underlying the risks and opportunities of the planned scheme;
- An introduction to the possible options in terms of PPP schemes and different risk allocation profiles (to be assessed in more detail in subsequent phases of the assistance – outside the Feasibility Study)
- An analysis of the Project benefits
- Definition of the main financial indicators and the main financing sources for the project

This document is meant to be the first step in a continued discussions with the Government of Montenegro on the risk allocation and PPP structure expected for the next phases.

1.4 Report structure

The report is structured as follows:

- Chapter 2 describes the Cable Car project;
- Chapter 3 sets out the methodology and results of the demand and revenue forecasting exercise;
- Chapter 4 highlights the main benefits of the project;
- Chapter 5 summarizes the costs of the Cable Car scheme;
- Chapter 6 discusses initial financial feasibility of the project;
- Chapter 7 summarizes the main conclusion and recommendations for next steps.

2 THE CABLE CAR

2.1 The project objectives

This cable car project is significantly different and unique when compared to other cable car projects around the world as a result of the characteristics set out in this chapter. In particular, most projects are either of a public transport nature within a city or as ski related infrastructure in the mountains.

The new cable car scheme from Dub to Cetinje through the Lovcen National Park has the principle aim of attracting tourists, both existing and future, thanks to the improved accessibility of the various locations and its role of tourist attraction in itself. In particular the new cable car will:

- Improve the accessibility to Lovcen National Park from the bay of Kotor and from Cetinje
- Improve access and connection between Kotor and the coastal area with Cetinje;
- Become a tourist attraction in itself allowing for magnificent panoramic views during the journey and at the intermediate stations.

The expected result is an increase in domestic and foreign visitors to the area of the project. This in turn will lead to direct and indirect benefits for the economy of the area such as increased tourist expenditures, development of new commercial activities, increased employment possibilities for the local population, etc.

The key characteristics of the project are set out in the remainder of this chapter.

2.2 Route Description

The route the cable car shall follow has been established after an analysis carried out in the two previous Feasibility Studies and that is taken as a binding input for this review. Amendments to the special purpose detailed spatial plan have been approved. The idea design (in Montenegrin: idejni projekat) has been prepared, based on the original spatial plan, by the Ministry for Sustainable Development and Tourism and the Environmental Impact Assessment Study of that idea design has been approved by the Environmental Protection Agency. The route starts from Dub, placed at the outskirts of the town of Kotor (close to the entrance of the road tunnel linking Kotor to Tivat), it then reaches Kuk on top of the mountains surrounding Kotor. From here a stretch reaches Ivanova Kurita before descending to Cetinje as indicated in Figure 3.1 and Figure 3.2. The project is divided into 3 sections with 4 specific terminal locations. Each section is discussed below in detail.

According to information collected from the Municipality of Cetinje approximately 85% of the land on which the cable car will pass is either the property of the Municipality of Kotor and Cetinje or of the public company managing the National Park of Lovcen. All other land will need to be expropriated. Expropriation costs are reviewed in the economic analysis chapter.

FIGURE 2.1 THE ROUTE ALTIMETRY

FIGURE 2.2 THE ROUTE AERIAL VIEW

2.2.1.1 Section 1 Dub – Kuk

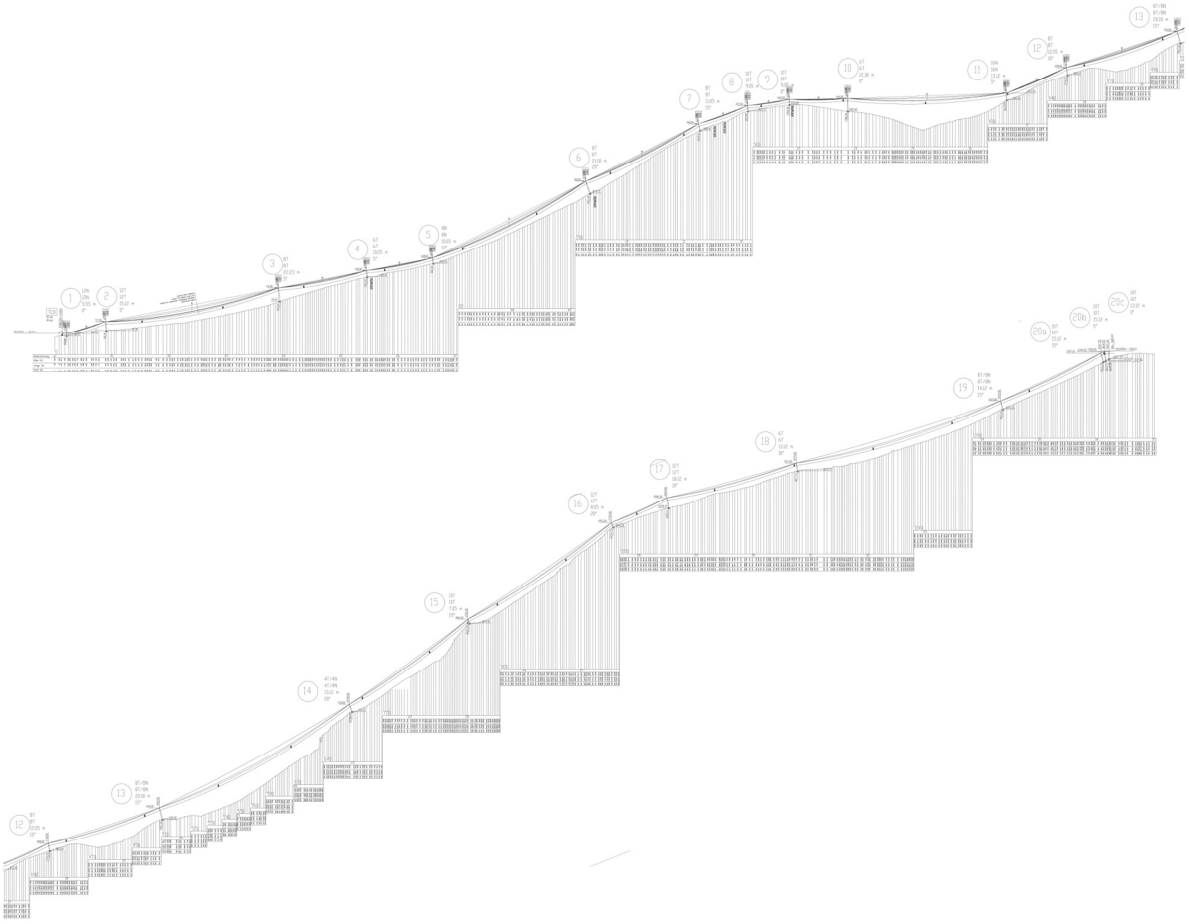
The route of Section 1 of the cable car is fairly long (3.9km) and is composed of 22 pylons equipped with the necessary supports and deduction wheels, as well as with double effect wheels. Along the line there are no buildings (apart from those belonging to the cable car) less than 6 m away from the inclined cabins.

The terrain underneath the cable car is in some stretches fairly steep but no excavation or filling works will be necessary in this section. Also the route of the ropes is sufficiently regular.

The cable car route is straight and overpasses several existing roads thereby easing mobility of possible rescue teams and passenger evacuation in case of an emergency. The cabins vary in height above the landscape but always remain within the requirements of the CEN norms and is always more than 5 m from the snow free terrain.

In front and around the upper and lower stations permanent containment fences are foreseen to ensure the minimum clearance levels are maintained. The profile of the Dub-Kuk section is set out in the figure below.

FIGURE 2.3 ALTIMETRIC PROFILE DUB - KUK

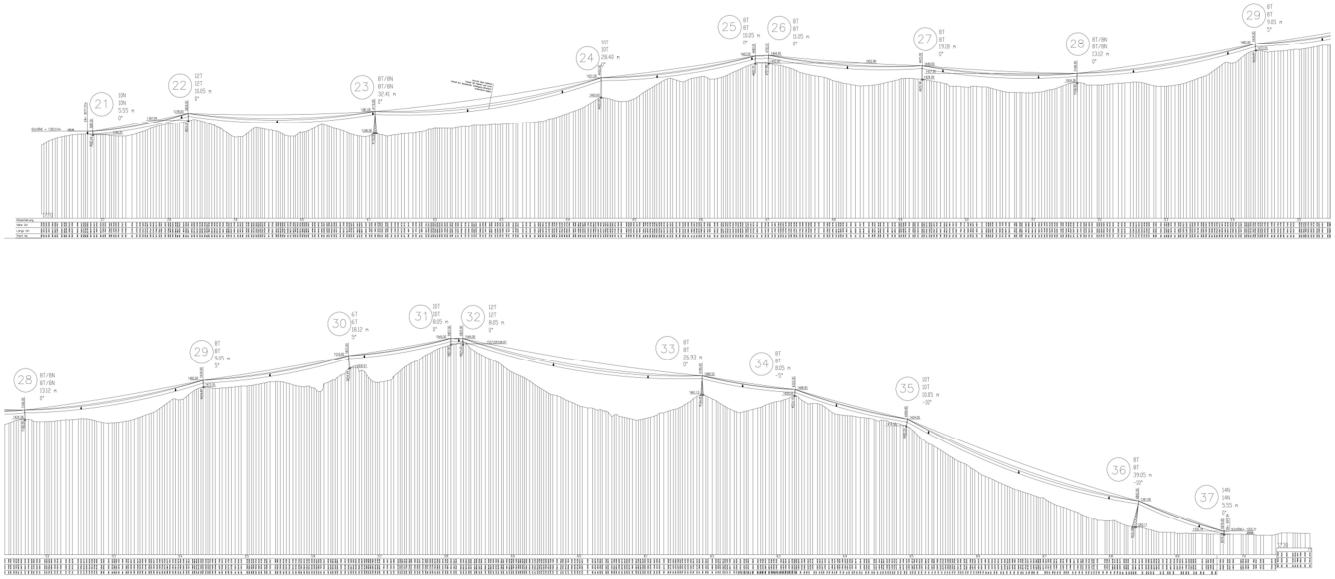


2.2.1.2 Section 2 Kuk – Ivanova Korita

The second section of the line develops its route over a slope characterized by a long ascending stretch and a successive descending one. The territory overpassed is in general not crossed by roads. This section is also fairly long (3.4km) and is characterized by the presence of a total of 17 pylons equipped with support and deduction wheels, as well as with double effect wheels. The figure below sets out the profile of the section and identifies the location of the pylons. Only in span 35/36 the straight route of the cable car crosses a road. The highest distance from the ground is reached in span 32/33 while passing a deep trough while the minimum height is reached in several points though within the limits prescribed by CEN Norms. Close to pylon 32 it will be necessary to carry out some excavation works to ensure the minimal clearance is achieved. For all remaining parts the vertical clearing is always higher than the minimum 5m from snow free terrain.

Containment fences are planned at both ends of the project to ensure that the minimum clearance below the cabins is maintained.

FIGURE 2.4 ALTIMETRIC PROFILE KUK - IVANOVA KORITA

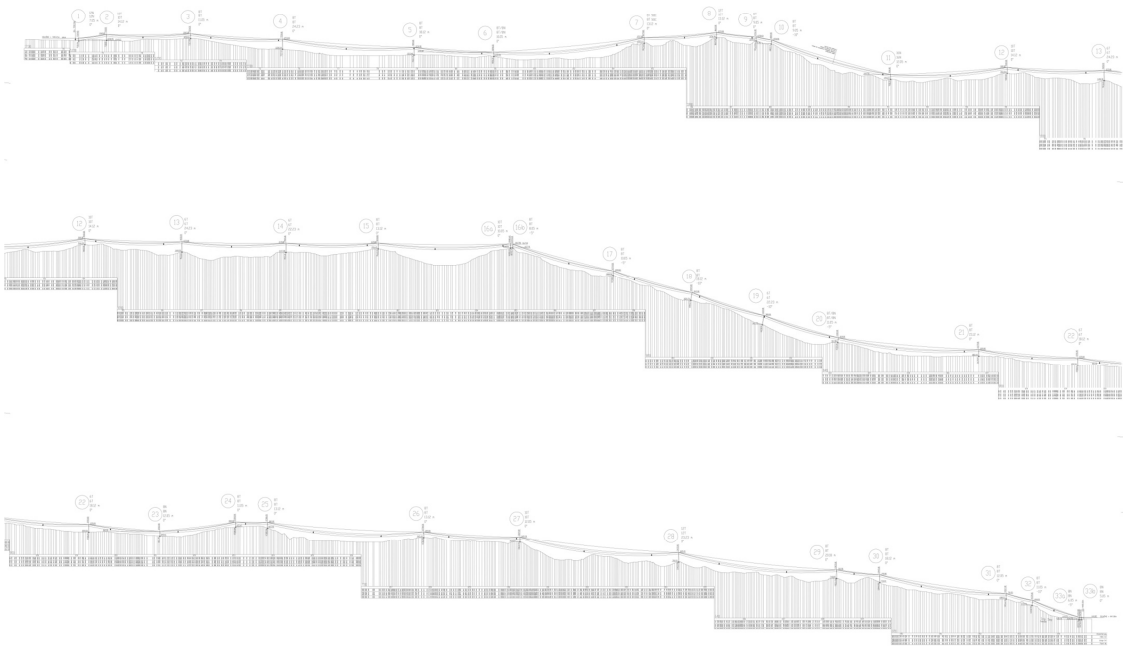


2.2.1.3 Section 3 Ivanova Korita – Cetinje

In this section the line is fairly straight and stretches over relatively flat terrain which therefore does not require substantial earth works. Section 3 is the longest of the sections (7.5km) with 35 pylons (as set out in the figure below) mainly of the supporting type even if also some with deduction wheels, as well as with double effect wheels. This section crosses some forest roads that will ease access for both construction, maintenance and rescue operations. Along the line close to pylon 21 there is a house that could limit vertical clearance. Furthermore, on span 25 the cable car route crosses 2 high voltage overhead power lines. The final design will need to account for these structures.

Containment fences are planned at both ends of the project to ensure that the minimum clearance below the cabins is maintained.

FIGURE 2.5 ALTIMETRIC PROFILE IVANOVA KORITA - CETINJE



2.3 Terminal locations

As per the previous feasibility studies the locations of the terminals and intermediate stations will be in Dub, Kuk, Ivanova Korita and the town of Cetinje.

2.3.1 Dub

Dub station and its surroundings are of fundamental importance as a number of shuttle buses will arrive here from the port of Kotor and Budva. As set out in the figure below, a large parking area as well as a cabin storage facility are provided for in the project. According to the information provided by the municipality:

- the area is public property;
- there are no restrictions regarding building measures; and
- Sewer, energy and water supply are provided to the required extent.

Since the terminal station is situated close to the airport of Tivat, it may be necessary to provide appropriate markings on the first pylons. This will be clarified with the aviation authorities in due course. A representation of the terminal station is set out in the figures below.

FIGURE 2.6 DUB STATION LOCATION

FIGURE 2.7 DUB STATION PLAN

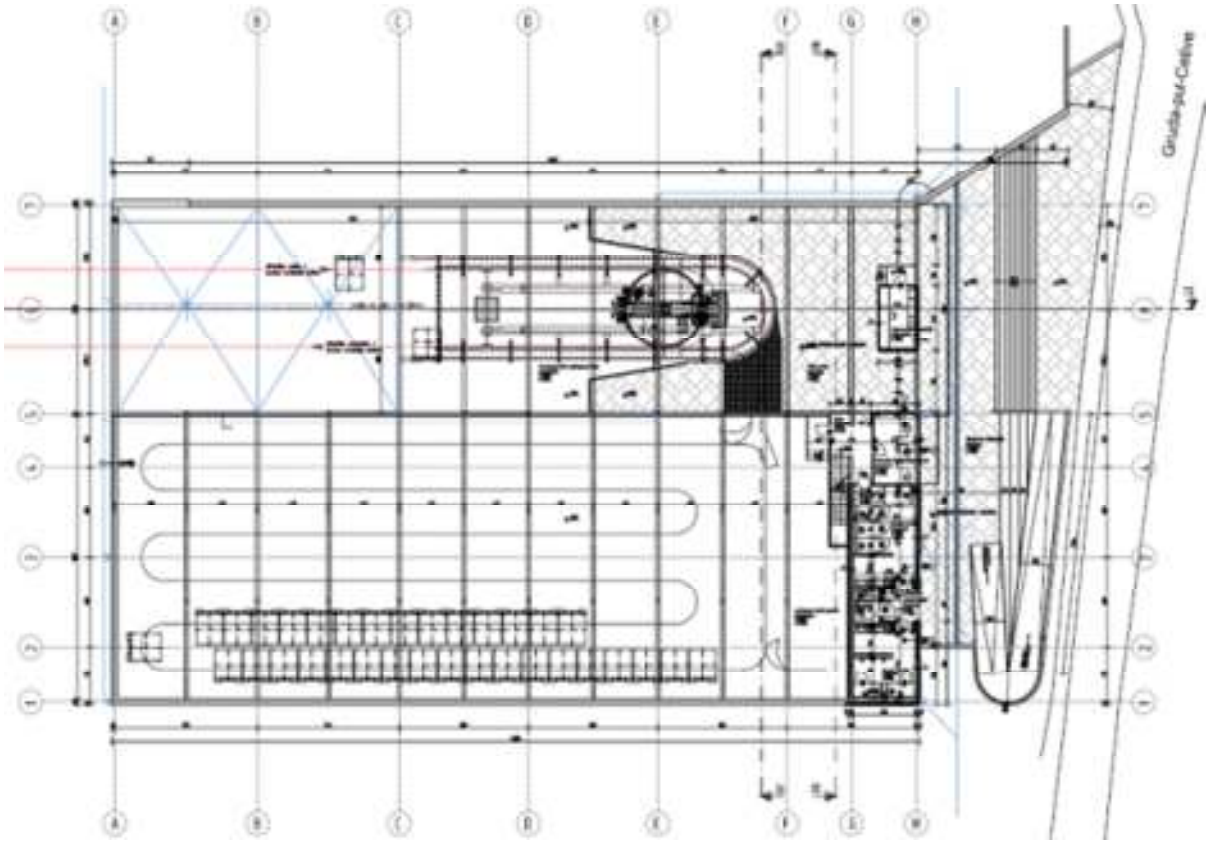
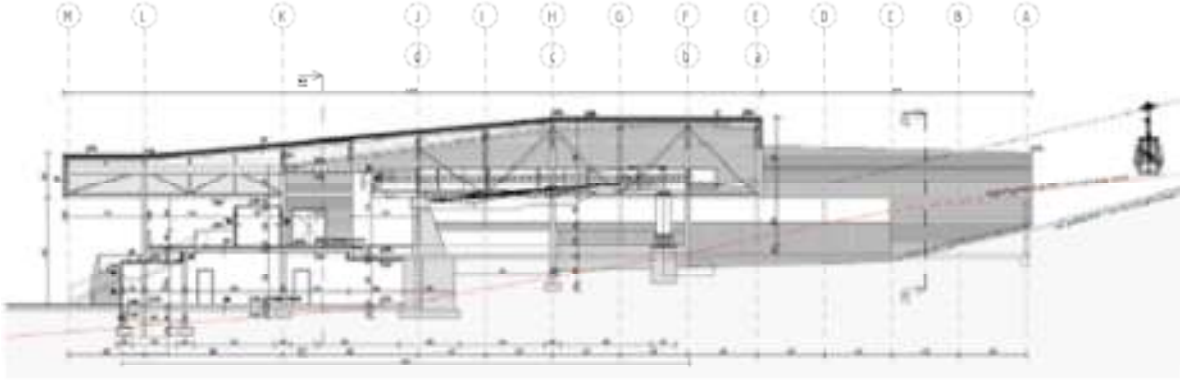


FIGURE 2.8 DUB STATION SECTIONS



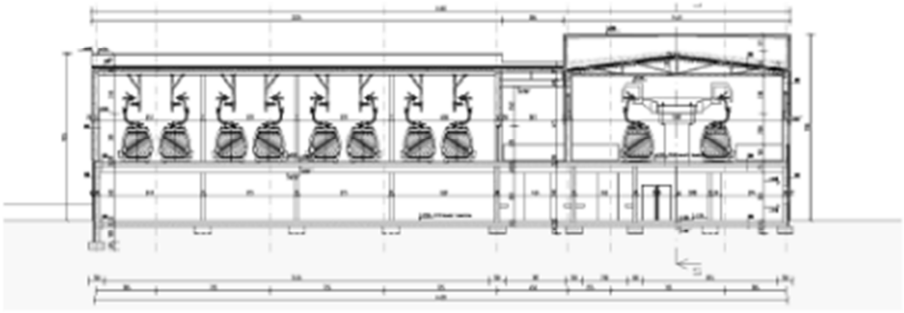
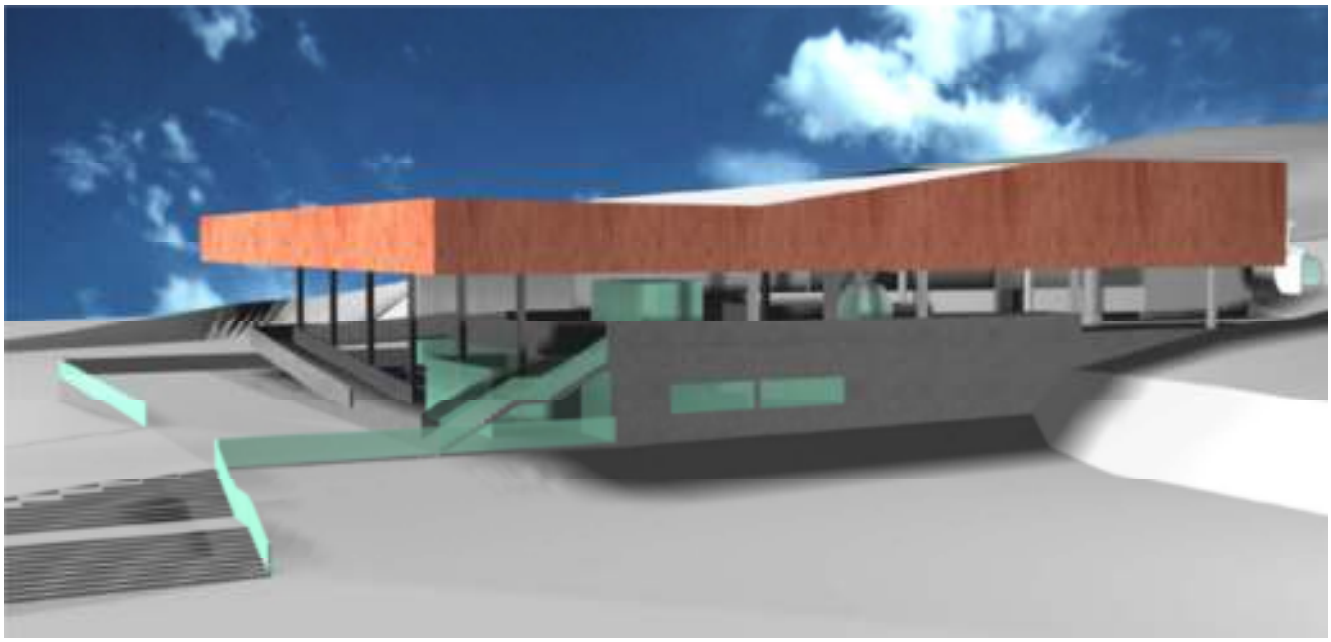


FIGURE 2.9 DUB STATION RENDERING



2.3.2 Kuk

The area at the Kuk station is public property but has some environmental constraints being inside the Lovcen Park.

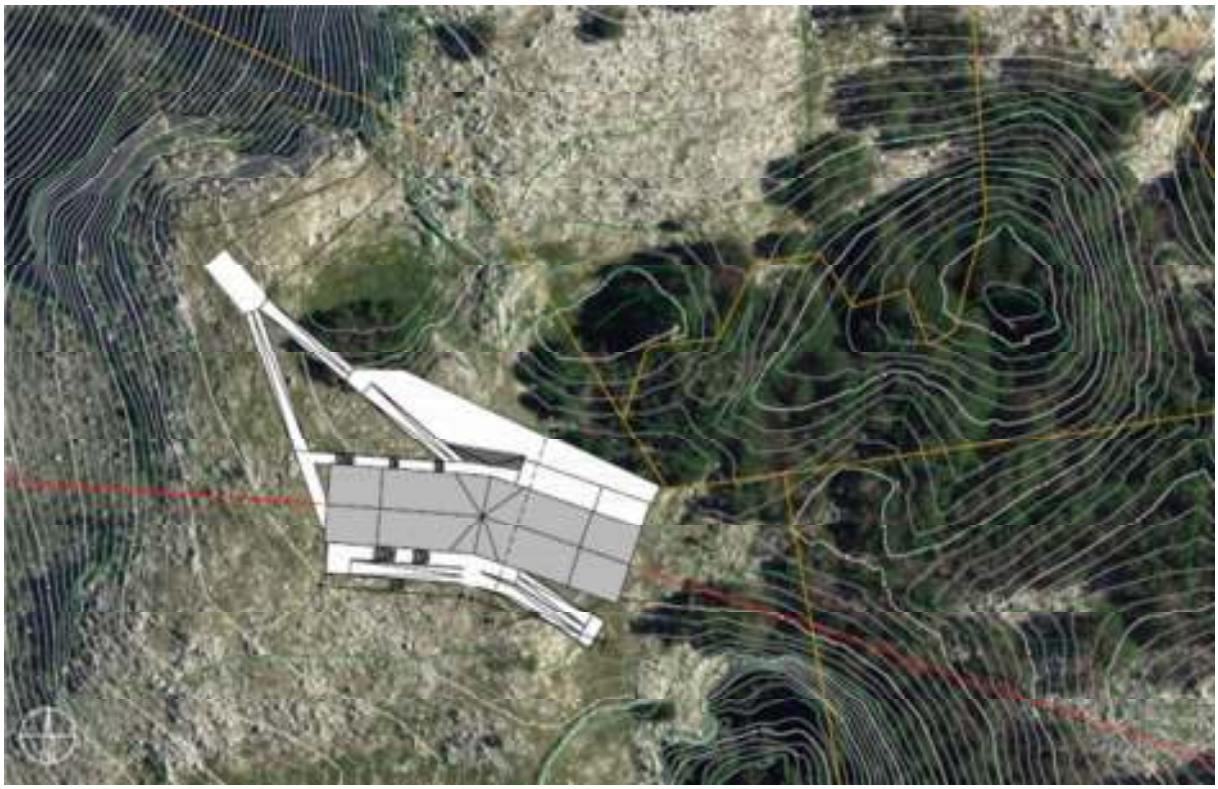
As the area immediately adjacent to the mausoleum is not to be altered in any way, the station could not be placed too close to the mausoleum.

To facilitate access for people with reduced mobility appropriate connecting infrastructure will need to be installed. An access road to the station already exists.

For this intermediate station, the construction and operation of a restaurant with several panoramic terraces (skywalk) is suggested. The intermediate station can also serve as access point for other leisure activities such as hiking, hang-gliding etc. Costs of approximately €2 Million are estimated for the restaurant.

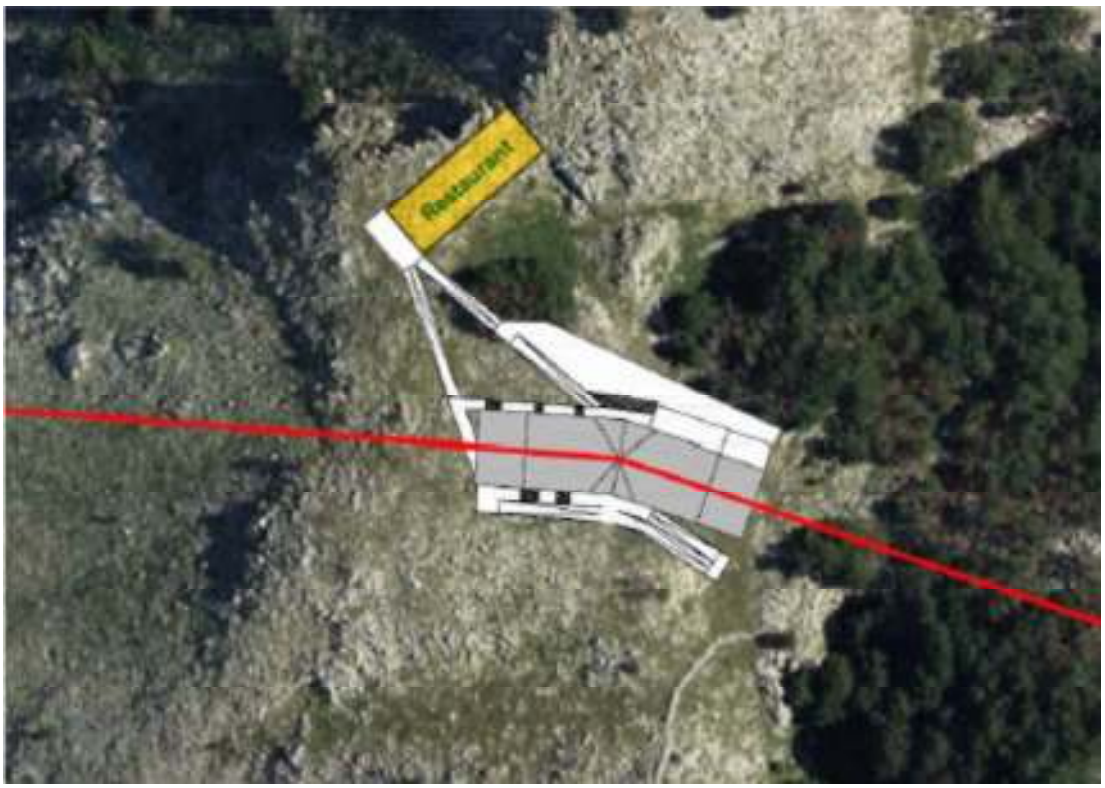
In Figure 3.11 a possible location of the restaurant is indicated.

FIGURE 2.10 KUK STATION LOCATION



Source: G. Moosbrugger, 2008.

FIGURE 2.11 KUK STATION POSSIBLE RESTAURANT POSITION



Source: G. Moosbrugger, 2008.

FIGURE 2.12 KUK STATION VIEW

Source: G. Moosbrugger, 2008.

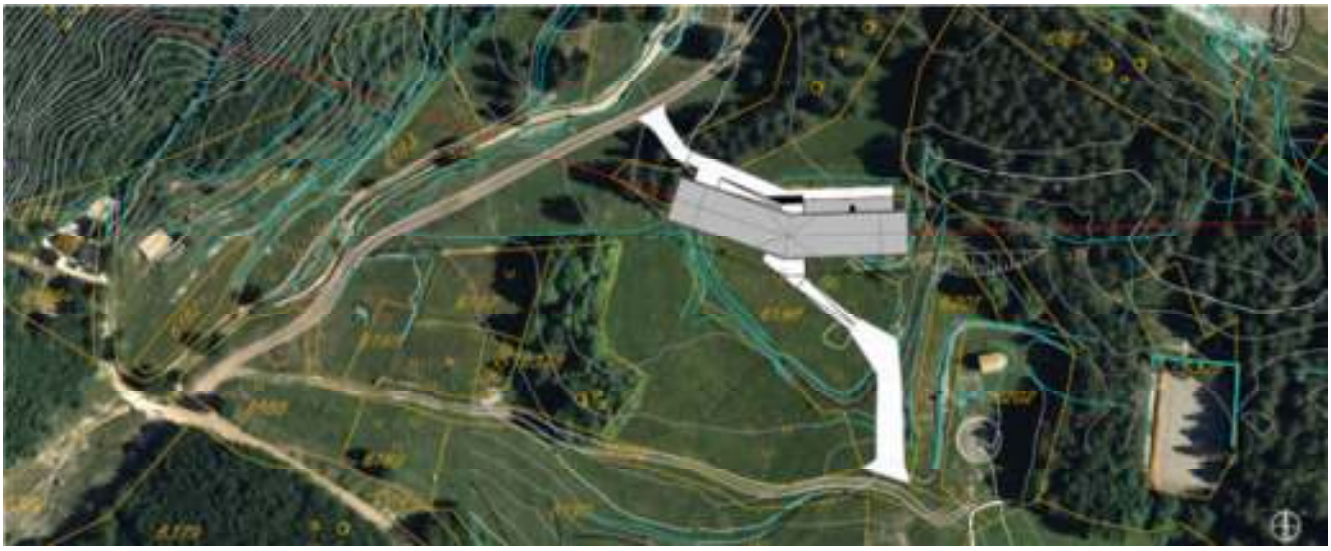
FIGURE 2.13 KUK STATION VIEW FROM RESTAURANT

Source: G. Moosbrugger, 2008.

2.3.3 Ivanova Korita

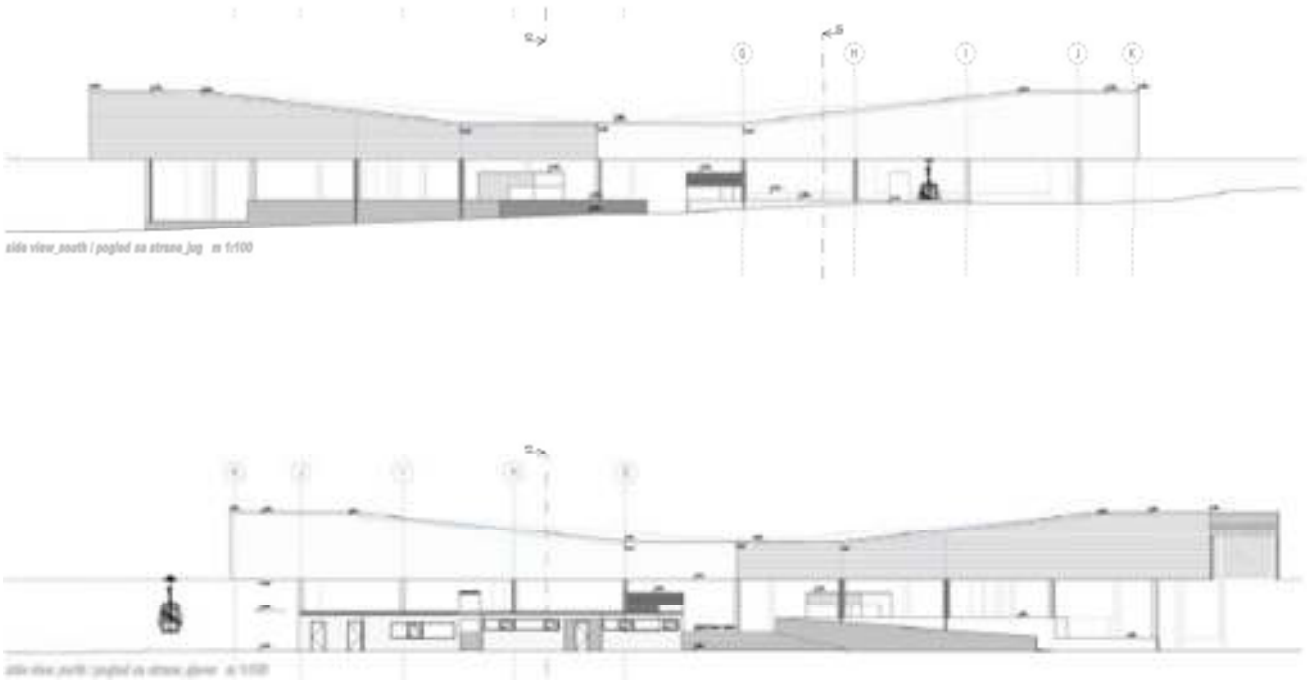
The area is public property and there are no development constraints. An access road to the station already exists. To ensure full use of the cable car infrastructure, private cars should no longer be allowed to proceed to the mausoleum. The surrounding area provides substantial potential for touristic development. Ivanova Korita should be developed and positioned as the focal point for the Lovcen National Park.

FIGURE 2.14 IVANOVA KORITA STATION LOCATION



Source: G. Moosbrugger, 2008.

FIGURE 2.15 IVANOVA KORITA STATION VIEWS



Source: G. Moosbrugger, 2008.

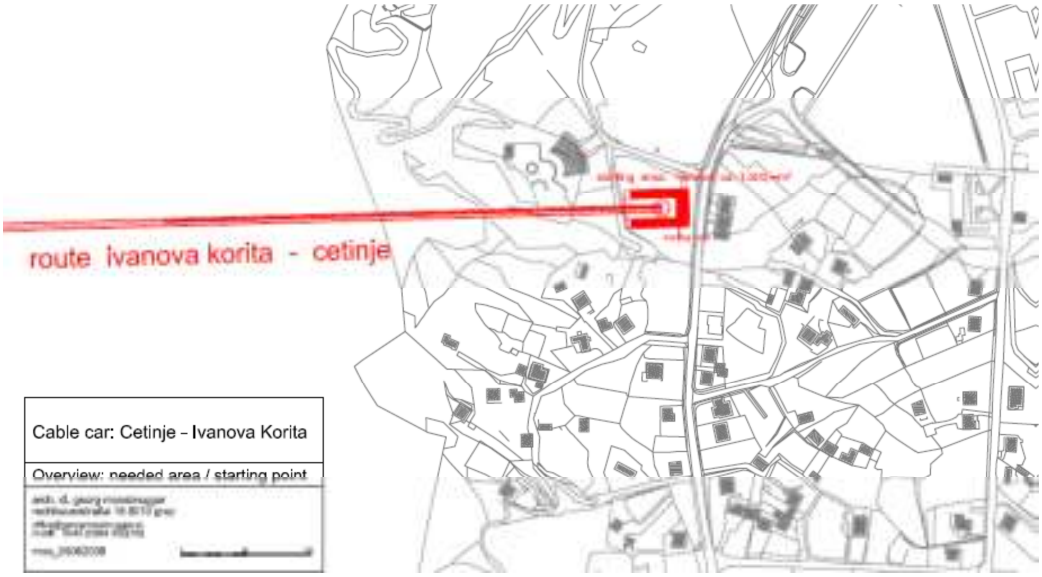
2.3.4 Cetinje

In Cetinje, the optimal location for the terminal is in the in the south of the city centre, near the amphitheatre. According to the information provided by the municipality, the area is public property and there are no planning restrictions. The required space for the station building would be around 1,500 m² (see Figure 3.16).

The site is in walking distance from the centre, thus allowing the visitors to enjoy the cultural and touristic offers of the city. There is also a parking area right next to the planned location. Furthermore, the plot is the property of the municipality.

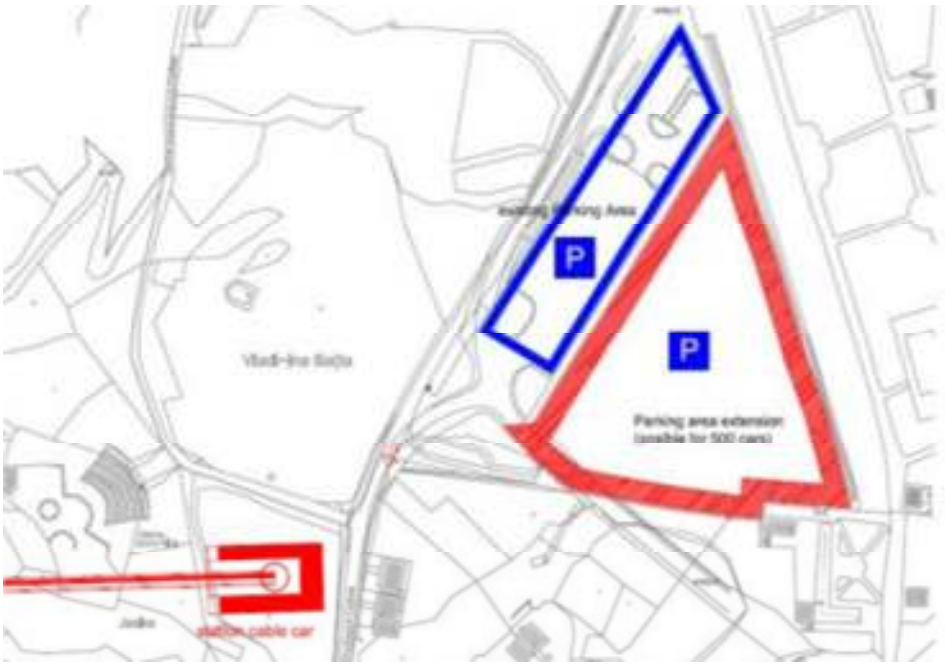
Road infrastructure in the area already exists but it will need to be adapted to meet future demand. In particular a larger parking area will need to be built with appropriate traffic adjustments.

FIGURE 2.16 CETINJE STATION LOCATION.



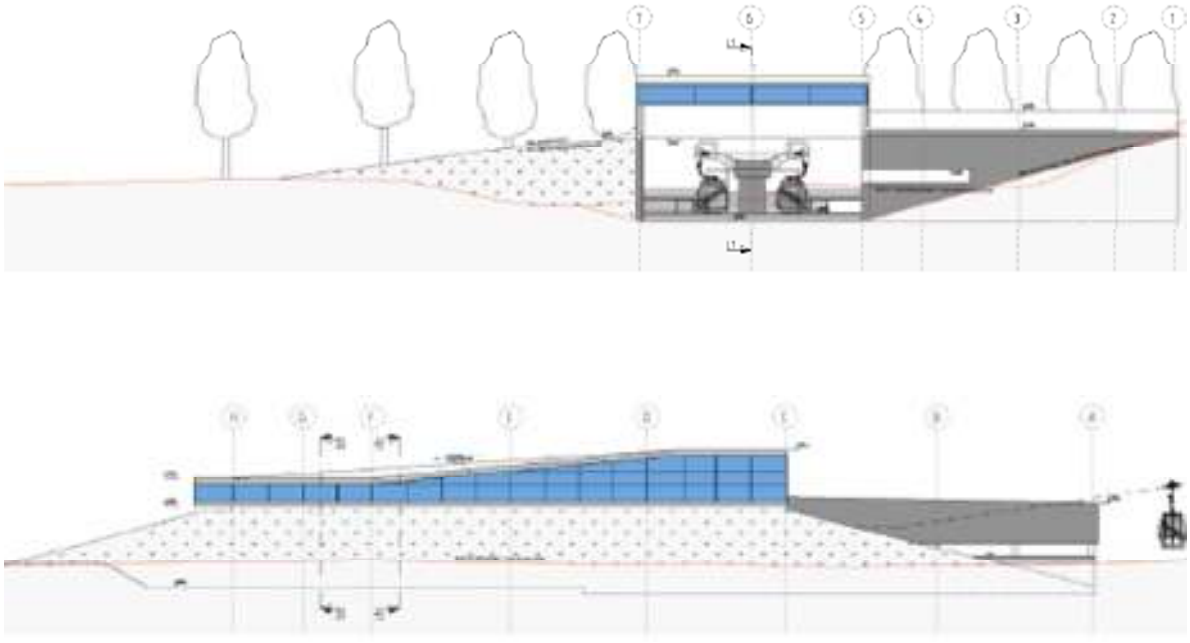
Source: G. Moosbrugger, 2008.

FIGURE 2.17 CETINJE STATION AND EXISTING/OPTIONAL PARKING AREA



Source: G. Moosbrugger, 2008.

FIGURE 2.18 CETINJE STATION VIEWS



Source: G. Moosbrugger, 2008.

3 CABLE CAR DEMAND AND REVENUE FORECASTING

3.1 Overview

This Chapter discusses the demand (and revenue) forecasts for the Cable Car scheme including a short description of the demand estimation method, as well as the estimated demand and revenue for each options and the revenue stream for the life cycle of the scheme.

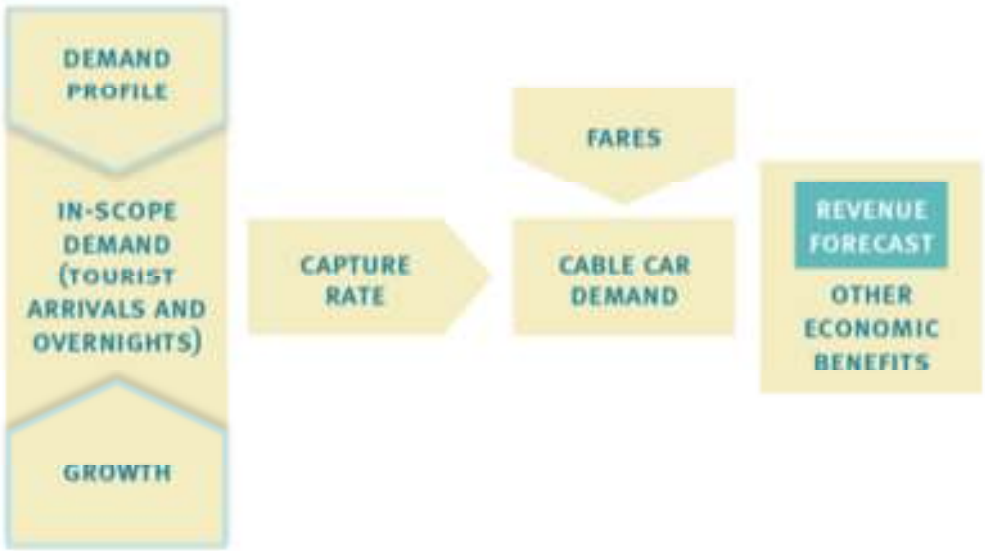
Developing a demand forecasting model is an essential component in evaluating any transport related investment. Developing a conventional demand forecasting model for this project is very challenging given the following factors:

- The lack of public transport services currently linking Dub-Lovcen National Park and Cetijne, hence the lack of information on the current trips between Kotor-Lovcen Park-Cetinje;
- The Dub-Cetinje Cable Car scheme cannot be considered a public transport scheme but it is more likely to be treated as a tourist centric scheme and an attraction in itself.

Notwithstanding these difficulties, we were able to develop a realistic and reasonable demand forecasting method based on standard demand forecasting techniques, addressing the following questions:

- What is the current level of In-Scope Demand? (e.g. what is total number of tourists in the study area by municipality and by tourist attraction)
- What type of tourists currently visit the study area? What is the Demand Profile? (eg. local/international tourists, cruises, seasonality profile)
- What type of Services does the new cable car offer? What is the Capture Rate for different tourists type?
- What Fare strategy should be applied?
- What is the expected change in Demand over time?

FIGURE 3.1 APPROACH TO DEMAND AND REVENUE FORECASTING



Demand and revenue forecasting for a new transport scheme (or tourist attraction) is crucial to understand not only the potential revenue generated by the scheme, but also to the demand profile and its evolution over time in order to identify the main risks and opportunities for the scheme.

The above issues will be discussed further in the following sections.

3.2 Methodology

3.2.1 In-Scope demand

The demand and revenue forecast for the new cable car scheme builds on the analysis of the tourism sector in Montenegro with particular focus on the study area over the past decade and on its expected evolution in the future years. The analysis of the current demand is based on the following data provided by the Cetinje Municipality:

- Annual number of domestic and foreign arrivals and overnight stays in Montenegro by municipality from 2004 to 2012;
- Annual number of yachts and cruise passengers in the Port of Kotor from 2006 to 2012;
- Annual number of excursions from Dubrovacko-Neretvanska County (Croatia) to Kotor from 2008 to 2012;
- Annual number of bus tourists in Cetinje from 2008 to 2012;
- Annual visitors at Lovcen National Park from 2006 to 2012;
- Monthly number of domestic and foreign arrivals and overnight stays in Montenegro by municipality in 2012;
- Socio-economic indicators for Montenegro (GDP per capita, employment, average salary, total tourists) from 2000 to 2012;

The base year demand in the project area is split into five different tourist segments:

- Annual arrivals by municipality (Locals and Internationals);
- Annual arrivals by cruisers (Internationals);
- Annual arrivals by yachts (Internationals);
- Annual Daily trips tourists (Locals);
- Annual excursionists from Croatia (only in the Scenario 2).

TABLE 3.1 TOURIST ARRIVALS (2012)

	Annual*	Average Month (based on a 7 months season)	Peak Month (August)	Peak Day**
Arrivals by Municipality				
Bar	155,770	21,020	55,321	2,213
Budva	691,654	95,283	229,163	9,167
Cetinje	10,937	1,374	2,593	104
Herceg Novi	229,063	31,959	87,402	3,496
Kotor	56,051	7,723	24,173	967

Podgorica	52,889	4,994	5,707	228
Tivat	44,045	5,656	11,458	458
Lovcen Park	33,418	-	-	-
Cruiser passengers	245,400	33,578**	44,524**	3,000
Yachts	5,642	777**	2,433**	100
Day-trippers Cetinje***	69,883	9,784	15,597	450
Kotor excursionists****	237,787	-	-	-

** MONSTAT Data*

*** SDG Elaboration*

**** Current Cetinje Bus passengers only*

***** Registered excursion trips from Dubrovacko-Neretvanska County (day-trippers)*

3.2.2 Demand profile

As anticipated, the vast majority of In-Scope demand for the new cable car will be International tourists concentrated in the costal municipalities of Budva, Kotor and Tivat or arriving by Cruise at Kotor Port .

The seasonality profile shows that almost 95% of In-Scope demand is concentrated in the 7 months between April and October with July-August as the peak months with 58% of total annual demand. In the 4 months period between June and September, instead, 85% of the In-Scope-demand is concentrated.

In terms of cruise passengers, the average monthly profile is calculated by taking the total number of annual passengers and dividing it by the number of cruises. Because of the lack of information relating to single days, Peak Day tourist demand is calculated only for cruise passengers based on the cruise boat capacity.

3.2.3 Cable Car Capture Rate

The “Capture Rate” for the new Cable Car scheme is derived from the total number of domestic and foreign arrivals by municipality, multiplied by Accessibility, Choice and Length-of-stay coefficients calculated as follows:

- Accessibility coefficient: is derived as a function of the distance from the municipality to the closest station of the cable car;
- Choice factor: depending on the market share of the cable car among other tourist attractions;
- Length coefficient: the average length of stay of the tourists visiting a municipality.

The capture rate of the new cable car increases the closer the town is to the cable car station and the longer the stays are of the visitors.

In particular, the closer the municipality is to the cable car, the higher are the accessibility and choice factors, since the first factor is related to the time necessary to reach the cable car and the second one to the market share of this tourist attraction (which depends on the number and price of tourist attractions available in the considered municipality but also on their accessibility).

Regarding the length coefficient, we have assumed a different value for each month since the average length of stay varies month by month.

TABLE 3.2 CAPTURE RATE BY MUNICIPALITY

	Accessibility factor	Choice factor	Average length of stay*	Cable Car Capture Rate
Kotor	0.90	0.25	0.80	20%
Cetinje	1.00	0.25	0.50	15%
Budva**	0.50	0.10 - 0.20	1.00	5% - 10%
Bar	0.15	0.05	1.00	1%
Tivat	0.90	0.25	1.00	20%
Podgorica	0.20	0.05	0.20	1%
Herceg Novi	0.10	0.10	1.00	1%

**Length of stay factor is based on the average length of stay for each Municipality between April and October.*

*** For Budva, considering the importance in terms of number tourists and attractions, we can estimate from a minimum of 5% to a maximum of 10% capture rate (Scenario 2).*

The municipalities with higher capture rates are Kotor and Tivat (around 20%), being the closest towns to the cable car (together with Cetinje) and therefore those with higher accessibility and choice factors. Cetinje's lower capture rate (approximately 15%) depends on the shorter average length of stay of its tourists which reduces their likelihood to use the cable car.

The 5%-10% capture rate of Budva is lower than those of the other municipalities located in the cable car area due to the higher time required to reach the cable car station (at least 20 minutes in summertime), to the type of tourism in Budva (mainly interested in summer sandy beaches and nightlife) and to the fact that Budva represents the most attractive touristic attraction in the area, thus reducing the share of people that may be expected to visit other places during their stay.

The percentages of tourists captured from Bar, Podgorica and Herceg Novi are very low due to their distance from the cable car.

For Cruise passengers, the cable car capture rate is given by the total number of cruise passenger per year multiplied by a coefficient taking into account the number and cost of the alternative excursions offered by the tour operators in Kotor.

Considering the vast majority of cable car demand will originate from cruise passengers and is highly dependent on the offers and alternatives put forward by the tour operators and assuming large investments in promotion and advertisement by the Government, the 33% of cruisers passengers are assumed to use the cable car.

3.2.4 Fare Strategy

Having undertaken a benchmarking exercise on similar projects in other parts of the world as well as the likely lifecycle cost of the scheme and other tourist attractions in Montenegro, we propose to apply different ticket price for domestic and international users.

The cost of a Full Return Ticket on the cable car varies from €20 to the Lovcen Park from Dub or Cetinje and increases to €30 for the whole route Dub-Cetinje with 25% discount applied to Montenegrin users.

These prices have been chosen based on benchmarking with similar cableways and on the cost of excursions organized by cruisers operators stopping at the Porto of Kotor, as shown in the next box.

> **The Téléphérique de l'Aiguille du Midi** is a cableway on the Aiguille du Midi, which is a mountain in the Mont Blanc massif. It is the highest vertical ascent cable car in the world, from 1,035 m to 3,842 m and the return ticket price is **€50**. The one way ride takes around 20 minutes.
>
> The **Grindelwald-Männlichen** is 6 km long cableway in the Swiss Alps. A one way ride takes around 30 minutes and return ticket is worth **€47**.
>
> The average cost of **cruise operators excursions** at the Port of Kotor is around **€70**.

Flexible combination of pricing can be applied including:

- Peak and off peak seasonal tickets;
- Special discount for large groups (e.g. cruisers);

An integrated ticketing strategy with other tourist attractions should also be considered and we suggest that the entrance fee to the National Lovcen Park should be integrated/combined with the cable car ticket.

TABLE 3.3 TICKET STRATEGY

	Full Price (return ticket)	Local residents (return ticket)
Dub-Lovcen Park	€20	€15
Dub-Cetinje	€30	€22
Cetinje-Lovcen Park	€20	€15

3.2.5 Changes in demand over time

To estimate future demand, growth assumptions have been disaggregated for domestic and foreign tourists as follows:

- Domestic demand growth: the estimate is based on the elasticity between GDP per capita and domestic tourists in Montenegro from 2004 to 2011 and on the GDP forecasts from Global Insight over the next 20 years;
- International demand growth: we have assumed the same annual growth of foreign forecasted by the World Travel & Tourism Council (WTTC) in the 2011 report set at 7.2% per annum until 2021. Then we have assumed that growth continues to increase until 2033 but at a decreasing rate.
- Cruise passengers: for cruise passengers we have assumed an annual growth in line with the previous bullet point.

However we underline how future demand for the new cable car will strictly depend on the promotion of the new attraction at a local and national level and on it being included in the activities proposed by tour operators. The

table below sets out the main assumptions used in the demand and revenue forecasting model for the new cable car.

TABLE 3.4 SUMMARY OF THE MAIN ASSUMPTIONS

Demand		
	Assumption	**Comment**
In-Scope demand	Based on arrivals and overnight stays in costal municipalities and other attractions (Lovcen Park, Cetinje) + Cruise passengers	Based on the length of the scheme, the journey time and the locations served, we believe it's very unlikely that the scheme can be used as a potential form of public transport between Kotor-Cetinje
Tourist profile	Based on monthly profiles and the individual source markets	
Cable car capture rate	Two scenarios (Scenario 1 and Scenario 2) based on the available alternatives presented by tour operators	An optimistic Scenario 2 takes into account higher capture rate for Budva tourist
Fare strategy	€30 return ticket between Dub-Cetinje, €20 up to Lovcen Park for International tourist and €22/€15 for local tourists	Integrated ticketing strategy and/or flexible options can be introduced
Demand Growth	International tourist growth based on WTTC Domestic growth linked to GDP per capita growth forecasted by Global Insight	Demand growth will be strictly linked to the marketing activities for the scheme promotion and the tourism policies introduced by the Government in the next decade
Scheme characteristics		
	Assumption	**Comment**
Scheme Length and Terminals	from Dub to Cetinje – 5 Stations	
Opening Period	7 Months (April-October)	
Opening Hours	10 hours, from 8.30-18.30	During peak months flexible opening hours can be considered (9.00-21.00)
System Capacity	1,000/1,200 passengers per hour per direction (pphpd)	

3.3 Main Results

3.3.1 Tested Options

Two different scenarios have been tested in order to estimate the future demand for the cable car system: namely a "Scenario 1", assuming a 33% cruisers passengers capture rate and a 5% Budva tourists capture and an "Scenario 2", that takes into account an additional percentage of day-tripper (5%) from the neighboring Countries, mainly Croatia.

Each scenario has been tested for a 7-months opening period.

Therefore, demand and revenue forecasts have been developed for the two set of alternatives summarized below:

- Scenario 1 (33% from Cruisers – 5% capture from Budva) 7months
- Scenario 2 (33% from Cruisers – 10% capture from Budva – 5% of daily excursionist from Croatia) 7 months

3.3.2 Monthly Passengers on the cable car

Based on the seasonality profile, the average daily passengers per month are split into international, domestic and cruise passengers and reported below.

TABLE 3.5 STRETCH DUB-LOVCEN-CETINJE: MONTHLY PASSENGERS (2014)

Dub-Lovcen Park-Cetinje	Total Scenario 1	Total Scenario 2
January	500	700
February	400	500
March	800	1,100
April	6,000	6,500
May	16,000	18,600
June	21,000	27,800
July	35,000	48,000
August	40,000	58,700
September	29,000	37,600
October	17,000	18,000
November	4,200	4,500
December	400	600
Total	**170,300**	**222,600**

From the monthly profile it is clear that most of the demand is concentrated in the 4 months between June-September and 97% from April to October.

Notwithstanding the highest percentage of tourism concentrated in the 4 months, the choice of the 7 months opening period maximizes the demand without having the cost of the infrastructure open all year round. This is shown in more detail in the figure below.

FIGURE 4.2 PASSENGER MONTHLY PROFILE ON CABLE CAR – SCENARIO 1

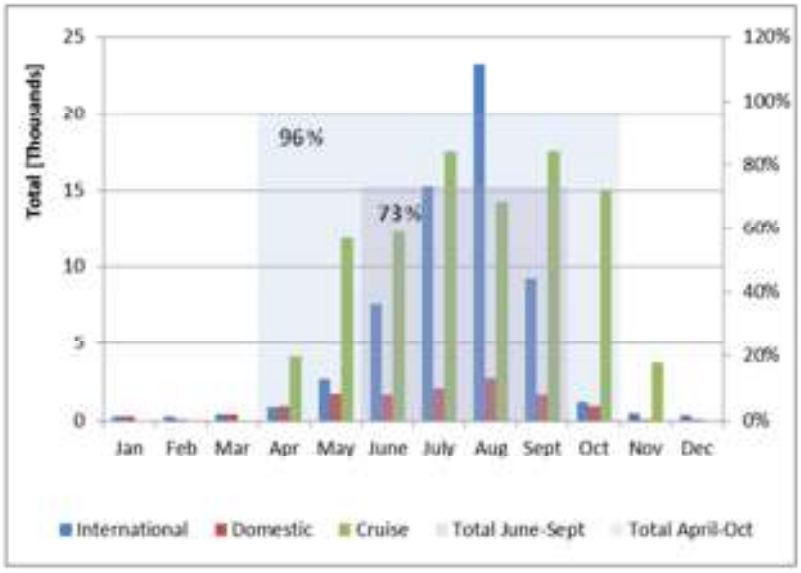
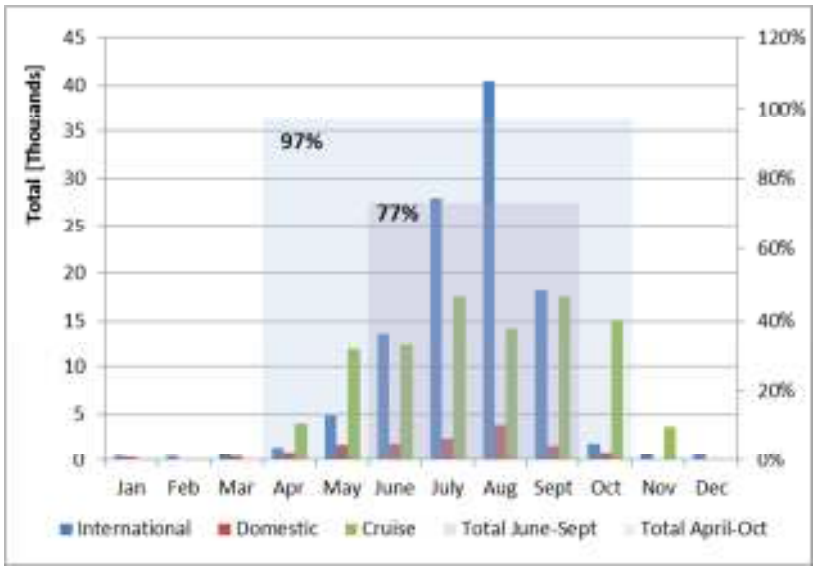


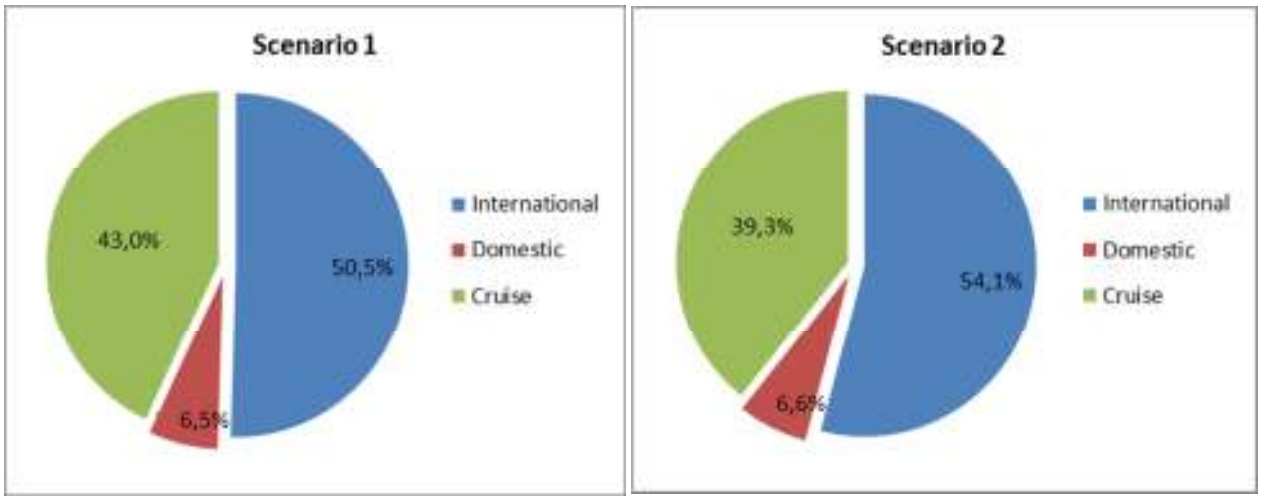
FIGURE 3.3 PASSENGER MONTHLY PROFILE ON CABLE CAR SCENARIO 2



The figures above show that 97% of the annual demand for the cable car is concentrated between April and October, while the November to March period accounts for 3% only. In particular, the summer period alone (June-September) accounts for the 77%.

Overall, both scenarios show as the main components of the future cable car demand will be given by Cruise passengers (43,% in Scenario 1 and 39% in Scenario 2) and international tourists (50% in Scenario and 54% in Scenario 2).

FIGURE 3.4 CABLE CAR PASSENGERS BY SOURCE -SCENARIO 1 AND SCENARIO 2



3.3.3 Peak Day and Peak Hour Passengers

Given the high seasonality profile we have assumed the Peak Day as an average day in August and the Peak Hour as when the cruise passengers arrive.

As for the cruise passengers, we have assumed that during the peak month of August cruise ships operate at over 90% capacity, therefore cruise passengers growth won't affect the Peak Hour of the Peak Day capacity as growth will be spread on the Off-Peak months.

The following tables show the passengers using the cable car by the most loaded segment in the most loaded case (Scenario 2) in order to verify the capacity of the cable car. The peak day demand has been calculated by assuming that a maximum of two cruises arrive at the Port of Kotor in one single day, each of them carrying approximately 3,000 passengers. The peak hour demand is calculated assuming that the Cruise passengers deciding to use the cable car will reach the cable car station within two hours.

TABLE 3.6 PEAK HOUR AND PEAK DAY - AUGUST (2014) - SCENARIO 2

	Dub-Lovcen Park
Peak Day	2,600
Peak Hour	670

TABLE 3.7 PEAK HOUR AND PEAK DAY - AUGUST (2030) - SCENARIO 2

	Dub-Lovcen Park
Peak Day	4,700
Peak Hour	950

3.3.4 Capacity of the cable car

Based on the discussion above this section describes the cable car line capacity in order to verify the consistency between foreseen demand in the peak hour and hourly capacity of the system.

Line capacity for the cable car depends on three main parameters: the vehicle (i.e. cabin) size, the number of the cabins and the travel speed.

According to the technical specification of the scheme the main operating characteristics and the maximum hourly capacity of the system, related to each section, are set out in the following table.

TABLE 3.8 CABLE CAR CHARACTERISTICS

Section	Vehicle size	Cabins	Length (m)	Travel speed (m/s)	System capacity (pphpd)
Dub - Kuk	8	51 - 61*	4,129.87	6	1,000-1,200*
Kuk - Lovcen Park	8	44 - 53*	3,517.30	6	1,000-1,200*
Lovcen Park - Centije	8	99	7,544.00	6	1,000

**maximum potential size*

These system specifications can guarantee an overall maximum capacity of 1,000 pax per hour per direction (pphpd) on each section. Between Dub and Lovcen this could increase further to up to 1,200 pphpd with the introduction of more cabins on each section.

According to the Technical Design and costs specifications no additional capacity is planned for the section between Lovcen and Centije.

In conclusion, based on the output from the demand analysis we can assume that the system, as it is currently planned, is adequate to meet the needs of passengers at all times, especially during peak hours.

3.3.5 Annual Revenue

Given the fares mentioned in previous sections, the analysis proceeded to estimate annual revenues, these are set out in the table below.

TABLE 3.9 ANNUAL REVENUE - YEAR 2014

	Opening period	Annual Passengers	Annual Revenue (€)
Scenario 1	7 months	165,000	3,700,000
Scenario 2	7 months	215,000	4,700,000

Expected revenue for the first year of operation (2014) varies between €3.7 mil. and €4.7 mil. depending on scenario.

These estimates can now be used to develop an annual revenue stream for the life cycle of the project (30 years), which will then be used as inputs for the economic evaluation model.

FIGURE 3.5 ANNUAL TRAFFIC 2014-2044

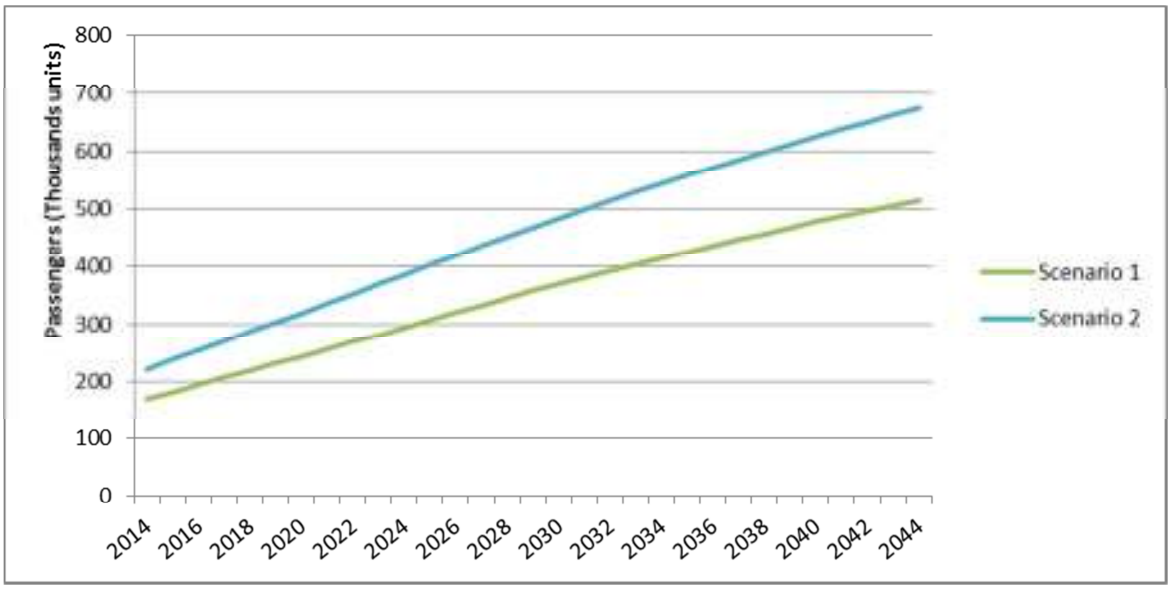
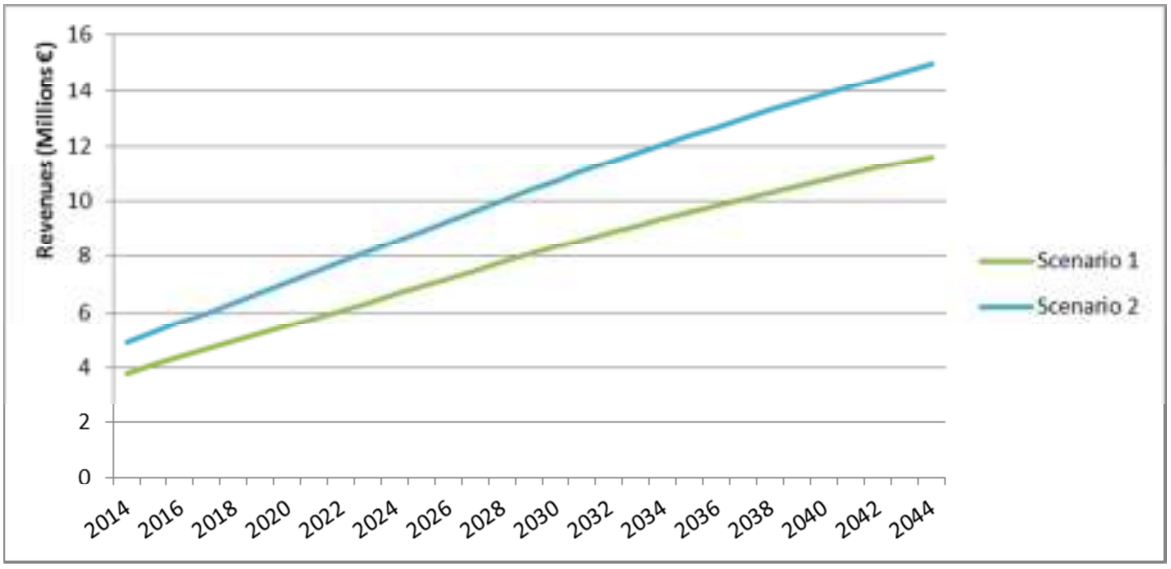


FIGURE 3.6 ANNUAL REVENUE 2014-2044



3.3.6 Ancillary revenues

Parking, shops, others, are not taken into the account but can vary between 2-5% of the total revenues from tickets. Based on our experience from similar projects this is the standard value that we used.

These related pieces of infrastructure that create the ancillary revenues can be procured in a number of ways. Usually the facilities directly linked to the new scheme (in this case the restaurant on top of the Ivanova Korita station and the new shops at the stations) will have to pay an annual fee to the concessionaire that can be based on the percentage of the total revenue or can be a fixed fee per month). Usually these are defined in the bidding phase.

4 PROJECT BENEFITS

4.1 Overview

This section describes the potential economic benefits connected to the realization of the cable car scheme.

Directly linked to the type of demand and profile that are expected of the scheme, the major benefits of this scheme are connected to the ability of the cable car to improve the attractiveness of the tourist offer of the State of Montenegro and contribute to a better redistribution across the country of the gains generated by the tourist sector, which at present are mainly concentrated along the Coastal Area.

In particular, the improved accessibility to the Lovcen Park and to Cetinje creates the occasion for these locations to attract more tourists to Montenegro. This could lead to an increase in the total expenditure of visitors in these locations - which at present is rather marginal, as well as generate new employment opportunities and contribute to the increase of local GDP.

To turn this "opportunity" into "real and tangible benefits", there are key challenges that need to be addressed by the different stakeholders involved, *in primis*:

- The cable car needs to become one of the **key tourist attractions** of the State of Montenegro and attract a significant number of foreign visitors, especially cruise passengers arriving at Kotor or in other nearby ports that could be developed in future years. This requires significant investment in tourist marketing activities targeted at cruise operators, tour operators, tourist journals, etc. which would need to be taken forward jointly by national and local entities that have the responsibilities in these areas.
- Significant **investments** need to be made at the Lovcen Park and, specifically, in Cetinje to be able to fulfill tourists expectations in terms of attractions and recreational activities, food and beverage offer, accommodation and other facilities. This is crucial both to keep their ranking at the top of the attractions of the State of Montenegro – and thus be able to attract tourists over time – and to induce tourists to spend a substantial part of their average budget in these locations – rather than in other ones of the country or of foreign destinations they visit during their holiday. In order to do this the public and private stakeholders acting in these locations should work together to identify and take forward a plan for investments in these areas with key actions for the short, medium and long term.

Other aspects, both external ones - such as the dynamics of international tourism – and internal ones – like the ability to improve the State of Montenegro's overall accessibility by foreign tourists by air and sea, are likely to affect the final outcomes of the Cable Car scheme. For example great attention should be paid also to the quality of the tourist services in the catchment area of the cable car along the coast (i.e. Kotor, Budva, Bar, etc.) as any deterioration of the attractiveness of these destinations could have a negative impact on the sustainability of the Cable Car scheme and its returns on the locations of Lovcen Park and Cetinje. The following table sets out a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) of the major issues identified, some of them have a crucial role in the assumptions made to estimate the potential benefits of the project presented below.

TABLE 4.1 CABLE CAR POTENTIAL BENEFITS – SWOT ANALYSIS

Strengths	Weaknesses
Unique landscape Limited competition from other attractions in the area Easily accessible by cruise ships arriving in Kotor and by international tourists staying in the Coastal Area	Tourism facilities of Cetinje and Lovcen Park are currently not sufficiently developed to fulfil the expectations of foreign visitors and not adequate to cope with a substantial increase of visitors The duration of the return trip to Cetinje is rather long
Opportunities	**Threats**
Improve tourist access to and expenditure in currently less accessible areas of Lovcen Park and Cetinje Can contribute to better distribution of income and wealth across the country Can support the tourist strategy to promote sustainable tourism directed to mountain and countryside destinations Improve attractiveness of Montenegro as a destination for foreign tourism Increase the average expenditure of tourists in Montenegro An improvement on overall transport accessibility of State of Montenegro can have positive returns on the project (examples could be the enhancement of port and airport facilities in the city of Tivat)	Subject to dynamics of international tourism (both cruise and other segments) Competition from other nearby locations (e.g. other countries on the Adriatic Sea) might negatively affect tourists arrivals

4.2 Main assumptions

This section provides an estimate of the likely benefits associated with the realization of the Cable Car scheme and related to the Scenario 1 results.

The estimation of the potential benefits has been made by computing the effects of the cable car project on the **amount** and **distribution** of tourist expenditure in the State of Montenegro and, particularly, in the study area. As input for this assessment we have used the results of the demand forecasts illustrated in the previous chapter and official statistics on tourisms reporting the expenditure of foreign tourists in the country as well as other information related to the number of arrivals and average stays.

In line with the assumptions made for the preparation of the demand forecasts we have assumed that the **cable car project will not become an attraction able to affect the trend of aggregate tourist flows** arriving in the State of Montenegro: this is indeed an opportunity (as shown in the SWOT above), but given the considerable increase of foreign arrivals expected in this country for future years by the World Travel and Tourism Council - which are at the base of our forecasts, we consider the project not to have an impact on these high growth rates.

Nevertheless, we expect that the cable car – and the related investments it will be able to generate in the destination locations of Lovcen Park and Cetinje – will **increase the average budget spent by international**

passengers in the country: the presence of an higher number of attractions in the Park and Cetinje has the potential to induce tourists that choose to visit these locations to allocate more money to their excursion/staying in the State of Montenegro than they used to do.

To be cautious we have assumed a higher increase for cruisers passengers as they tend to have an increased willingness to pay for attractions, excursions, recreational activities etc. than the rest of international tourist market.

More specifically we have estimated that the average spend of the cruise passengers on the day they use the cable car increases by 40%, moving from about €93 per day (estimated on WTTC data) to €130 per day. Taking into account that not all cruise passengers will choose to take the cable car, this results in an increase in the average expenditure per cruise passenger in the order of 13%. For the rest of international tourists using the cable car we have assumed an overall increase of 32% of their daily expenditure in Montenegro on the day they use this attraction, moving from €93 per day to €123 per day, which results from the assumption made of considering the cable car ticket price as completely additional to their average spending in Montenegro.

The way the cable car can affect the **distribution of total tourist expenditure** between the Coastal Area, the Lovcen Park and Cetinje and the extent to which these values are additional to those already made in these areas, will depend on a number of factors including:

- the extent to which cruise passengers, international tourists and domestic ones visiting the Park and/or Cetinje with the cable car are additional to those that currently do it by coach or by car;
- the presence of adequate tourist attractions and facilities in the Park and Cetinje able to induce tourists to effectively spend their money there and/or to increase their average stay.

The table below reports the key assumptions that have been made to take into account all these issues. These assumptions have been elaborated separately for the three major segments of users of the cable car – cruise passengers, international and domestic tourists – reflecting their different behaviors, attitudes and willingness to pay for recreational activities.

TABLE 4.2 KEY ASSUMPTION OF ESTIMATION OF BENEFITS – BASE CASE

Cruisers	
Cable car ticket price	€30
Average spending per day	€130
Daily spending per day net of cable car	€100
Average staying in Cetinje	1 day
% of visitors additional to existing ones	90%
International	
Cable car ticket price	€30
Average spending per day	€123
Daily spending per day net of cable car	€93
Average staying in Cetinje	1.2 days
% of visitors additional to existing ones	60%

Domestic	
Cable car ticket price	€22
Average spending per day at Lovcen Park or Cetinje	€15
Average staying in Cetinje	1 day
% of visitors additional to existing ones	100%

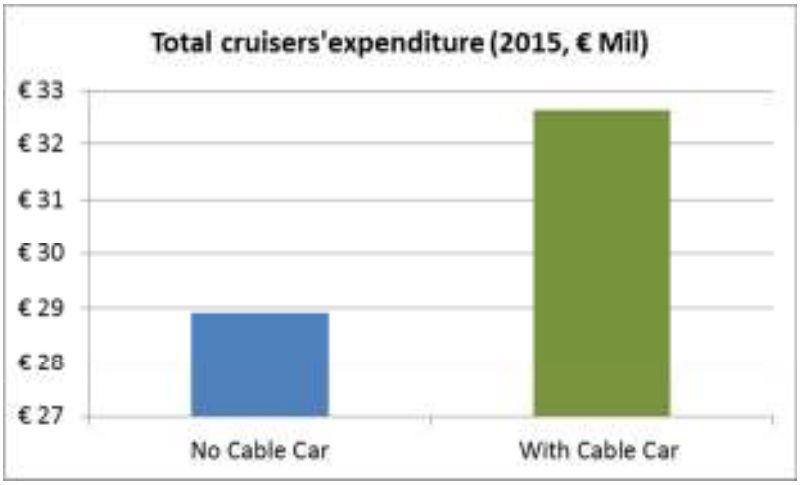
4.3 The aggregate additional benefits of the cable car Project

The construction of the cable car has the potential to increase the overall expenditure of foreign tourists that choose to use this service and get access to related attractions and services. This would be a net gain for the State of Montenegro as a whole and, in particular, for the areas served by the project.

As mentioned above, to be cautious, we have assumed that the expenditure increase is higher for cruisers than for other international tourists and that for the latter this will be limited to cover the cost of the ticket of the cable car attraction. Thus, in our assumptions, only cruisers will have a daily budget net of cable car ticket prices which will be higher with the realization of the project than without it.

The figure below shows the additional total expenditure – net of cable car ticket purchase – that we estimate will be spent by cruisers in the areas served by the cable car in the Scenarios.

FIGURE 4.1 ESTIMATED TOTAL CRUISERS EXPENDITURE (IN MILLION €) WITH AND WITHOUT THE CABLE CAR PROJECT IN THE AREAS AROUND THE PROJECT - NET OF CABLE CAR TICKET PRICES



Overall we estimate that the potential increase of cruise passengers' budget allocated to expenditure in the areas served by the cable car would be €3.7mil. in 2015. Over the 2015-2044 period this could generate a net increase of €102 mil. This budget will be partly spent for the purchase of additional goods and services in the areas served by the cable car and partly used to pay for the cable car ticket prices.

The additional expenditures in goods and services would be driven by the new opportunities cruise passengers will find to spend their money, i.e. the new services, recreational activities, facilities, shops, etc. that will accompany the cable car project and will give visitors the possibility to enjoy new experiences and/or purchase new products and services.

As discussed in the paragraphs below, the extent to which the different locations touched by the cable car project can benefit from the potential cruise passengers' expenditure, as well as from expenditure from other categories of tourists, depends on their ability to attract and entertain them.

4.4 The distribution of the additional benefits of the Cable Car Project

This section illustrates the potential benefits for the areas interested by the cable car project in terms of additional tourist expenditure. The analysis will focus exclusively on the expenditure made by tourists net of cable car ticket prices.

We first illustrate the findings, then, by means of sensitivity test, we discuss how some crucial aspects related to the behaviour of cruise passengers or international tourists can affect the final outcomes.

4.5 Trip options

Tourists taking the cable car will be able to choose whether to stop in the Lovcen Park or to make the full trip to Cetinje. They would have the possibility to undertake recreational activities and/or purchase goods or services in three different areas: the Coast, the Park and Cetinje. Given the number of attractions present on the Coast, it is likely that they will allocate at least 30-40% of their budget there. The rest could be either spent at the Park or in Cetinje. As they need to visit both locations in one day – given the time needed to make a full round trip from the Coast to Cetinje - we assume that the stop at the Park will be shorter than the one in Cetinje. This implies that these visitors will tend to do most of their activities (eating, drinking, recreational, etc.) in Cetinje rather than in the Park, thus spending there most of the budget assigned to the excursion.

The analysis undertaken has focused on the spending that will be additional to the one already made by tourists in the areas analyzed. In order to do this we have assumed that a share of the forecasted cable car passengers would have gone to the Park or to Cetinje by car or coach in case the new transport scheme would have not been realized. Therefore the amount of money these tourists would have spent in these locations also in absence of the project has not been considered in the charts shown below.

The following charts illustrate the additional tourist expenditure that can be made in the locations of Cetinje and Lovcen Park by the different groups of visitors over year, providing that they find attractions and services that meet their expectations.

FIGURE 4.2 ADDITIONAL POTENTIAL EXPENDITURE FORECASTED IN CETINJE

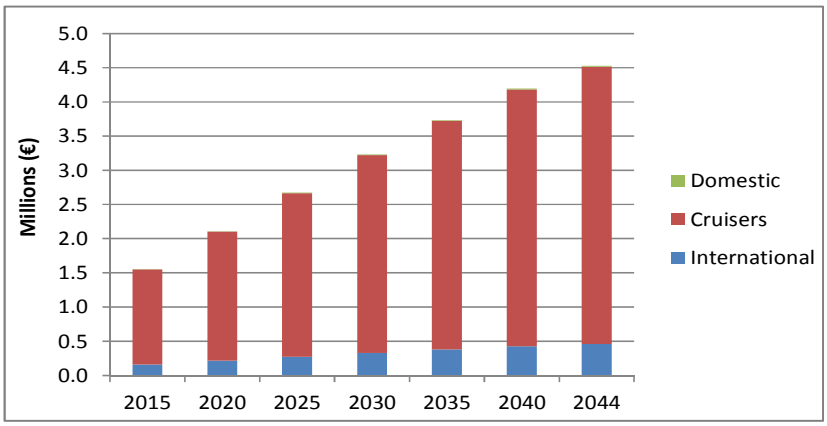
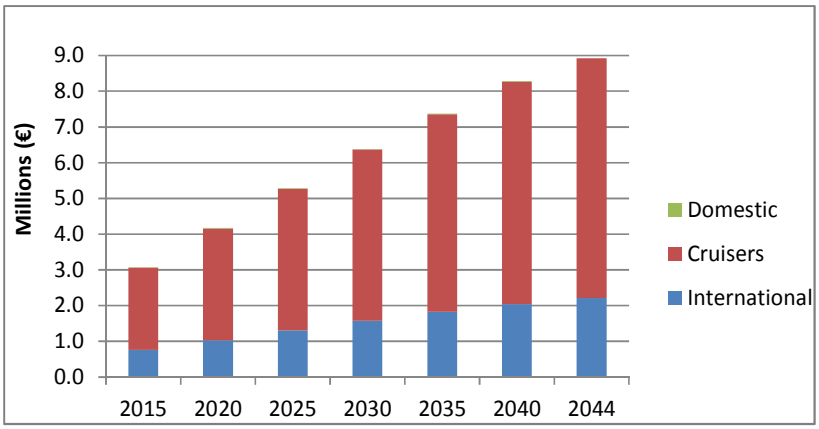


FIGURE 4.3 ADDITIONAL POTENTIAL EXPENDITURE FORECASTED AT LOVCEN PARK



The charts set out above show that the municipality of Cetinje could attract €1.5mil. of additional tourists expenditure in 2015 which will be exclusively driven by the realisation of the cable car and related investments. This range rises up to €2.4mil. in 2015 for the Lovcen Park. Over the 2015-2044 time horizon this results in a NPV of potential additional expenditure made by tourists in Cetinje between €23mil. and €42mil. and between €45mil. and €84mil. in the Lovcen Park.

This estimate is highly dependent on the features of the cruise passengers' segment such as: forecasts of cruise arrivals in Kotor or in other locations of the Coast, the share of passengers choosing to use the cable car, the amount of money they are willing to spend for daily excursions and the attractions and services they will find in the destinations they visit. The following charts illustrate the results of a sensitivity test made to check how the potential expenditure in Cetinje and the Lovcen Park could vary if passengers would be able to spend only half of the budget we assumed at these destinations.

FIGURE 4.4 SENSITIVITY A: EFFECTS OF A REDUCTION IN CRUISERS' EXPENDITURE BUDGET ON EXPENDITURE FORECASTED IN CETINJE

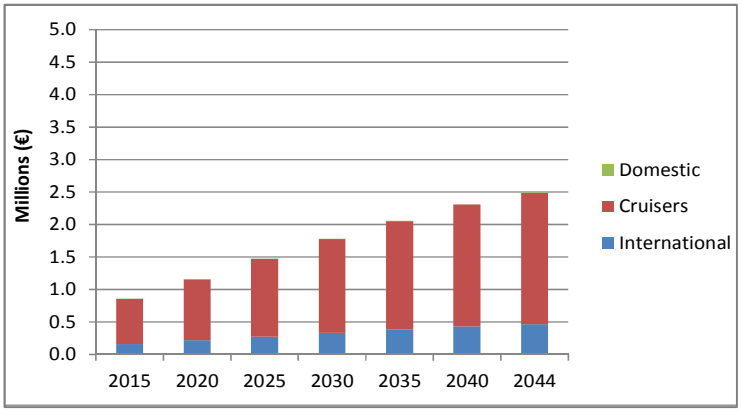
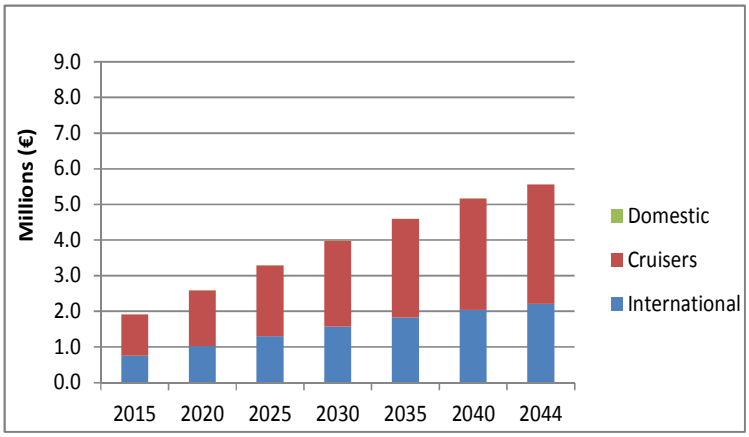


FIGURE 4.5 SENSITIVITY A: EFFECTS OF A REDUCTION IN CRUISERS' EXPENDITURE BUDGET ON EXPENDITURE FORECASTED AT LOVCEN PARK



The figures above show clearly that a reduction in the amount of money cruise passengers are able to spend in Cetinje or the Lovcen Park has a remarkable impact on the potential benefits of the project for these locations. The occurrence of this risk is primarily linked to the ability of these areas to invest in the attractions and services that can meet their expectations and give them the chance to enjoy the time they spend there.

On the other hand, the potential benefits could be higher if other international tourists increased the amount of money spent in the locations served by the cable car. As mentioned above, for this segment of tourists we have used a conservative approach. However, it might be the case that some of them might decide to take advantage of the new attractions and services following the cable car scheme and thus increase the budget allocated for this excursion. The following charts illustrate the results obtained running a sensitivity test aimed at testing an higher contribution of international tourists through: (i) a higher daily expenditure of their budget in Cetinje and the Park; (ii) a longer staying in these locations; (iii) the assumption that all international tourists visiting these destination through the cable car are additional to those that currently go there.

FIGURE 4.6 SENSITIVITY B: EFFECTS OF AN INCREASE IN INTERNATIONAL TOURISTS BUDGET ON EXPENDITURE FORECASTED IN CETINJE

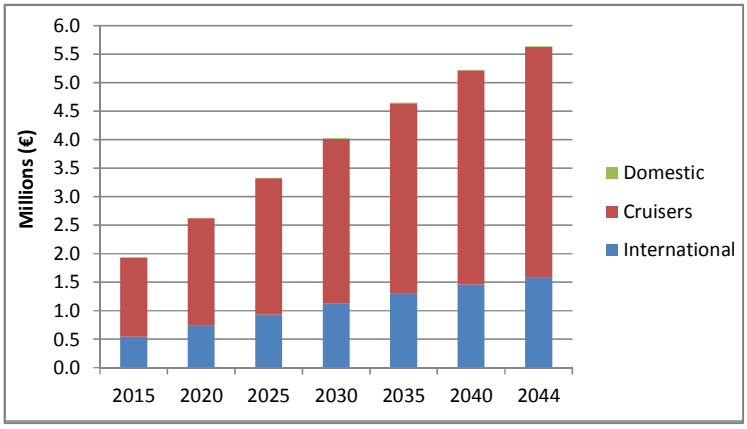
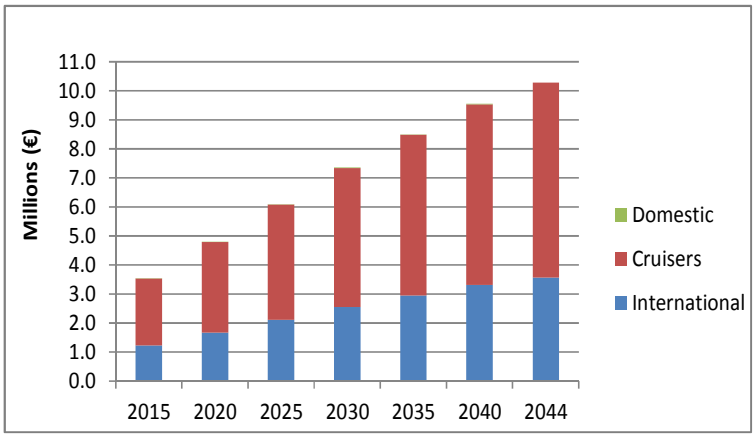


FIGURE 4.7 SENSITIVITY B: EFFECTS OF AN INCREASE IN INTERNATIONAL TOURISTS BUDGET ON EXPENDITURE FORECASTED AT LOVCEN PARK



The figures above show clearly that significant additional benefits could be gained by Cetinje and the Lovcen Park if they are able to attract international tourists that would not have gone there otherwise as well as they make them staying for longer periods and increase the amount of money they decide to spend there.

5 PROJECT COSTS

In the following section the Capital Expenditures (CapEx) and Operational Expenditures (OpEx) are estimated for the cable car project. These amounts will be an input to the economic and financial analysis in following chapters.

5.1 Methodology

As highlighted in Chapter 2, the cable car project from Dub to Cetinje is divided in 3 sections:

- From DUB to KUK
- From KUK to IVANOVA KORITA
- From IVANOVA KORITA to CETINJE

All costs included below are excluding VAT in order to be accounted for correctly in the financial plan .

5.2 CapEx estimates

5.2.1 Stretch Dub – Cetinje

The cost estimate are for all the equipment necessary to build an 8 person automatic clamping cable car. Please note that these costs relate exclusively to the equipment, construction of the Cable Car route and structural parts of the station and they do not account for the civil works needed to build the station buildings which are discussed separately below.

Costs cover:

- design
- machinery at the engine stations at the bottom of the route
- recirculation and tension systems in the station at the top of the route
- electric and hydraulic drivers
- cables
- line pylons
- roller conveyors
- vehicles
- emergency devices
- structures in the stations
- metallic carpentry for supporting and moving the vehicles to the storehouses

The technical features and characteristics are reported in Chapter 2.

The total cost for **the Equipment** is estimated at € 29,100,000.

Regarding civil construction works, costs include:

- line pylons
- foundations and anchorage blocks for the stations
- storehouses where the cabins are stored
- supply of the command cabins and the access steps
- structural parts construction of the stations, the storehouses and the line
- electric plants wirings as well as for various professional performances

The total cost for **the Civil works** is estimated at € 7,600,000.

Adding these costs a **Total** *Cost is €* **36,700,000**

To the above mentioned total costs, additional costs might be considered for such things as deforestation, for expropriation (estimates a specific cost of €30 per m^2 and 15% of the terminal stations areas to be expropriated being the remaining areas property of the Municipality or the Government), for roads and utilities works as well as for the construction of high quality buildings at the terminal and intermediate stations with attached services (ticket-office, personnel offices, toilets, electric cabins, etc.)

These costs also exclude the connection to the electricity, drainage and water networks.

5.2.2 CapEx for Stations in Dub, Kuk, Ivanova, Cetinje

These costs are derived from previous Feasibility Studies and have been uplifted by 10% to account for inflation since the costs were prepared in 2007 and 2008.

Item	CapEx
Dub station	4,140,000
Kuk station	2,050,000
Ivanova Korita station	1,540,000
Cetinje station	1,980,000
Cable car construction	36,700,000
Expropriation costs	140,000
TOTAL	**€ 46,550,000**

The amounts above include all the works needed (e.g. architecture activities, civil works and plants) to realise each station exception made for the Cable Car related structural part of the stations that are already accounted for in the CapEx for the Stretch.

More specifically the amounts include following tasks:

- Excavations and embankments
- Civil works (concrete foundations, walls and floors, steel structures, roofs, windows, plastering, asphalting for the Dub parking area and finishing works)
- Electrical installation High Voltage (HV)
- Electrical installation Low Voltage (LV)
- Water and waste water (sewerage system)
- HVAC (air conditioning system)

In case in Ivanova Korita a single intermediary station shall be realised, all related costs for mechanical and electric connection of the two intermediary stations, have been estimated as an additional €**450,000** for each intermediary station.

5.3 OpEx estimates

European legislation on cable cars and also those of the single Governments establishes the necessary personnel for the regular and safe operation mode for a cable car. Even though the three lines will almost always work simultaneously, the staff cost is calculated for each individual section, there is clearly room for efficiencies in this going forward. For instance, with all the three sections in operation there can be only one supervisor and not a supervisor for every single section.

This assumption implies that the Cable Car will be open to the public for 7 months from 8.30 to 18.00, only in the summer with approximately 2,000 operative hours for all three sections.

5.3.1 Stretch Dub – Cetinje

5.3.1.1 PERSONNEL NECESSARY FOR A REGULAR AND SAFE OPERATING MODE

Based on European best practices for the regular and safe exercise of an 8 person cabin, automatic clamping cable car and to be able to effect a complete and accurate maintenance, it is reasonable to foresee 6 permanently hired staff members and 6 seasonal staff members for 9 months of which 7 months for the opening of the service to the public and 2 months devoted to maintenance of the plant. The 12 people include:

- n. 3 supervisor
- n. 6 engine drivers for the engine station
- n. 3 agent for the recirculation and tensioning system

The cost, including taxes, national pension contributions and health insurance for the personnel, can be estimated as follows: annual maximum cost (12 people): 6 x 14[1] x 1,300 = **€ 109,200** and 6 x 9 x 1,200 = **€ 64,800**

For a total yearly cost of **€ 174,000.**

To these an estimated € 90,000 must be added for monitoring and inspection costs by the authority or a qualified entity. The above estimated costs for staff can decrease in case of reduced opening hours in certain periods of low traffic as well as thanks to a rational distribution of staff during the activity of all the three sections.

5.3.1.2 MAINTENANCE, DEADLINES FOR SPECIAL AND GENERAL REVISIONS

Correct planning of cable car maintenance to be executed on the plant is generally provided by cable car manufacturer. It is reasonable to account for 10 weeks for maintenance and controls as well as 2 weeks for various setup and refurbishment to be carried out both in spring and autumn with the participation of 3 people for a total amount of hours as below:

$10_{weeks} \times 5_{days} \times 8_{hours} \times 3_{people}$ = 1200 hours / per plant

Non destructive controls

Every year 20% of the vices of the automatic clamping system have to undergo magnetoscopic checks with a cost of €15,000-17,000, to which to add the cost for a magneto - inductive examination of the supporting pulling cable with an estimated cost of €7,000.

With predetermined deadlines (for instance every five years on the Italian territory) every cable plant, must by law undergo a special revision that consist in a magnetoscopic and ultrasounds control for the various elements: the cost can be €24,000 - 28,000.

[1] Permanently hired staff is assumed to be paid a 14 monthly and slightly higher than temporary employee salary

Subsequently, every twenty years (always under Italian legislation), the cable car has to undergo a general revision with the complete removal of all mechanical parts with a general cost estimated in €6,400,000.

Also the costs for consumable materials have to be considered that can be valued in €65,000 - 80,000 a year. This cost will grow over the years. Averaging the annual costs over time, not accounting for the general revision, costs for maintenance and ordinary and extraordinary revision can be estimated yearly in **€140,000 - 165,000.**

5.3.1.3 ELECTRICITY

Electricity consumption is difficult to estimate, according to our experiences we expect, electricity consumption costs to amount to:

€ 255,000 for a transport capacity of 1,200 Pax/h

€ 230,800 for a transport capacity of 900 Pax/h

€ 208,500 for a transport capacity of 600 Pax/h

These costs have been determined considering an average daily consumption of 1,040 kWh and assuming an average cost per kWh, including the fixed costs, equal to 0.14 €/kWh.

5.3.1.4 ANNUAL MANAGEMENT COSTS Summary

Analysing the costs we previously determined and also considering the necessary cost for the insurance coverage for a standard plant we can report, as an indicative value, the annual costs for the management of the cable cars that will connect Dub to Cetinje.

- cost for staff and for monitoring: € 264,000
- cost for maintenance, non destructive controls and revision: € 165,000
- cost for electricity: € 255,000
- cost for insurance: € 48,000
- cost for contingencies : € 90,000

Annual general cost for management is about: € 822,000 rounded to € 840,000

Please note that in these annual costs we did not consider costs related to administrative and marketing aspects nor the amortizations resulting from the construction cost of the cable car.

6 FINANCIAL FEASIBILITY

This section describes the economic feasibility of the project measured by the amount to which the revenues expected during the entire project or product life exceeds the proper costs incurred in creating that revenue. As part of this analysis we have analysed a number of scenarios. The analysis has focused on the calculation of the following parameters:

- Net Present Value (**NPV**),
- Internal Rate of Return (**IRR**) and
- Payback Period (**PBP**).

6.1 Economic evaluation

In order to develop the annual revenue stream, as well as the annual O&M costs, for the life cycle of each cable car alternative, several ridership and economic assumptions were made for all the scenarios including:

- A total economic life cycle of 30 years;
- A total construction time for each alternative of 1 year;
- An operating period of 29 years;
- An investment costs set in 2013 prices;
- Ticket revenues are expressed in 2013 prices, ticket fares increase in line with inflation only;
- VAT on costs and revenues is not included;
- A fixed cost for an uniform level of operation except for a periodic major maintenance consisting of a revision of the infrastructure after 20 years from the launch year (2034); and
- An annual real discount rate of 8.5% is assumed for the life cycle of the project. This rate is used to discount future revenues and O&M costs to the present year.

It's important to note that the analysis only looks at fares revenues; for this reason the CapEx and OpEx related to the parking area are not included.

6.2 Scenarios

The economic analysis uses information derived from the demand forecasts and cost estimates and reflects the economic outputs of the scenario that has been chosen.

We have focused our analysis on a scenario which foresaw an operating period of 7 months to ensure the maximum possible utilisation of the infrastructure given the investment without being burdened with operation expenses throughout the year. A 7 months opening period indeed resulted to be the most profitable option for the project, being the one which maximises net present value (NPV) and internal rate of return (IRR), which are the most used indicators of profitability of an investment.

Based on an opening period of 7 months assumption, 2 scenarios are considered to assess the possible effects of significant changes to the assumptions in relation to the:

- Capital & Operating costs; and
- Fares & Revenue Forecasts.

Scenario 1 and Scenario 2 as well as the different fare structures are as defined in Chapter 3.

Scenario 1 considers a 33% capture rate from cruisers and 5% from Budva, while the Scenario 2 assumes 33% capture rate from cruiser passengers as for the Scenario 1, 10% from Budva tourists and 5% from Croatian excursionists, who were not considered in the Scenario 1.

The main features for these scenarios are set out in the table below in which the average revenues/year over the life cycle of the project are also represented.

TABLE 6.1 MAIN CHARATERISTICS OF CABLE CAR ALTERNATIVES

Scenario	Route	Full Fare (€)	CapEx (€)	OpEx/year (€)	Average Revenues/year (€)
1	Dub-Lovcen-Centinje	20 -30	46,600,000	825,000	6,650,000
2	Dub-Lovcen-Centinje	20 -30	46,600,000	825,000	8,800,000

6.3 Results of the economic analysis

6.3.1 Net Present Value

Net present value is one of the most helpful and fundamental indicators available for financial decision making and it can also be implemented for making decisions about different alternatives. Net present value provides the current value of a series of cash flows, both costs (present value costs) and revenues (present value revenues) related to each alternative.

Generally, if the NPV for the project is a positive number, it means that the project will be profitable beyond a required rate of return and it's preferable to accept the project. If the NPV is negative it's supposed that it's better to invest the money elsewhere and the project should be rejected. When several alternatives present a positive NPV the investment with the higher net present value will be the more favorable choice.

In particular for the cable car project, after having determined the present values related to capital expenditures, annual Operation and Maintenance costs and annual revenues, already discussed in the previous chapters, we calculated the expected NPV for each alternative starting from the associated cash flow.

The discount ratio assumed for the NPV calculation has been determined with the opportunity cost which is usually deemed with the yield of a risk free investment such as 30 year treasury bond. In this case we assumed a discount rate of 8.5% for the whole duration of the project.

Based on the above assumptions, the NPV for each alternative are presented in Table 6.2.

TABLE 6.2 NPV OF CABLE CAR ALTERNATIVES

Scenario	Present Value CapEx & OpEx (€)	Present Value Revenues (€)	Net Present Value (€)
1	-52,000,000	53,500,000	**1,500,000**
2	-52,000,000	70,000,000	**18,000,000**

The results suggest that both the scenario have positive return on the investment in terms of NPV but, the scenario n.1 having a NPV result closer to 0 is more sensible to any prospective variation in traffic demand in terms of capture from Cruise passengers.

6.3.2 Internal Rate Return

Another evaluation method to select the best project in a range of choices uses the Internal Rate of Return (IRR). The internal rate of return of a project is defined as the interest rate at which the net present value of that project equals zero. It basically allow to have a quick understanding of the measure of the worth of several investment in terms of the expected rate of returns.

As for the NPV, the IRR calculation has been carried out taking into account the negative and positive yearly cash flows of the investment over the project duration.

The table below provides a summary of the IRR for each scheme alternative.

TABLE 6.3 IRR OF CABLE CAR ALTERNATIVES

Scenario	IRR
1 (7 months)	8.8%
2 (7 months)	11.7%

The scenario n.2 is, even if it shows a slightly lower IRR than 12% value, in line with the risk and reward expectations of prospective investors in Montenegro and could be an acceptable solution for an international investor.

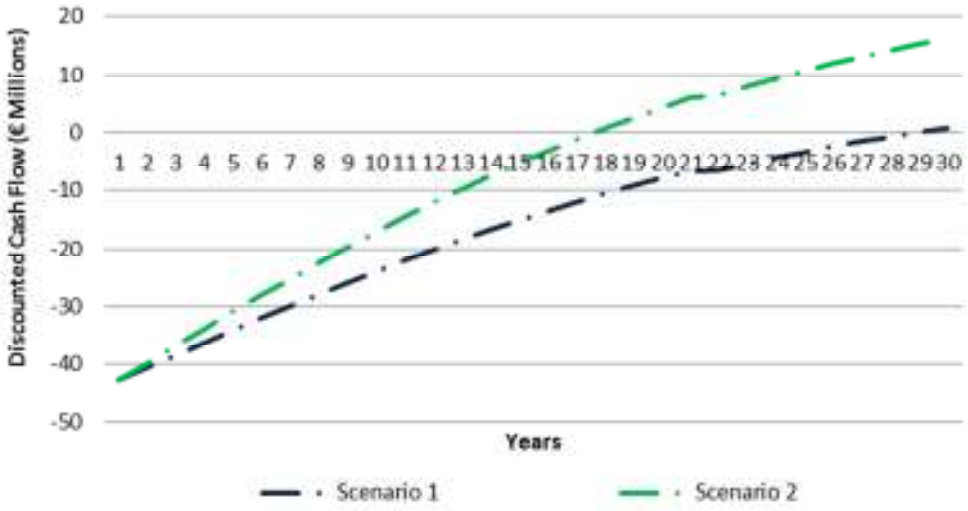
Furthermore, the scenario n.1 with an internal rate of return close to 9% would represent a fulfil result for the European most industrialised countries (Germany, Italy, France, UK ecc.), it's reasonable to think that these rates, given the fact that this is the first project of its kind in Montenegro from a technical, legal and financial point of view, would not be considered sufficiently high to attract private capital if the Grantor is not going to minimise revenue risks for the Sponsor.

6.3.3 Discounted Payback Period

In contrast to an NPV analysis, which provides the overall value of a project, a discounted payback period gives the number of years it takes to break even from undertaking the initial expenditure.

The figure below shows the Payback Period for all alternatives.

FIGURE 6.1 DISCOUNTED PAYBACK PERIOD FOR CABLE CAR ALTERNATIVES



Both the scenarios show a positive Discounted Payback Period (DPBP) value equal to 17.5 (Scenario 2) and 28.5 years (Scenario 1).

Moreover, the solution n.2 would be able to guarantee a sufficient margin to get back from the initial investment.

While the solution n.1 would not be particularly attractive as the 28.5 years period (just 1.5 year of margin) to cover the initial expenditures are pretty high to be accepted by a private investor.

7 MAIN CONCLUSIONS AND RECOMMENDATIONS

The feasibility study has set out the details of the project to build a Cable Car connecting **Kotor** (Dub) to the Old Royal Capital of **Cetinje** through the **Lovcen National Park** area increasing **accessibility** to those areas from the **coast.**

In undertaking the update of the Feasibility Study, our work focused on the following areas.

From a **technical** point of view:

- With a total length of more than 15km, the Cable Car linking Kotor (Dub) to the old Royal Capital Cetinje will be the **longest Cable Car** in the world thereby becoming a touristic attraction itself.
- We reviewed and updated the technical design (Cable Car equipment and intermediate stations). The project is technically feasible.
- We estimated costs both in terms of capital and operating expenditure to be fed into the subsequent financial and economic analysis. The total investment is estimated at 46.6 Mn Euro while the yearly operating expenditure ranges from 820,000 to 850,000 Euro/year.

From a **demand/revenue** point of view:

- Starting from existing data on tourism, we produced a demand model and resulting revenue forecast for several route layouts and demand capture options.
- Fares are assumed to range from 20 to 30 Euro for a return ticket (depending on the options), generating estimated revenues, including VAT, of between 3,7 to 4,7 M Euros per year during first year of operation with an average value over the lifetime of the project of between 7.5 to 9.5 M Euros per year.
- The accuracy of the outturn demand figures and their growth will be highly dependent on interventions and promotional activities carried out by the private investor but also by the government with the aim of increasing awareness on the Cable Car.

From an **economic** point of view:

- We also estimated the related benefits of the projected investment which is forecast to substantially increase (+40%) touristic spending in Cetinje and Lovcen Park and improve the accessibility of the Historical Capital of Cetinje to all tourists residing on the coast around Budva.
- Kotor will also benefit from ancillary benefits resulting from less congestion in town as cruise passengers can avoid the centre of Kotor to visit instead Cetinje and the Lovcen National Park.

From a **financial** point of view:

- We estimated the main financial indicators (IRR, NPV, PBP) and the main financing sources for the project, identifying what might result more appealing for a private investor.
- We recommend that the Grantor verify its willingness and availability to **participate financially** to the project with **Construction Grants and availability Payments** to improve financial values in terms of IRR, NPV, PBP and hence its appeal for private investors.
- Detailed calculations of actual amounts and scheme types relating to financial participation of the Grantor will depend on demand, debt/equity structuring etc. and will be the subject of the work following this feasibility study.

As a general conclusion the project can be seen to be **technically** and **financially feasible** and also very **attractive** for its **uniqueness**, for the economical and external **benefits** brought to the communities involved, for its capability to develop and foster tourism in the region and, last but not least, for its **financial attractiveness** to private **investors**.

It is of utmost importance that the Grantor rapidly intervenes on the legal aspects and framework identified above, sustains the project with proper financing both at the beginning and over time as well as with promotional actions and activities over the life of the project to raise project awareness.