

# **Joint Opinion of the Energy Regulators on the “Dekani-Zaule” Exemption Application**

**Autorità per l'Energia Elettrica e il Gas (Italy)**

**Javna agencija Republike Slovenije za energijo (Slovenia)**

**18 December 2013**

# Contents

Preface .....

## **PART 1 The Project, facts and figures**

- 1.1 The Project
  - 1.1.1 Main features
  - 1.1.2 Capacity
  - 1.1.3 Timing
- 1.2 Players involved in the project
  - 1.2.1. The shareholders
- 1.3 The financial model
- 1.4 Costs
- 1.5 The requested exemptions

## **PART 2 The Authorities' analyses**

- 1 Criteria assessment
  - 1.1 Eligibility of the request
    - 1.1.1 The importance of the new interconnector
    - 1.1.2 Risks
    - 1.1.3 Costs
      - 1.1.3.1 Covering the costs incurred in network of TSO's
  - 1.2 Competition (and Security of supply)
  - 1.3 Level of risk
  - 1.4 Separation from existing TSOs
  - 1.5 Charges
  - 1.6 The exemption must not be detrimental to competition or the effective functioning of the internal market
- 2 Financial analysis
  - 2.1 Sensitivity analysis
  - 2.2 Hypotheses and results according to the applicants
  - 2.3 Hypotheses and results according to the Authorities

## **PART 3 The Authorities' Joint Opinion**

# List of Figures and Tables

## PART 1

Table 1: Change/increase of cross border capacity on Slovenia (SI)-Italy (It) border (MW) – “Dekani-Zaule” interconnector (D-Z)

Figure 1: The shareholder structure

Table 2: Applicants’ estimation of capital expenditures

## PART 2

Figure 1: Hourly Average usage of NTC in October 2013 on SL-IT border

Figure 2: Pivotality analysis \_Current situation

Table 1: Pivotality results-Current situation

Table 2: Market shares of suppliers to all customers in Slovenia

Figure 3: Pivotality analysis-With interconnectors “Dekani-Zaule” and “Redipuglia-Vrtojba”

Table 3: Pivotality results-With interconnectors “Dekani-Zaule” and “Redipuglia-Vrtojba”

Table 4: Sensitivity analysis

Table 5: Share of certain investment costs with respect to total capital expenditures

Table 6: Expected financial results according to the applicants

Table 7: Price differential Italy-Slovenia

Table 8: Scenario analysis: Expected financial results

## Relevant documents/Attachments

- 1 Exemption request (26/06/2013)
- 2 Ernst & Young Integration report (August 2012)
- 3 Feasibility study by Terna and Eles on cross-border capacity evaluation for commercial lines on the Slovenia-Italy border (26/07/2011)
- 4 Common Terna and Eles Network study on “Exemption assessment on the Slovenia-Italy border: ML “Dekani-Zaule” and “Redipuglia-Vrtojba” (final report of 10/08/2012)
- 5 Letter of Terna dated 30/10/2013 (subject: NTC calculation related to the exemption requests for proposed merchant lines “Redipuglia-Vrtojba” and Dekani-Zaule)

## Definitions and acronyms

The following definitions and acronyms are used in the present Joint Opinion:

- ACER: The Agency for the Cooperation of Energy Regulators established by Regulation 713/2009 of the European Parliament and of the Council.
- AEEG: The Italian National Authority for Electricity and Gas- Autorità per l'energia elettrica e il gas.
- AGEN-RS: The Slovenian National Authority - Javna agencija Republike Slovenije za energijo.
- Applicants: The project promoters Adrialink S.r.l., HSE d.o.o. and E3 d.o.o
- Directive 2009/72/EC: Directive 2009/72/EC of the European Parliament and the Council concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC.
- DPBP: Discounted Payback Period. It gives the number of years it takes to break even from undertaking the initial expenditure. Future cash flows are considered as discounted to time "zero".
- HHI: Herfindahl–Hirschman Index. It allows to measure the degree of competitiveness of a market. It takes values between 0 (perfect competition) and 10000 (monopoly). Typically, when the HHI is less than 1000, the market analyzed is supposed to be competitive; values between 1000 and 1800 indicate a moderately concentrated market.
- IRR: Internal Rate of Return. The discount rate that makes the net present value of all cash flows from a particular project equal to zero.
- NPV: Net present value, the difference between the present value of cash inflows and the present value of cash outflows.
- New interconnector: The 110 kV AC interconnection line Dekani (Slovenia)-Zaule (Italy).

- NTC of the new interconnector: The additional Net Transfer Capacity - as determined by the TSOs – on the Italian Slovenian border which is attributable to the starting of commercial operations of the new interconnector.
- PSI: Pivotal Supplier Index. It is aimed at identifying to what extent certain companies are essential to meet the electricity demand. For a certain hour and given operator the PSI is defined as the rate between the production (or capacity) of operator *i* and the residual production (capacities) of competitors.
- Regulation 714/2009: The Regulation n. 714/2009 of the European Parliament and of the Council on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation n. 1228/2003.
- The Authorities: Jointly AEEG and AGEN-RS.
- The Exemption Application: the exemption application for the interconnector “Dekani-Zaule” submitted by Adria Link s.r.l., Holding Slovenske Elektrarne d.o.o. and E3 d.o.o. to AGEN RS on January 8<sup>th</sup> 2013 and to AEEG on June 26<sup>th</sup> 2013.
- TSOs: Terna Spa (Italian transmission system operator) and Eles d.o.o. (Slovenian transmission system operator).

## Preface

On January 8<sup>th</sup> 2013, the companies Adria Link s.r.l. (Italy), Holding Slovenske Elektrarne d.o.o. (Slovenia) and E3 d.o.o. (Slovenia) submitted to AGEN-RS the Exemption Application for the AC interconnector “Dekani-Zaule”, as foreseen by Article 17(1) of Regulation 714/2009. The same Exemption Request has been then submitted to the Italian Ministry of Economic Development and AEEG (reception date: June 26<sup>th</sup> 2013).

The applicants asked for the exemption of the 90% NTC from the provisions of Article 16(6) of Regulation 714/2009 and Article 9, 32, and Article 37(6) and 37(10) of Directive 2009/72/EC for 12 years.

Considering that:

- The project “Dekani-Zaule” lies across Slovenia and Italy and qualifies itself as an interconnector;
- Article 17(4) of Regulation 714/2009 and the national legislation require that, in the case where the infrastructure in question is located in the territory of more than one country, any decision on the exemptions should be taken jointly by the National Authorities of the countries concerned and they shall inform ACER of that decision;
- As the Italian legislation assigns to the Ministry the responsibility of granting exemptions under a non-binding opinion of AEEG, the Italian Authority is requested to provide an opinion to the Ministry;
- According to the Slovenian legislation, AGEN-RS is responsible for granting exemption decisions for the Slovenian territory.

The Authorities have jointly decided to review the “Dekani-Zaule” Exemption Application on the basis of Regulation 714/2009 and Directive 2009/72/EC.

This document is the Joint Opinion of the Authorities, based on the criteria of Article 17(1) of the Regulation 714/2009 and supported by both the financial results of the analyses and further considerations shared by the Regulatory Authorities.

The document is divided into three Parts.

Part 1 provides a description of the project, according to the Exemption Application submitted by the applicants, coupled with the information communicated to the Authorities in the course of the assessment of this application until the date of the issuance of the present Joint Opinion. The

description includes the list of the exemptions requested as well as a report of the information deemed to be relevant for the opinion.

Part 2 contains the assessment of each respective Authority on the fulfillment of the criteria of Article 17(1) of Regulation 714/2009, supported by data and considerations. Part 3 contains the Joint Opinion of the Regulatory Authorities on the Exemption Application and the terms and conditions under which the exemption should be granted.

# Part 1

## The Project, facts and figures

In the following sections, an overview of the Project is provided, based on the information received by the applicants in their Exemption Application and on later explanations, with a special focus on the aspects which are relevant for the exemption opinion.

### 1.1. The Project

#### 1.1.1 Main features

The project involves the development and operation of a cross-border AC line for import/export of electricity. The new 110 kV interconnector will connect the Italian power system in Zaule with the Slovenian power system in Dekani.

The project framework is basically made up of three main parts:

- 1) The transmission line itself to be built for about 7 km in Italian territory and for 4 km in Slovenian territory, comprehensive of the related ancillary facilities;
- 2) The connection to the Slovenian grid, at the Dekani 110/20 kV substation;
- 3) The connection to the Italian electric grid, at 380/220/132 kV Zaule substation.

A phase shifter transformer (PST) shall be situated in the Zaule 132 kV substation in order to carry out the transformation from 110 to 132kV. The facility will be completely built underground and the selected route will be mainly along low-traffic roads.

#### 1.1.2 Capacity

The NTC of an AC interconnector is not an intrinsic property of the line, since it depends on the power system to which it is connected. In order to identify the NTC value to properly assess an exemption, it is necessary to define the future network scenario that would exist once the new interconnector starts its commercial operations.

Hence, the TSOs have been formally asked to provide a reliable estimate<sup>1</sup> of the expected NTC<sup>2</sup>, in particular, they have been asked to:

- Update the generation and load scenarios taking 2014 as the reference year;
- Define the expected network model for the NTC calculation taking into account the relevant network reinforcements included in the respective Development Plans and planned to be in service by the date of starting of commercial operations of the new interconnector.

More precisely, the main grid enhancements that have been taken into account are:

Italian side:

- 380 kV Udine Ovest-Udine Sud-Redipuglia;
- 220 kV Reinforcement Monfalcone;
- 132 kV AMG Gorizia enhancements of the 132 kV line “AMG Gorizia- S. Giovanni al Natisone”.

Slovenian side:

Cross-border capacity calculations were performed using Slovenian grid model for the year 2014, which included all the planned projects in Slovenian grid for the whole 2014 in accordance with the Transmission Network Development Plan in the Republic of Slovenia (2011-2020). Additionally, the reconstruction of substation Dekani, whose purpose is to update the physical structure in accordance with the Slovenian grid code (SONPO), has also been considered. Thus, it has been detected in the analysis that in different scenarios, certain limitations in the grid exist. Occasional overloads and security violations could occur on the 400/110 kV transformer in substation Divača, south Primorska region between Divača and Koper and north Primorska region between Divača and Gorica. These circumstances are also very much dependent on the operation of Pumping Storage Power Plant Avče.

---

<sup>1</sup> In order to have the most accurate as possible NTC value, the Italian Law (Ministerial Decree 21/10/2005) prescribes to execute the calculation considering only the measures and projects already under construction. Instead, due to the legislative gap referred hereinafter in section 1.1.3, the TSOs have calculated the preliminary and provisional NTC considering not only the projects under construction, but also those planned to be operational within 2014.

<sup>2</sup> “Feasibility study on cross-border capacity evaluation for commercial lines on the Slovenia-Italy border- Network study Review-Final Report” of July 26<sup>th</sup> 2011.

Accordingly, an increased NTC on the Slovenian-Italian border will be possible with:

- The Increase of transformation capacity in substation Divača (only 1 transformer 400/110 kV in substation Divača was taken into consideration for the analysis, however, an additional transformer is planned in substation Divača),
- The construction of the 110 kV double circuit lines Divača-(Sežana-Vrtojba)-Gorica, and
- The construction of the 110 kV double circuit line Divača-Koper.

Additionally, in the direction from Italy to Slovenia, no limitations pertaining to the security of supply of Primorska region exist, thus meaning additional exchange from Italy to Slovenia could be as high as 125 MW.

According to the estimates and assumptions jointly agreed upon by the two TSOs, the additional NTC between Italy and Slovenia should be as in the following table (Table 1):

**Table 1: Change/increase of cross border capacity on Slovenia (SI)-Italy (It) border (MW) – “Dekani-Zaule” interconnector (D-Z)- VALUES AGREED BY TERNA AND ELES**

|           | Winter |       |          |       | Summer |       |          |       |
|-----------|--------|-------|----------|-------|--------|-------|----------|-------|
|           | PEAK   |       | OFF PEAK |       | PEAK   |       | OFF PEAK |       |
|           | SL-It  | It-SI | SL-It    | It-SI | SL-It  | It-SI | SL-It    | It-SI |
| Base case | 0      | 0     | 0        | 0     | 0      | 0     | 0        | 0     |
| with D-Z  | 90     | 10    | 90       | 10    | 95     | 10    | 90       | 10    |

Source: Terna, Eles (2011), “Feasibility study on cross-border capacity evaluation for commercial lines on the Slovenia-Italy border- Network study Review-Final Report”

The available optimal operating capacity interchange between Italy and Slovenia will be increased up to 125 MVA.

However, the two TSOs have repeatedly communicated that without the grid enhancements described above the NTC would be zero.

### 1.1.3 Timing

At the time of writing this opinion, construction is already started on the Italian side, while it is expected to commence at a later stage on the Slovenian one.

The discrepancy in the construction phases of the two countries is due to the existing legislative gap between the Italian and Slovenian regulations. The two local authorization procedures are asymmetrical with respect to the exemption

and construction/operation authorization process: in Italy, an exemption can only be granted after that the applicant has obtained a construction/operation authorization for the entire length of the new interconnector; in Slovenia, instead, the operator has to obtain the exemption before applying for any other authorization.

In order to overcome this difficulty, the Italian and Slovenian Authorities have adopted a shared solution that would allow the Italian Competent Authority to grant an exemption compliant to the European legislation.

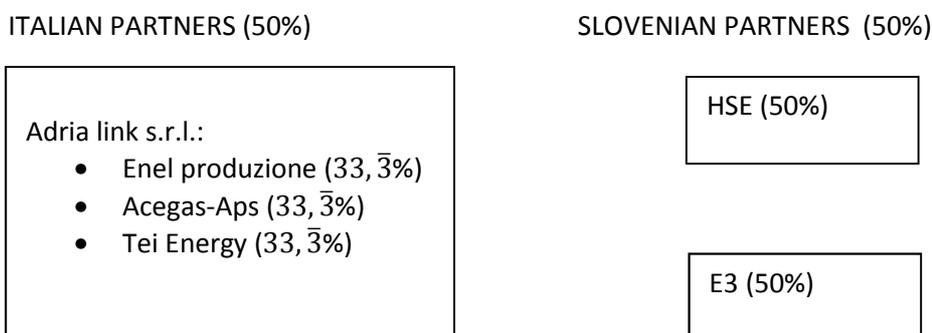
The new interconnector is expected to be operational as of 1Q 2017.

## 1.2 The shareholders of the project

The “Dekani-Zaule” merchant line will be built and operated jointly by the Italian company *Adria Link s.r.l.*, the Slovenian companies  *Holding Slovenske Elektrarne d.o.o.* (HSE d.o.o) and *Energetika, Ekologija, Economija d.o.o.* (E3 d.o.o.). The Italian and Slovenian parties will equally share costs and benefits (50% each).

The following figure highlights the shareholders structure of the applicants.

**Figure 1: The shareholder structure**



Adria Link is a consortium of three Italian energy players with established track records: Enel Produzione s.p.a. (33,3%), Acegas-Aps Group (33,3%) and Tei s.p.a. (33,3%)

On the Slovenian side, the investors will be  *Holding Slovenske Elektrarne d.o.o.* (HSE d.o.o.) and *Energetika, Ekologija, Economija d.o.o.* (E3 d.o.o.), each one accounting for 50%.

### **1.3 The financial model**

The applicants have provided in the Exemption Application a description of the business model and identified several risk factors associated to the project. The main risks are basically caused by the price spread differentials and the evaluation of the investment costs and load factors.

Part 2 provides a detailed explanation of the assumptions adopted by the applicants, as well as the Authorities' view in this regard.

### **1.4 Costs (to be considered confidential)**

In their Exemption Application, the applicants estimated the costs and made a financial analysis.<sup>3</sup>

The facility will be completely built underground and the selected route will be mainly along low-traffic roads.<sup>4</sup> The technical solutions selected imply that the costs of the investments are particularly high. Moreover, the applicants have modified the interconnection route to meet the requirements of the stakeholders involved (Municipalities, local communities, etc.).<sup>5</sup>

The average cost per km of the new interconnector is expected to be about 1.42 M€.

Hereinafter, Table 2 summarizes the main capital expenditures involved in the realization of the merchant line "Dekani-Zaule", as well as their share with respect to the total investment costs.

---

<sup>3</sup> Main features and results of the applicants' financial analysis will be treated in detail in Part 2.

<sup>4</sup> This choice on one side will reduce interferences with local infrastructures, but on the other side could entail additional excavations and construction works when undeveloped portions of the road incur.

<sup>5</sup> The choice on route and on the use of shielding solution imply an additional cost of about 15% of the total investment.

**Table 2: Applicants' estimation of capital expenditures**

|  | Investment Costs<br>(M€) | share over interconnector total<br>with with contingency |
|--|--------------------------|--|
| Cable+cable shielding+joints                     | 7,80                     | 48,84%   |
| Optic fibre                                      | 0,2                      | 1,25%  |
| Zaule station_buildings                          | 0,9                      | 5,64%  |
| Zaule station_Phase Shifter<br>Transformer (PST) | 2,5                      | 15,65%   |
| Zaule station_land purchase for PST              | 0,25                     | 1,57%  |
| Environmental compensations                      | 0,52                     | 3,26%  |
| Zaule station_buildings                          | 1,3                      | 8,14%  |
| <b>TOTAL</b>                                     | <b>13,47</b>             |  |
| Health and safety expenses ex D.lgs.<br>81/2008  | 0,13                     | 0,81%  |
| <b>ITERCONNECTOR TOTAL</b>                       | <b>13,60</b>             |  |
| Contingency (15%)                                | 2,04                     | 12,77%   |
| <b>ITERCONNECTOR TOTAL WITH<br/>CONTINGENCY</b>  | <b>15,64</b>             |  |
| Tender, design, direction of works               | 0,33                     | 2,07%  |
| <b>TOTAL WITH CONTINGENCY</b>                    | <b>15,97</b>             | 100,00%  |

### 1.5 The requested exemptions

The applicants requested the following exemptions:

- 1) From Art. 16(6) of Regulation 714/2009 concerning the usage of the revenues resulting from the allocation of the interconnection capacity.
- 2) From Art. 9 of Directive 2009/72/CE regarding the unbundling rules.
- 3) From Art. 32 of Directive 2009/72/CE which concerns the Third Party Access requirements.
- 4) From Art. 37(6) and 37(10) of Directive 2009/72/CE pertaining to tariffs.

The above exemptions are meant for 90% of the new NTC of the AC line and for a period of 12 years from the date of starting of commercial operations of the new interconnector.

## Part 2

### The Authorities' analyses

In the following paragraphs, an in-depth analysis of the Project is provided, based on the information enclosed to the Exemption Application and with a special focus on the aspects which are relevant for the exemption opinion. In particular, the aim of this section is to investigate specific aspects, variables and parameters affecting the expected profitability of the proposed interconnector "Dekani-Zaule".

This Part is organized as follows: Paragraph 1 is devoted to the regulators' analysis of how the criteria of Art. 17 of Regulation 714/2009 are satisfied; Paragraph 2 presents the financial analysis of the "Dekani-Zaule" interconnector.

#### 1 Criteria assessment

This part of the document deals with the assessment carried out by the Authorities on the fulfillment of the criteria of Article 17 of Regulation 714/2009<sup>6</sup> provided by the project applicants.

##### **Dekani-Zaule exemption request:**

Requested duration: 12 years

Amount of capacity: 90% of NTC

Exemption requested from the provisions of:

Article 16(6) of Regulation 714/2009 and Articles 9, 32 and Article 37(6) and 37(10) of Directive 2009/72/EC

---

<sup>6</sup> Regulation (EC) N. 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/2003 [O.J. L. 211, 14.8.2009, p. 15].

### **1.1 Eligibility of the requests**

*"1. New direct current interconnectors may, upon request, be exempted, for a limited period of time, from the provisions of Article 16(6) of this Regulation and Articles 9, 32 and Article 37(6) and (10) of Directive 2009/72/EC"*

*"2. Paragraph 1 shall also apply, in exceptional cases, to alternating current interconnectors provided that the costs and risks of the investment in question are particularly high when compared with the costs and risks normally incurred when connecting two neighboring national transmission systems by an alternating current interconnector."*

#### **1.1.1 Importance of the new interconnector**

In several occasions the European Commission has called on Member States to increase the interconnection capacity so as to fight the market dominance of certain operators, create competition, increase security of supply and integrate the growing amount of renewable energy sources.

Since a long time, the increase of the transfer capacity between Italy and the neighboring countries has been perceived as a priority. Back in 2001 an analysis carried out for the European Commission<sup>7</sup> identified the economic value of transmission capacity at the Italian border as remarkably high. According to this study's estimates, the network density appeared lower at this border than inside the adjacent countries, a circumstance calling for new investment measures.

Moreover, the 10-Year Network Development Plan of ENTSO-E suggests that an increase of the transfer capacity through the Alps would be necessary to improve the affordability and security of supply of the electrical system. At the same time the development of a north-south transmission corridor would also help to integrate renewables in the power system. In fact, the massive development of renewable energy sources is the main driver for larger, more volatile power flows, over larger distance across Europe, mostly along the north - south corridor from Scandinavia to Italy, between mainland Europe and the Iberian Peninsula, Ireland and the UK. As a consequence, grid investments appear necessary to avoid that the current congestion worsen and new congestions arise.

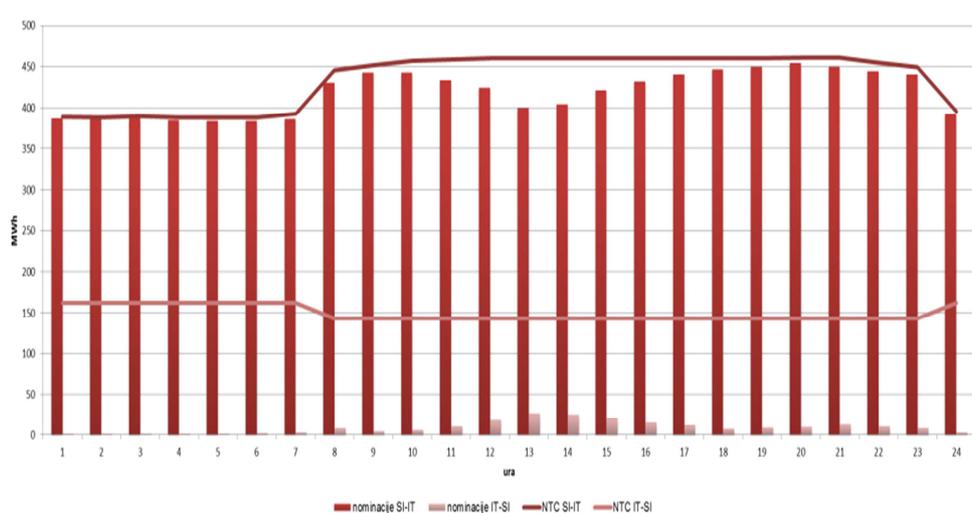
The proposed new interconnector is an alternating current underground cable connecting Italian and Slovenian power systems. The line is still at a planning stage on the Slovenian side, while it has finalized the authorizations procedures on the Italian one.

---

<sup>7</sup> "Analysis of Electricity Network Capacities and Identification of congestion", Institute of Power Systems and Power Economics (IAEW) of Aachen University of Technology (RWTH).

The project is expected to become a relevant infrastructure, increasing security of supply and competition on both sides of the border. Moreover, the new alternating current line (AC line) would significantly contribute to the NTC on the Slovenian-Italian border although by a limited percentage in absolute value. Precisely, the “Dekani-Zaule” forecasted NTC represents 18% of the current existing capacity at the border (in October 2013 NTC was in peak hours 450 MW and off-peak hours 380 MW).

**Figure 1: Hourly Average usage of NTC in October 2013 on SL-IT border**



The existing interconnection between Slovenia and Italy is almost permanently congested. On this border there is a market coupling established for day-ahead allocation of cross border capacities and its results show that uncongested interconnection in the direction from Slovenia to Italy, i.e. same price in both countries, rarely occurs. For example, in the period from 1 January to 25 February 2013 prices in Slovenia and Italy had the same value only in 85 of total 1344 hours. Similar results were also in the years 2011 and 2012, i.e. in the period of market coupling between these two countries. It is also the fact that the existing interconnector between Slovenia and Italy has been most of the time congested since the market opening in 2001. Before the introduction of market coupling between Slovenia and Italy the congestion was managed by using explicit capacity allocation.

The existing transmission infrastructure on the border between Slovenia and Italy comprises one 400 kV line and one 220 kV line. The total thermal limit of them is

2.236 MW. Determination of NTC (in 2013 in daytime hours it mostly amounts to 630 MW) on the Slovenian-Italian interconnector is based on the Pentalateral Agreement between 5 TSOs on the northern Italian borders. According to this agreement, the total NTC of northern Italian interconnector is determined on the basis of Methodology for the Joint Assessment of the Net Transfer Capacity at the Northern Italian Interconnection. After this so called splitting factors are determined to define distribution of the total NTC to the interconnectors with France, Switzerland, Austria and Slovenia.

The Slovenian TSO ELES plans to build a new interconnector between Slovenia and Italy. It will be either 2x400 kV overhead line between Okroglo (SI) and Udine (IT) or 400 kV DC underground cable between Beričevo (SI) and Salgareda (IT). These two projects are also included in ELES's Development strategy of the Slovenian electric power system – Development plan of the Slovenian transmission system for the period 2013-2022 and in the ENTSO-E Ten-Year Network Development Plan 2012. Both projects are also part of PCI project list<sup>8</sup> as "Long-term infrastructure vision for Europe and beyond".

### **1.1.2 Risks**

The uncertainties of the investment originate mainly from two kinds of factors that are technological and economical in nature.

From a technological perspective, uncertainties are due to the fact that the new interconnector's transfer capacity may be constrained much below its rated capacity. Moreover, the NTC represents a major risk especially in the case of 110kV lines, which are more frequently subject to reliability and bottleneck problems.

The NTC definition for an AC interconnector is in fact only partly related to the nominal capacity of the line as it mainly depends on the power systems to which it is connected. This consideration makes the capacity attributable to an AC line only a variable parameter not totally controlled by the project's applicants. Being the line in question built at 110 kV, it could be even more influenced by the surrounding networks of higher voltage level; therefore, for the project applicants, the NTC capacity definition represents a major element of technical risk.

The economic factors of risk concern the volume of revenues, which will depend on the actual prices in the two countries/zones involved.

---

<sup>8</sup> [http://ec.europa.eu/energy/infrastructure/pci/doc/2013\\_pci\\_projects\\_country.pdf](http://ec.europa.eu/energy/infrastructure/pci/doc/2013_pci_projects_country.pdf)

The proper estimation of the future price differentials is a matter of great debate. Several variables at a time should be taken into account, namely, the costs of the current and future generation plants; the possible peak loads; the future network development, etc. Such a wide variety of factors makes it really difficult to achieve a reliable and consistent forecast of the price dynamics, especially on long time horizons as those considered in the business plans.

### **1.1.3 Costs**

The technical solutions selected by the project's applicants imply that the costs of the investments are particularly high.

First of all, the realization of the new interconnector involves the installation of a Phase Shifter Transformer (PST) in Zaule, so as to carry out the voltage transformation from 110 kV to 132 kV and to stabilize the load flow along the new line (PSTs are already in operation on both existing interconnectors 400kV (Divača substation) and 220 kV (Padriciano substation)).

Secondly, the line will be completely developed underground.

Underground lines generally entail higher costs than overhead lines, having different physical, environmental and construction needs.<sup>9</sup> The components of underground transmission lines are often not that easily interchangeable and subject to more testing and trial-up activities in order to ensure their correct installation.

In addition, underground works are generally very site-specific. The selected line route is subject to a number of interferences with local infrastructures (gas and electricity distribution network, telecommunication, etc.) which could represent a major threat to the proposed work scheduling. The design of the infrastructures to be built (e.g. the concrete vaults to be used for permanent access, maintenance and repair of the cable) must be heavily customized to terrain conditions, such as the presence of underground fresh water or the characteristics of underground bedrock. In this respect, it should be highlighted that the planned construction area is geologically quite peculiar, due to the karst phenomenon, which might require an *ad hoc* customization of trenches and related facilities.

In order to contain and reduce the environmental impact of the line, the project includes the construction in the proximity of inhabited homes of shielding solutions to reduce the electromagnetic fields.

---

<sup>9</sup> It is important to point out that all the existing transmission A.C. interconnections between Italy and foreign countries are overhead lines. For this kind of infrastructures the average cost is from 4 to 14 times less expensive than underground cable of the same voltage and same distance ("*Underground Electric Transmission Lines*" – Electric Report 11 – Public Service Commission of Wisconsin – May 2011).

All above mentioned topics affect the construction and operation expenditures (maintenance and repairs) and, accordingly, the overall risk associated to the investment.

### **1.1.3.1 Covering the costs incurred in network of TSO's**

Due to the main flows deriving from the expected operation (mainly in export direction from Slovenia to Italy), the new interconnector is compared to an additional load connected to the Slovenian transmission network.

The applicants will therefore be obliged to pay to the Slovenian TSO ELES the incurred costs (costs related to the withdrawal from the public network) related to the provisions of the Regulation 714/2009 indicating the need to maintain the efficient functioning of the regulated systems to which the new interconnector is linked.

On the Italian side, according to the same considerations, the new interconnector is compared to a generator connected to the Italian transmission network and therefore is not subject to the payment of any transmission tariff, as the G-charge in the Italian system is set to zero.

## **1.2 Competition and (security of supply)**

*(a) The investment must enhance competition in electricity supply;*

In general, an exemption is not granted to a new piece of infrastructure that is likely to have a significant amount of its capacity allocated to dominant players in one of the markets affected or which would not safeguard non-discriminatory access to all market participants who express their interest in reserving capacity in the infrastructure.

In practice, the proper market functioning depends on a wide variety of factors, basically linked to the market concentration in the involved countries.

The electricity market in the North of Italy is the most competitive amongst the electricity markets of the country. The Herfindahl–Hirschman Index (HHI)<sup>10</sup>

---

<sup>10</sup> The HHI allows to measure the degree of competitiveness of a market. It takes values between 0 (perfect competition) and 10000 (monopoly). Typically, when the HHI is less

experienced a progressive decrease over time, passing from a value of 1474 in 2005 to the current level of 1323 (-10%).

However, according to part of the literature (Küpper et al, 2008<sup>11</sup>; London Economics, 2007<sup>12</sup>), traditional measures of market concentration, such as the HHI, may be affected by the taken assumptions and provide misleading results. Given these drawbacks, the HHI is not necessarily considered a good indicator of market power. Several alternative instruments have been developed and adopted, capable, among other things, of taking into account both the supply and demand side. In this field, the Pivotal Supplier Index (PSI) is aimed at identifying to what extent certain companies are essential to meet the electricity demand.<sup>13</sup> The pivotality for a certain hour and given operator is then defined as:

$$P = \frac{\textit{Production of operator } i}{\textit{Residual production of competitors}}$$

Where the residual capacity of competitors is the sum of:

- 1) The residual production of the other operators in the relevant market;
- 2) The additional residual production of the competitors of the neighboring markets and that could be imported in the relevant market.

The same pivotality index can be computed considering the installed capacity. In this case the pivotality is computed as:

$$P_c = \frac{\textit{Capacity of operator } i}{\textit{Residual capacity of competitors}}$$

In order to assess the effect the new interconnection “Dekani-Zaule” is going to have in terms of competition, it is essential to consider how the new infrastructure (and available capacity) would affect the dominant player of the relevant market.

---

than 1000, the market analyzed is supposed to be competitive; values between 1000 and 1800 indicate a moderately concentrated market.

<sup>11</sup> Küpper, G. et al. (2009). Does more international transmission capacity increase competition in the Belgian electricity market? *Electricity Journal* 22(1) 21–36.

<sup>12</sup> London Economics (2007). Structure and performance of six European wholesale electricity markets in 2003, 2004 and 2005.

<sup>13</sup> At the same time the pivotality of a certain operator also indicates its ability to set the price with respect to the market competitors. It takes value 1 when the operator is pivotal, 0 otherwise.

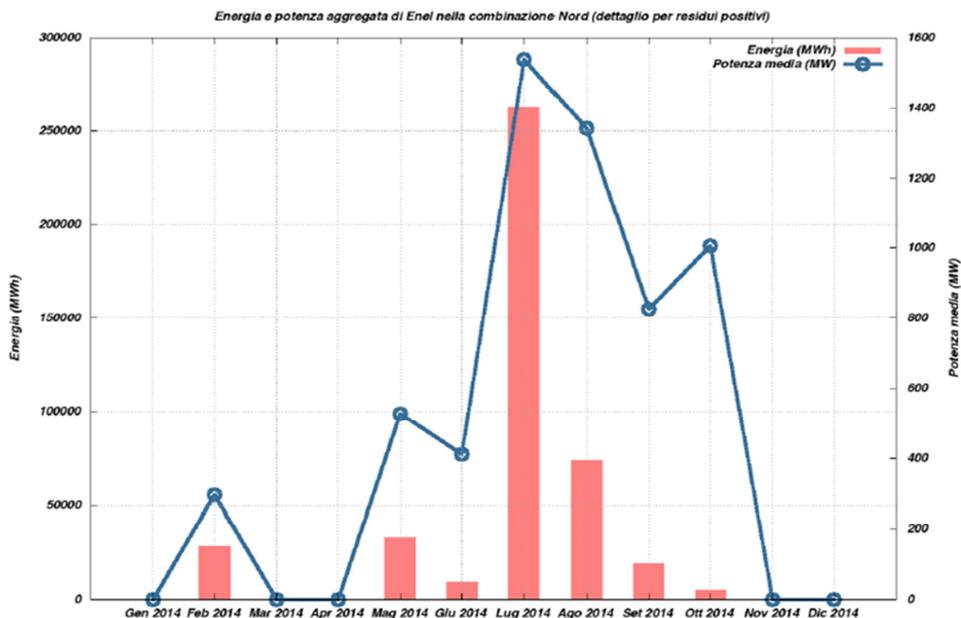
Enel, one of the project's shareholders, is Italy's largest power company, with a wholesale market share of 25,4%<sup>14</sup>. Even if its quota is experiencing a progressive contraction<sup>15</sup>, a pivotality analysis has been carried out in order to assess its current market power with respect to the wholesale supply of electricity in the North of Italy and whether such power would be affected by the new interconnector (the so called scenario analysis).

### Current situation

The following figure (Figure 2) and table (Table 1) show when and how much (in terms of number of hours) Enel is pivotal in the current situation that is, in the absence of any change in terms of new infrastructures and expected available capacity.<sup>16</sup>

The pivotality is computed in terms of capacity and on an hourly basis.

**Figure 2: Pivotality analysis \_Current situation**



<sup>14</sup> Data as of end of 2012.

<sup>15</sup> Its market share was 26,2 in 2011.

<sup>16</sup> The analysis is carried out on future projections for 2014.

**Table 1: Pivotality results-Current situation**

|               | Nro ore piv | % ore sul totale | Energia Piv [MWh] | % En Piv      |
|---------------|-------------|------------------|-------------------|---------------|
| Gen 2014      | 0           | 0,0%             | 0,0               | 0,0%          |
| Feb 2014      | 96          | 22,0%            | 28.473,4          | 6,6%          |
| Mar 2014      | 0           | 0,0%             | 0,0               | 0,0%          |
| Apr 2014      | 0           | 0,0%             | 0,0               | 0,0%          |
| Mag 2014      | 63          | 14,4%            | 33.128,8          | 7,7%          |
| Giu 2014      | 23          | 5,3%             | 9.429,7           | 2,2%          |
| Lug 2014      | 171         | 39,2%            | 263.155,1         | 60,9%         |
| Ago 2014      | 55          | 12,6%            | 73.737,8          | 17,1%         |
| Set 2014      | 23          | 5,3%             | 19.006,4          | 4,4%          |
| Ott 2014      | 5           | 1,1%             | 5.026,3           | 1,2%          |
| Nov 2014      | 0           | 0,0%             | 0,0               | 0,0%          |
| Dic 2014      | 0           | 0,0%             | 0,0               | 0,0%          |
| <b>Totale</b> | <b>436</b>  | <b>100,0%</b>    | <b>431.957,5</b>  | <b>100,0%</b> |

According to the results, Enel is expected to be pivotal for 436 hours.

Applicants (HSE, d.o.o. and E3, d.o.o.) play different role on Slovenian market. HSE, d.o.o. operates as group and is the largest Slovenian organization in the area of power generation and is the largest producer and trader with electricity on the wholesale market in Slovenia. The hydropower plants, thermal power plants and a coalmine united into a single brand name – the HSE Group – together produce a large share of electricity in Slovenia; together with supply of electricity, which includes a combination of different sources, they play a crucial role in supplying safe, reliable and quality provision to domestic customers and has trade activities in several countries in EU. From all wholesale activities 38,9% represent trade on Slovenian market. Approximately 2,3% from HSE trade activities represents 5,9%

of market share on Slovenian domestic market to end consumers. Other 36,6% of HSE trade activities represents trade to other supplier in Slovenian market, which main activities is supply of end customers in Slovenia. One of these suppliers is company E3, d.o.o. which has in 2012 8,1% market share by end customers in Slovenia.

**Table 2: Market shares of suppliers to all customers in Slovenia**

| Supplier                                     | Supplied energy (GWh) | Market share  |
|--|-----------------------|---------------|
| GEN-I  | 3,214.3               | 26.2%         |
| Elektro Energija                             | 2,501.4               | 20.4%         |
| Elektro Celje Energija                       | 1,500.5               | 12.2%         |
| Elektro Maribor Energija plus                | 1,457.9               | 11.9%         |
| E3   | 998.3                 | 8.1%          |
| Elektro Gorenjska Prodaja                    | 749.8                 | 6.1%          |
| HSE  | 727.8                 | 5.9%          |
| Petrol Energetika                            | 682.3                 | 5.6%          |
| Petrol                                       | 332.7                 | 2.7%          |
| Others                                       | 87.4                  | 0.7%          |
| <b>Total</b>                                 | <b>12,252.3</b>       | <b>100.0%</b> |
| <b>HHI of suppliers to all end customers</b> |                       | <b>1,575</b>  |

Sources: Companies' data

In 2012 outlook of trade activities on Slovenian-Italian border HSE had 12,8% share of used cross-border capacities together on all type of auction (yearly, monthly, daily and intraday), while the company E3 doesn't carry out cross-border trade.

It is not expected that the price in the Slovenian retail market will change due to the new interconnector (line). Namely, it has been foreseen that, during the period of the proposed exemption, the electricity price differential between the Italian and Slovenian market in most hours would be higher than 12 €/MWh.

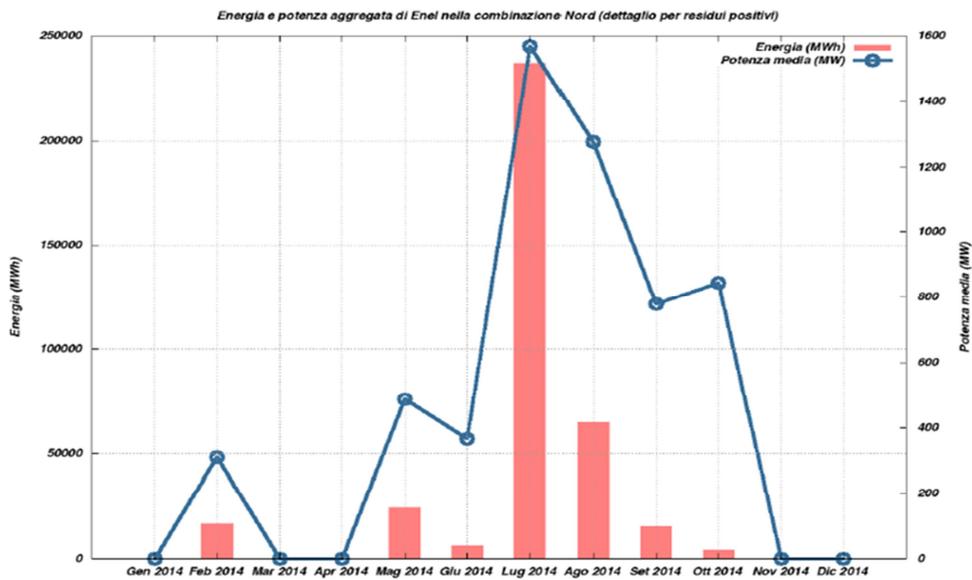
### Scenario analysis

In order to assess whether the new transmission line is going to be detrimental to the competition, the scenario has been defined assuming as additional capacity not just the one provided by the "Dekani-Zaule" interconnector but also by the

“Redipuglia-Vrtojba” one. Given that the applicants have requested an exemption for both the two lines<sup>17</sup>, it seems reasonable to evaluate the effects on competition they might have if they were to begin their operations at the same time.

The computation has been done assuming that Enel will withhold an amount of capacity equivalent to its investment share (16.6%).

**Figure 3: Pivotality analysis-With interconnectors “Dekani-Zaule” and “Redipuglia-Vrtojba”**



<sup>17</sup> The two investment projects are quite similar in terms of operating capacity, technologies applied, costs incurred, etc.

**Table 3: Pivotality results-With interconnectors “Dekani-Zaule” and “Redipuglia-Vrtojba”**

|               | Nro ore piv | % ore sul totale | Energia Piv [MWh] | % En Piv      |
|---------------|-------------|------------------|-------------------|---------------|
| Gen 2014      | 0           | 0,0%             | 0,0               | 0,0%          |
| Feb 2014      | 54          | 15,5%            | 16.699,3          | 4,5%          |
| Mar 2014      | 0           | 0,0%             | 0,0               | 0,0%          |
| Apr 2014      | 0           | 0,0%             | 0,0               | 0,0%          |
| Mag 2014      | 50          | 14,4%            | 24.311,4          | 6,6%          |
| Giu 2014      | 17          | 4,9%             | 6.196,1           | 1,7%          |
| Lug 2014      | 151         | 43,4%            | 236.775,3         | 64,2%         |
| Ago 2014      | 51          | 14,7%            | 65.070,6          | 17,6%         |
| Set 2014      | 20          | 5,7%             | 15.541,3          | 4,2%          |
| Ott 2014      | 5           | 1,4%             | 4.214,8           | 1,1%          |
| Nov 2014      | 0           | 0,0%             | 0,0               | 0,0%          |
| Dic 2014      | 0           | 0,0%             | 0,0               | 0,0%          |
| <b>Totale</b> | <b>348</b>  | <b>100,0%</b>    | <b>368.808,8</b>  | <b>100,0%</b> |

According to the results, with the two new interconnectors Enel’s pivotality is expected to decrease to 348 hours. The new projects therefore would increase the competitiveness of the wholesale electricity market in the relevant market.

The Authorities believe that granting an exemption to the line “Dekani-Zaule”, under the specific terms and conditions imposed through the present decision enhances competition, for the following reasons:

- The new capacity would be available to all the market participants since the starting of commercial operations of the merchant line, increasing in such a way the competitiveness of the market on both sides.  
Moreover, the transmission capacity will be allocated together with the available capacity between Italy and Slovenia and be subject to the same rules. Long term transmission rights will be allocated by explicit auctions held by CASC auction operator and daily capacity will be allocated through the market coupling.
- The realization of a new cross-border infrastructure would increase the diversification of electricity sources that is one of the most effective strategy for ensuring both affordable prices in the long run and security of supply under emergency conditions.

- Small increases of transmission capacities are expected to yield large social payoffs in terms of reduced expected prices<sup>18</sup>, especially if the initial capacity is small and the relevant geographical market can be interregional<sup>19</sup>. Prices are expected to decrease in the long run especially on the Italian side, where energy prices have been generally well above the European average.

Concerning the security of supply, in principle, any new electricity infrastructure between different countries should enhance security. This outcome becomes particularly relevant when it comes to foreign suppliers relying on more diversified generation sources than the national ones.

Finally, it has to be stressed that due to the increase of import demand, especially from Italy, the existing lines have experienced problems of capacity overload in the past, as a consequence the construction of new infrastructures would remedy this problem.

### 1.3 Level of risk

- (b) *the level of risk attached to the investment is such that the investment would not take place unless an exemption is granted;*

According to the estimates and scenario analyses that have been carried out in the following (paragraph 2), the remuneration based on the regulated tariff would not allow the investors to recover their investment costs. The granting of an exemption for a reasonable number of years seems to be the only possible way to implement the project.

### 1.4 Separation from existing System Operators

- (c) *the interconnector must be owned by a natural or legal person which is separate at least in terms of its legal form from the system operators in whose systems that interconnector will be built;*

The new interconnector will be built, owned and managed by the applicants, on the basis of a Technical Operation contract entered together with the TSOs as better detailed in Part 3 of the present document.

---

<sup>18</sup> Küpper, G. et al. (2009). Does more international transmission capacity increase competition in the Belgian electricity market? *Electricity Journal* 22(1) 21–36.

<sup>19</sup> That is, when the two markets are coupled.

## **1.5 Charges**

*(d) charges are levied on users of that interconnector;*

The proposed project does not take into account the setting of a proper charge/fee for the usage of the cross-country line. In fact, unlike the normal transmission and distribution lines, in the case of cross border electricity interconnectors an actual charge does not exist. The transmission rights are allocated to the operators carrying out import/export activities through explicit capacity auctions and market coupling.

*(e) since the partial market opening referred to in Article 19 of Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity, no part of the capital or operating costs of the interconnector has been recovered from any component of charges made for the use of transmission or distribution systems linked by the interconnector;*

This condition is satisfied.

## **1.6 The exemption must not be detrimental to competition or the effective functioning of the internal market**

*(f) the exemption must not be to the detriment of competition or the effective functioning of the internal market in electricity, or the efficient functioning of the regulated system to which the interconnector is linked.*

The assessment on whether new transmission lines are going to be detrimental to the competition is a matter of great concern. Firms could use the transmission lines to exert some market power arbitraging on regional price differences. For the same reason generators may also have the incentive to congest the lines so as to exercise market power. However, the realization of the AC line analyzed seems not to be detrimental to the proper market functioning at least for the following reasons:

- The new capacity would be available to all the market participants since the beginning of operation of the new AC interconnector, granting from the beginning of the line operation beneficial effects to the two interconnected areas. Moreover, given that transmission rights will be allocated through explicit auctions, possible bidding strategies of the applicants would be transparent. In this regard, activities of monitoring and control will be easily implementable by the Authorities so as to

prevent strategic behaviours of the projects' applicants and safeguard the proper market functioning.

- As supported by the pivotality analysis carried out in paragraph 1.2, the new interconnector is expected to increase competition on the relevant market.

## 2 Financial analysis

This section is aimed at analyzing in detail the key variables used by the applicants within their business plan, providing suggestions and amendments in view of granting an exemption to the "Dekani-Zaule" AC line.

### 2.1 Sensitivity analysis

Sensitivity analysis has been carried out on the business plan so as to determine the 'critical' variables or parameters of the model. Such variables are those whose variations, positive or negative, have the greatest impact on a project's financial performance. The analysis is carried out by varying one element at a time and determining the effect of that change on the Net Present Value (NPV).

Results are provided in the following table (Table 4):

**Table 4: Sensitivity analysis**

|  | <b>% change in the Net Present Value (NPV)</b> |
|--|--|
| <b>Wacc</b>  | -3,30%   |
| <b>Price differential</b>                            | 5,38%  |
| <b>Investment costs: contingency</b>                 | -0,42%   |
| <b>Investment costs: environmental compensations</b> | -0,25%   |

As a general criterion, only those variables or parameters for which an absolute variation of 1% gives rise to a corresponding variation of not less than 1% in the NPV have to be taken into account. Accordingly, the Authorities have identified as key variables of the business plan:

1. Price differential
2. Wacc

3. Investment costs: environmental compensations.<sup>20</sup>
4. Covering the costs incurred in network of TSO's

The subsequent paragraphs will present first the hypotheses adopted by the applicants, then the values the Authorities have identified as the most reliable, as well as sensitivity and scenario analyses.

## 2.2 Hypotheses and results according to the applicants

- 1) **PRICE DIFFERENTIALS**-Assuming the line "Dekani-Zaule" will be in operation since 2016, the applicants adopt a price differential of 12 € from 2016 to 2022, decreasing to 10 € (-16,7%) from 2023 onwards.
- 2) **WACC**-10,02%.
- 3) **INVESTMENT COSTS**-Investments costs, and particularly those related to environmental compensations can substantially affect the expected net returns of an investment. The following table (Table 5) provides an overview of the main cost components of the line "Dekani-Zaule", as well as their relative weight with respect to the total capital expenditures.

**Table 5: Share of certain investment costs with respect to total capital expenditures**

|                                  | Absolute values (M€) | % over total <u>without</u> contingency | % over total with contingency |
|----------------------------------|----------------------|---|-------------------------------|
| Optic fibre Italy                | 0,13                 | 0,93%                                   | 0,81%                         |
| Optic fibre Slovenia             | 0,07                 | 0,50%                                   | 0,44%                         |
| Environmental compensations      | 0,52                 | 3,73%                                   | 3,26%                         |
| Contingency                      | 2,04                 | 14,64%                                  | 12,77%                        |
| Phase shifter                    | 2,5                  | 17,95%                                  | 15,65%                        |
| <b>TOTAL WITHOUT CONTINGENCY</b> | <b>13,93</b>         |   |                               |
| <b>TOTAL WITH CONTINGENCY</b>    | <b>15,97</b>         |   |                               |

<sup>20</sup> Even if the sensitivity analysis carried out on "environmental compensations" does not indicate these expenditures as "highly responsive", given their high share compared to the total expenditures, they have been considered for the following scenario analyses.

Given the hypotheses on prices, wacc and investment costs and assuming the “Dekani-Zaule” will be in operation from 2016 onwards, the applicants estimate that with a 90% NTC exemption they would record these results:

**Table 6: Expected financial results according to the applicants**

|        | 90% of NTC |       |        |
|--------|------------|-------|--------|
|        | NPV        | IRR*  | DPBP** |
| SPREAD | 3,6        | 13,9% | 11,4   |

\*IRR=Internal Rate of Return

\*\*DPBP=Discounted Payback Period

Consequently, the applicants ask for an exemption lasting 12 years.

### 2.3 Hypotheses and results according to the Authorities

1) **PRICE DIFFERENTIALS**-Table 7 shows the historical values of the price differentials Italy-Slovenia as recorded in the last three years.

**Table 7: Price differential Italy-Slovenia**

|      | average | median | min   | max   |
|------|---------|--------|-------|-------|
| 2013 | 18,17   | 16,14  | 12,41 | 27,13 |
| 2012 | 20,97   | 21,66  | 3,8   | 32,51 |
| 2011 | 12,81   | 12,65  | 8,01  | 19,5  |

The Authorities believe that the values adopted by the applicants are too conservative. Assuming an average price differential of 15 € from 2016 to 2022, decreased by 20% from 2023 onwards seems to be more reasonable. In order to assess the effect that different price differentials would have on the financial results of the project, different scenario analyses have been carried out, especially taking into account the price differentials observed in 2013. These will be presented hereinafter.

2) **WACC**-In the definition of the wacc used to discount the future cash flows of the project, the applicants basically rely on the wacc setting as established by the Italian Authority<sup>21</sup>. However, the applicants have made some changes to

<sup>21</sup> Decision Arg/elt 199/2011.

AEEG's wacc as they have adopted a higher *risk free rate* (5,81% instead of 5,24%) and, more importantly, they have added up a 1% due to the financial crisis. However, assuming different risk free values, much more coherent with the current trend of the Italian ten-years Treasury Bonds, and excluding the percentage increase for the economic crisis, the expected wacc should be between 8,5 and 9,3%.

Moreover, the relevant literature on the issue, the empirical evidence on similar projects (in Italy and abroad), the available estimates provided by consulting companies point all to the same conclusion, that is that the wacc should be between 8 to 9,7%, or even lower.

Accordingly, the Authorities believe that the choice of a wacc equivalent to 9,3% is more appropriate.

**3) INVESTMENT COSTS-** Environmental compensations represent a variable whose value cannot be easily justified, especially in the case of merchant lines. The term environmental compensation represents the reimbursement which is generally given by the project developers so as to remedy to the environmental damages they cause to the involved population by creating commensurate environmental benefits (Persson, 2013<sup>22</sup>; Cowell, 2010<sup>23</sup>). These refunds should ensure that the effects of the activities are offset to an extent that satisfies the local communities and the public in general. However, what are the proper extent and features of environmental compensations is a matter still under discussion.

In the case of the line "Dekani-Zaule", the environmental compensations represent 3,26% of total capital expenditures. According to the Authorities such a percentage is too high, given that the project is an underground cable, as such not even subject to a procedure of Environmental Impact Assessment. This cost component could be reduced and the nature and objectives of these expenditures should be clearly identified, so as to infer if these activities are truly going to make a difference in terms of removal or at least containment of the negative externalities that might arise with the project.

**4) Covering the costs incurred in network of TSO's** represent an additional cost to applicants for use the Slovenian transmission grid when energy will flow from Slovenian grid to Italy. Main cost represent the costs related to cover the losses of energy on the transmission grid in TSO (ELES) network and costs of usage the

---

<sup>22</sup> Persson, J. (2013). Perceptions of environmental compensation in different scientific fields, *International Journal of Environmental Studies* 70(4) 611-628.

<sup>23</sup> Cowell, R. (2000). Environmental compensation and the mediation of environmental change: making capital out of Cardiff Bay", *Journal of Environmental Planning and Management*, 43(5) 689-710.

transmission infrastructure. On an annual basis these costs are estimated on 2,3 mio EUR.

### Scenario analysis

Scenario analysis is a specific form of sensitivity analysis which studies the combined impact of determined sets of values assumed by the critical variables. In particular, combinations of 'optimistic' and 'pessimistic' values of a group of variables could be useful to build different realistic scenarios, under certain hypotheses.

Project performance indicators are then calculated for each combination: net present value (NPV), Internal Rate of Return (IRR); Discounted Payback Period (DPBP).

The following table (Table 8) provides, for simplification purposes, only the most relevant scenarios that have been computed by the Authorities in order to assess the feasibility of the project. All the results have been calculated taking into account the network entrance fee as discussed in paragraph 1.1.3.1.

**Table8: Scenario analysis: Expected financial results**

|    | SCENARIOS  | NPV  | IRR    | DPBP |
|----|--|------|--------|------|
| 1  | 15€ [2016-onwards]   | 2,4  | 12,60% | 13,1 |
| 2  | 12,41€ [2016- 2022]-10,34 [2023 onwards]   | -3   | 6,50%  | -    |
| 3  | 27,13€ [2016-2022]-22,6 [2023 onwards]   | 20,8 | 29,10% | 5,5  |
| 4  | 18,17€ [2016-2022]-15,14 [2023 onwards]  | 6,3  | 16,70% | 8,9  |
| 5  | Scenario 1 (15 €)+ wacc 9,3% + enviromental compensations 2% of total capital expenditures   | 3,5  | 12,80% | 12,2 |
| 6  | 100% exemption + wacc 9,3% + environmental compensations 2% of total capital expenditures  | 7    | 16,30% | 8,9  |
| 7  | 100% exemption + wacc 9,3% + price differentials as in scenario 4 (18,17 €)  | 10,8 | 19,70% | 7,4  |
| 8  | 100% exemption + wacc 9,3% + price differentials 15€ [2016-2022]-12 [2023 onwards]   | 4,5  | 14     | 10,4 |
| 9  | 100% exemption + wacc 9,3% + price differentials 15€ [2016-2022]-12 [2023 onwards]+ environmental compensations 2% of total capital expenditures | 4,7  | 14,2   | 10,2 |
| 10 | 100 % exemption  | -1,6 | 8,3    | -    |
|    | BASELINE (Business plan of the proposers+network fee)  | -3,7 | 0,057  | -    |

As indicated in the last row of Table 8 (Baseline scenario), if the network fees are added to the business plan of the applicants, everything being equal, the results turn to be negative with respect to what was expected before (see Table 6 for a comparison).

Scenarios 1-4 assume different price differential hypotheses, leaving unchanged the other key variables as indicated by the applicants. Specifically, simulations are calculated taking into account the historical results recorded in 2013 (the minimum, maximum and average price differential) and our best estimate.

Scenario 5, instead, combines scenario 1 with a 9,3% wacc and a reduction of environmental compensation to 2% of the total capital expenditures.

Scenarios 6-10 assume 100% NTC exemption. While scenario 10 serves as a reference, applying the 100% NTC exemption to the baseline scenario, the other scenarios apply different combinations of price differential, wacc and environmental compensations.

Scenarios 6 and 7 assume both a 100% TPA exemption and a 9,3% wacc. However, scenario 6 combines the previous hypotheses with environmental compensations equal to 2% of the total capital expenditures; while scenario 7 employs the same price differentials of scenario 4.

In detail, scenario 6 combines the same price differential used by the applicants to a 9,3% wacc and environmental expenditures accounting for 2% of the total capital expenditures. Scenario 7 adds to the 100% NTC exemption hypothesis a 9,3% wacc and the same price differential of scenario 4.

Finally, scenarios 9 and 10 combine the 100% NTC exemption with our fair prudent estimate of the expected price differentials: 15 € from 2016 to 2022 and 12 € from 2023 onwards. Scenario 9 also applies a 9,3% wacc; while scenario 10, employing the same wacc and price differentials as scenario 9, considers a share of environmental compensation equal to 2% of the total capital expenditures.

|    | SCENARIOS  | NPV  | IRR    | DPBP |
|----|--|------|--------|------|
| 1  | 15€ [2016-onwards]   | 2,4  | 12,60% | 13,1 |
| 2  | 12,41€ [2016- 2022]-10,34 [2023 onwards]   | -3   | 6,50%  | -    |
| 3  | 27,13€ [2016-2022]-22,6 [2023 onwards]   | 20,8 | 29,10% | 5,5  |
| 4  | 18,17€ [2016-2022]-15,14 [2023 onwards]  | 6,3  | 16,70% | 8,9  |
| 5  | Scenario 1 (15 €)+ wacc 9,3%+ enviromental compensations 2% of total capital expenditures  | 3,5  | 12,80% | 12,2 |
| 6  | 100% exemption + wacc 9,3% + environmental compensations 2% of total capital expenditures  | 7    | 16,30% | 8,9  |
| 7  | 100% exemption + wacc 9,3% + price differentials as in scenario 4 (18,17 €)  | 10,8 | 19,70% | 7,4  |
| 8  | 100% exemption + wacc 9,3% + price differentials 15€ [2016-2022]-12 [2023 onwards]   | 4,5  | 14     | 10,4 |
| 9  | 100% exemption + wacc 9,3% + price differentials 15€ [2016-2022]-12 [2023 onwards]+ environmental compensations 2% of total capital expenditures | 4,7  | 14,2   | 10,2 |
| 10 | 100 % exemption  | -1,6 | 8,3    | -    |
|    | BASELINE (Business plan of the proposers+network fee)  | -3,7 | 0,057  | -    |

Based on the results of the analysis, the Authorities agree to acknowledge a 100% NTC exemption from article 16(6) of the Regulation for no more than 10 years. Starting from the 7<sup>th</sup> year of operation of the line, the two Authorities will yearly carry out a financial analysis of the actual revenues and costs incurred by the investors. The aim of the investigation will be to safeguard the relevant TSOs from the risk of losing the corresponding revenues of the capacity auctions. Thereby, the duration of the exemption could be accordingly reduced, if it turns out that the investors would recover the investment costs before what was indicated at the time of the exemption request.

## Part 3

### Authorities' Joint Opinion

Having regard to the assessment of the exemption requests of the 110 kV AC interconnector "Dekani-Zaule", as presented in the previous parts of this document, the Authorities' opinion is detailed in the following paragraphs:

#### **1. Net Transfer Capacity (NTC) of the new interconnector:**

1.1 For the purpose of their assessment the Authorities have taken into account the value of the interconnector NTC which has been estimated by the two TSOs on the basis of an hypothetical grid scenario existing on the expected date of the entry into operation of the new interconnector (2014) as resulting from their approved investment plans of 2011. According to the calculations, the merchant line increases the cross border capacity value on the Slovenian-Italian border (import: direction Slovenia→Italy) by 90 MW in winter periods (both during peak and off-peak hours) and between 95 (peak) and 90 MW (off-peak) in summer periods and (export: direction Italy→Slovenia) by 10 MW in winter and summer (both during peak and off-peak hours).

1.2 According to the TSOs calculations, the above NTC values are only achievable if the following grid elements become operative:

- For the Italian system (Terna):
  - Line Udine Ovest –Redipuglia,
  - 220 kV Reinforcement Monfalcone,
  - 132 kV AMG Gorizia enhancements of the 132 kV line "AMG Gorizia- S. Giovanni al Natisone".
- For the Slovenian system (Eles):
  - Increase of transformation capacity in substation Divača,
  - Construction of the 110 kV double circuit lines Divača-(Sežana-Vrtojba)-Gorica,

- Construction of the 110 kV double circuit line Divača-Koper.

Until the starting of operation of the above mentioned grid elements the new interconnector shall be considered as adding 0 MW to the NTC of the Italian-Slovenian border as this is the best estimate of the additional NTC without the above mentioned grid reinforcements. As soon as the grid reinforcements mentioned in paragraph 1.2 are completed, the NTC exemption shall be granted in accordance to the same values set in paragraph 1.1 for a period of 5 years. Afterwards the NTC will be calculated every year by the TSOs.

- 1.3 The applicants can jointly submit to the Authorities a request for a revision of the NTC of the new interconnector before the commercial operations start. Following this request the TSOs shall perform a new NTC calculation based on the grid scenario existing at the time of the request and including also all the network reinforcements under construction at the time of the request. The Authorities will use these new NTC values to jointly revise, if necessary, the current opinion.

## **2. Exemption request from the provisions of Article 16(6) of the Regulation**

In order to enable the applicants to realize the proposed investment by offsetting the level of risk associated to the project, the Authorities are of the opinion that an exemption from the provisions of Article 16(6) of the Regulation should be granted to Adrialink S.r.l., HSE d.o.o. and E3 d.o.o (hereinafter: the applicants) for a period of 10 years, starting from the beginning of the commercial operations of the new interconnector, under the following conditions.

### *Conditions on the capacity allocation:*

- 2.1 The NTC of the new interconnector will be added to the existing NTC on the Italian-Slovenian border and allocated by the TSOs through the same general joint allocation procedures (of yearly, monthly, daily and intraday capacity products) normally used to allocate capacity at the said border.
- 2.2 The applicants are entitled to receive by the TSOs the revenues resulting from the allocation procedures of the NTC of the new

interconnector (i.e. a corresponding share of the revenues originating from the allocation of the total NTC of the new interconnector on the Italy-Slovenia border).

*Conditions linked to the results of the capacity allocation procedure – as per art. 17(4) of the Regulation:*

- 2.3 Starting from the 7<sup>th</sup> year of operation of the line (and afterwards every year), the two Authorities will carry out a joint financial analysis on the actual revenues transferred to the applicants by the TSOs. The analysis will be aimed at calculating the NPV and DPBP taking into account the actual revenues against the expected costs contained in the business plan submitted by the applicants for the purpose of the present exemption request. Based on the outcome of this assessment, the duration of the exemption may be reduced by a new joint decision of the two Authorities to be notified to the European Commission. For the purpose of the joint financial analysis, the applicants are obliged to deliver to the Authorities all the necessary data, contracts and other documents related to the investments and operation of the interconnector.
- 2.4 The exemption can be granted if the new interconnector is in operation within two years after all the TSOs grid elements are completed.
- 2.5 The exemption can be granted only if the new interconnector is put in operation no later than 5 years after granting the decision.

*Conditions on the new interconnector operation:*

- 2.6 In Italy the new interconnector shall be operated under the responsibility of the TSO. However, the TSO may rely on the applicants for the daily operation and maintenance activity of the new interconnector. To this purpose, a specific Technical Operation contract shall be entered between the applicants and the TSO.

With specific reference to Italy, in order to enable the TSO to effectively operate and maintain the new interconnector under the same conditions as if it were the owner, the aforementioned Technical Operation contract will be drafted in

accordance with the provisions of article 36(9) of Legislative Decree n. 93 of June 1<sup>st</sup>, 2011 as applied by the Italian Authority .

In Slovenia the interconnector shall be operated under the responsibility of the applicants. To this purpose a specific Technical operation contract shall be signed between the applicants and the TSO.

- 2.7 The commercial arrangements governing the transfer of the revenues by each TSO to the applicants shall be defined in a commercial contract to be signed by the applicants and the TSOs.
- 2.8 A copy of the signed Technical Operation and commercial contracts shall be sent to the two Authorities for their approval.
- 2.9 The applicants are obliged to pay the costs for the network usage to ELES according to the binding legislation in Slovenia.

*Conditions on the ownership of the new interconnector :*

- 2.10 With specific reference to Italy, pursuant to article 3 of the Ministry Decree of October 21<sup>st</sup>, 2005, the applicants shall provide a statement on their commitment to ask the Ministry for the Economic Development to include the new interconnector in the perimeter of the National transmission system.

In accordance with article 36(10) of the Legislative Decree n. 93 of June 1<sup>st</sup>, 2011, which calls on the Italian Authority to establish appropriate measures aimed at favoring the unification of the national grid, following the expiry date of the exemption the ownership of the section of the new interconnector built on the Italian soil will be transferred to Terna S.p.A. The value of the asset shall not exceed the residual book value and be determined on the basis of efficient costs. Terna's regulatory asset base (RAB) will be amended accordingly.

- 2.11 After the exemption period expires, the ownership of the section of the new interconnector built on the Slovenian soil will be offered to ELES on the basis of pre-emption rights based

on the estimated market value, which may not exceed the residual book value.

**3. Exemption request from the provisions of Article 9 of the Directive (unbundling)**

3.1 Italian side

As regard the request of the exemption from article 9 of the Directive, it has to be remarked, first, that pursuant to the Italian legislation there is only one allowed transmission system operator in the national territory, namely, Terna S.p.A. which is, in turn, subject to the unbundling and certification rules set by the Directive. Second, the applicants will not operate the new interconnector since this activity will be entrusted to Terna S.p.A. together with the task to provide the network access as if it were the owner (as specified in paragraph 2.6). As a consequence, under these circumstances, it will not be necessary to grant to the applicants an exemption from the unbundling rules which only apply to TSOs in order to promote, inter alia, a fair access to the network.

In light of the foregoing, the Authorities conclude that the exemption from the provisions of Article 9 Directive is not necessary. The relative request is therefore denied.

3.2 Slovenian side

With reference to the existing regulatory framework in Slovenia, AGEN-RS is of the opinion that the exemption from the provision of Article 9 of the Directive shall be granted to the applicants. The Slovenian transmission system operator ELES has the exclusive right to perform public service the transmission system operator in the Republic of Slovenia. Without the exemption the applicants - as owners of the new interconnector - cannot operate it.

**4. Exemption request from the provisions of Article 32 of the Directive (Third Party Access)**

The Authorities are of the opinion that the exemption from the provisions of Article 16(6) of the Regulation consisting in the transfer to the applicants of the

revenues originating from the allocation of the NTC of the new interconnector is adequate to cover the risks associated to the proposed investment. This would be the case, in particular, as the aforementioned revenues would provide the applicants with a financial guarantee against the risk underlying the said investment which would be largely comparable to that resulting from the exclusive use of the whole new interconnector NTC.

Moreover, the evidence provided by the applicants in support of their exemption request from the third party access regime, in order to exclusively use all the additional NTC does not appear sufficient to satisfy such request. In this respect, it is worth mentioning that any exemption from the general principle of third party access must be granted under exceptional circumstances where the risk profile of a proposed project is so high as to require a temporary derogation from the general rules of the internal energy market. As a consequence, in the opinion of the Authorities, to the extent there are equivalent measures which would attain the same outcome of an exemption from the rules on third party access but with a lower impact on competition and the effective functioning of the electricity internal market, as in the present case, these measures are to be preferred.

In light of the foregoing, the Authorities conclude that the exclusive use of the whole NTC of the new interconnector as requested by the applicants is not necessary to reduce the risk associated to the investment concerned, therefore, the exemption request from the provisions of Article 32 of the Directive is denied.

#### **5. Exemption request from the provisions of Article 37 (6 and 10) of the Directive (Tariffs)**

Given that the exemption from the provisions of Article 32 of the Directive shall not be granted, the exemption request from article 37 (6 and 10) is no longer meaningful. Thus, since the applicants will not be in charge of the new interconnector NTC's allocation, the request of an exemption from rules on tariffication is no longer sustainable.

In light of the foregoing the Authorities conclude that the exemption from the provisions of Article 37 (6 and 10) of the Directive is not necessary. The relative requests are therefore denied.