Energy Institute Hrvoje Požar
Croatia

Technical support to the Energy Community and its Secretariat to assess the candidate Projects of Energy Community Interest in electricity, smart gas grids, hydrogen, electrolysers, and carbon dioxide transport and storage, in line with the EU Regulation 2022/869

- Results of the MCA and ranking-

TEN-E (PECI) Groups meeting – 4th meeting of the “Electricity” Group

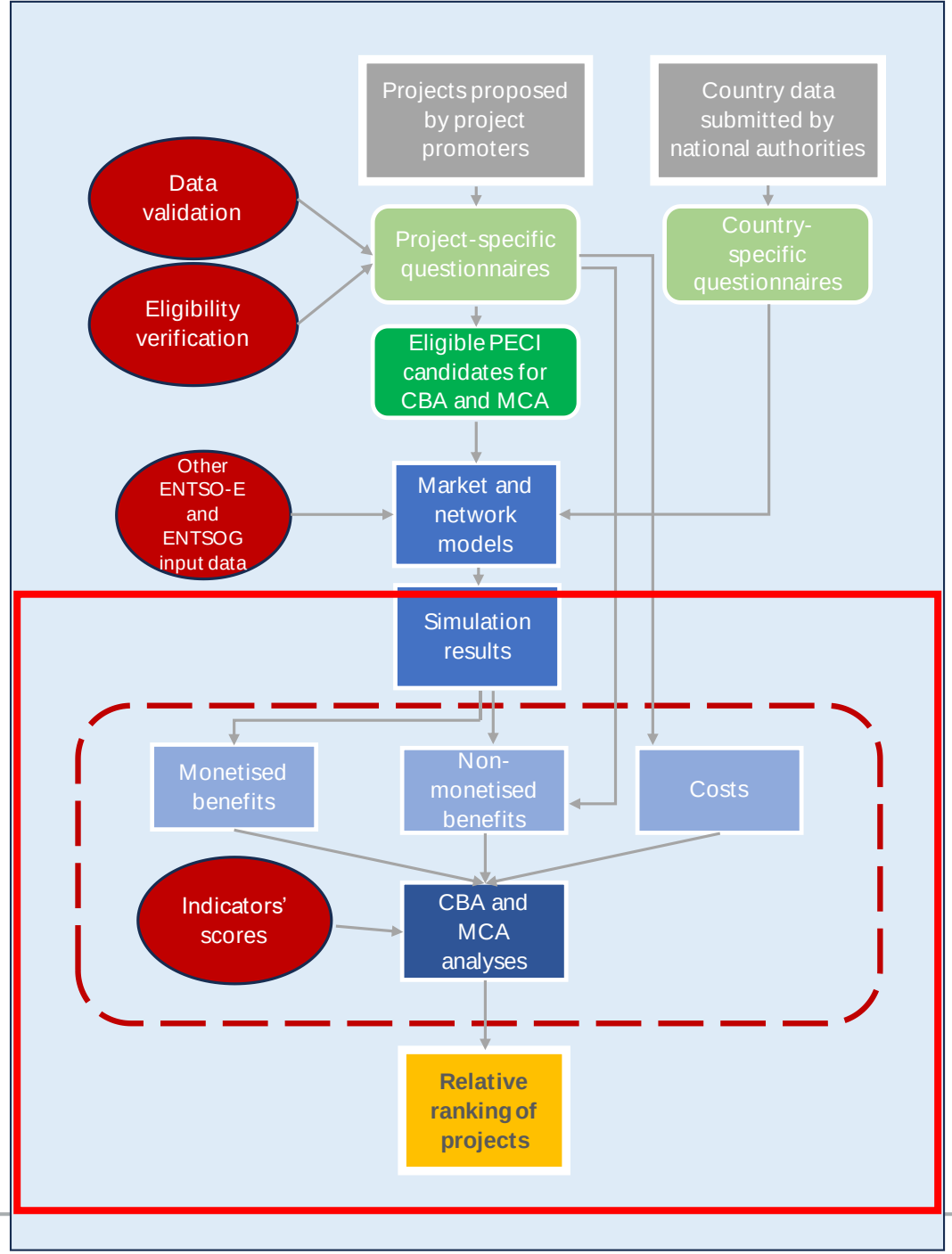
19 June 2024

Contents

1. Reminder of project assessment approach
2. Structure of results
3. Results for each project
4. Projects ranking

Reminder of project assessment approach

- **Simulation results** – used to determine monetised and non-monetised benefits for each project
- **CBA and MCA analyses** – based on the **benefits** (determined by modelling and using delivered data by project promoters) and **costs** provided by project promoters
  - *The main objective is to determine if the potential overall benefits of the project outweigh its costs, (general eligibility criteria of theTEN-E Regulation)!*
- **Relative ranking of projects** – indicators are **scored** to enable comparison of individual project assessment results between projects in the same project category



Structure of results

B/C ratio

- The **Benefit/Cost (B/C) ratio** – the present value of all monetised benefits divided by the present value of all project costs (CAPEX and OPEX)
- **Discount rate of 4%** will be used
- If the B/C ratio is lower than one, then the project **does not comply with the general eligibility criterion** set out by the TEN-E Regulation
- For projects with B/C ratio higher than one, **points will be allocated to enable project ranking** under the same infrastructure category
- **Maximum points** that a project can receive is **20**

Range of B/C ratio value	Points
1	10
1-2	11
2-3	12
3-4	13
4-5	14
5-6	15
6-7	16
7-8	17
8-9	18
9-10	19
>10	20

EIHP

Structure of results

SoS - System stability

- **System stability** – non-monetized indicator which shows quantitatively how much the project supports the voltage stability, transient stability and frequency stability
  - ✓ '0' - no change: the technology/project has no (or just marginal) impact on the respective indicator,
  - ✓ '+' - small to moderate improvement: the technology/project has only a small impact on the respective indicator,
  - ✓ '++' - significant improvement: the technology/project has a large impact on the respective indicator
- Data regarding this indicator requested **in the project questionnaire**
- According to the *4th ENTSO-E Guideline for Cost-Benefit Analysis of Grid Development Projects*, a project can attain a maximum of 5 '+'
- For small to moderate impact on system's stability ('+'), a **0.4 points** will be assigned, and for significant impact ('++'), **0.8 points** will be assigned
- A project that has a maximum impact of 5 '+' can be assigned with maximum of **2 points (5*0.4)**

EIHP

Structure of results

Project maturity

- **Project maturity** – will be determined based on the data about status/completion of project development phases delivered by the project promoters through project questionnaires
- For the completion of each project development phase a score of **0.5 point** is assigned
- A maximum of **5 points** can be received for completion of all project phases before the construction

Project development phase	Possible points for phase completion
Prefeasibility study	0.5
Technical feasibility study	0.5
Economic feasibility study (CBA)	0.5
Environmental impact assessment	0.5
Detailed design study	0.5
Resolved financing	0.5
Obtained approvals/permits	0.5
Approval by regulatory authority	0.5
Final investment decision	0.5
Tendering procedure	0.5

Relative rankings of projects

- Based on the calculated total scores of each individual project a **relative ranking of all eligible projects** will be provided as the final output of the assessment
- The candidate project will be ranked if it proves **that its overall benefits outweigh its costs**
- For electricity transmission overhead lines and energy storage projects **a maximum of 27 points** can be assigned based on the indicator scoring
- The projects (OHLs) will be ranked from top to bottom in line with the total score

Indicator	Maximum points
B/C ratio	20
SoS - System stability (OHL) or Balancing services (Storage)	2
Project maturity	5
TOTAL	**27**

EIHP

MCA E01

220 kV Trebinje - Perućica

MCA E01 – B/C

Indicator	Result	Points received
B/C	**10.53**	**20**

MCA E01 – System stability

Indicator	Type	Result	Points received
System stability	*Transient*	+	0.4
	Voltage	-	-
	Frequency	0	0

MCA E01 – Project maturity

Indicator	Type	Result	Points received
Project maturity	*Prefeasibility study*	YES	**0.5**
	Technical feasibility study	NO	**0**
	Economic feasibility study (Cost-benefit analyis)	NO	**0**
	Environmental impact assessment	NO	**0**
	Detailed design study	NO	**0**
	Resolved financing	NO	**0**
	Obtained approvals/permits	NO	**0**
	Approval by regulatory authority	NO	**0**
	Final investment decision	NO	**0**
	Tendering procedure	NO	**0**

MCA E01 – Result

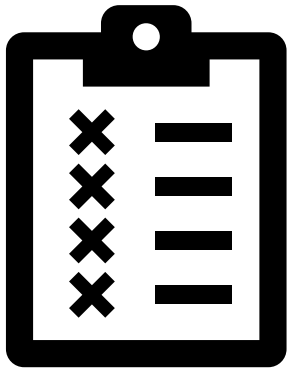
Number	Name	B/C	System stability	Project maturity	Total
E01	*Increasing the capacity of existing 220 kV interconnection between Bosnia and Herzegovina and Montenegro, 220 kV OHL Trebinje – Perućica*	**20**	**0.4**	**0.5**	**20.9**

MCA E02

400 kV Gacko - Brezna

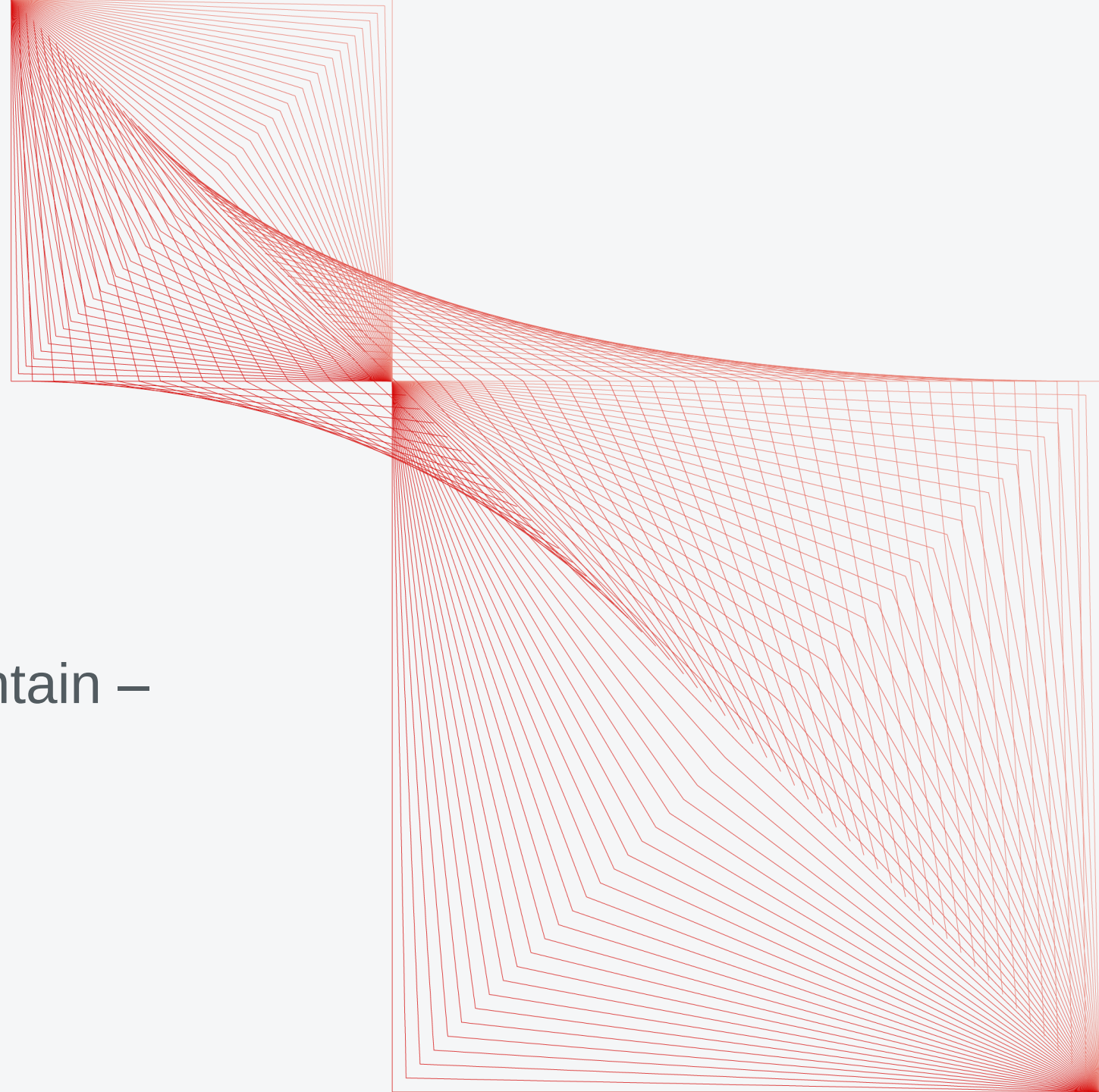
MCA E02 – B/C

Indicator	Result	Points received
B/C	0.16	0



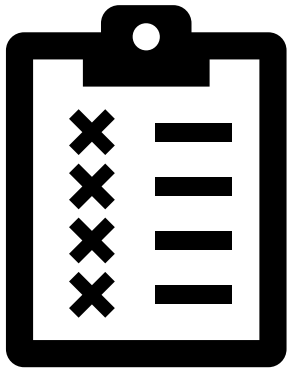
CBA E03

400 kV Brezna – Piva Mountain – Sarajevo 20



MCA E03 – B/C

Indicator	Result	Points received
B/C	0.24	0



CBA E04

Trans Balkan Corridor (BA & ME section)

MCA E04 – B/C

Indicator	Result	Points received
B/C	**3.78**	**13**

MCA E04 – System stability

Indicator	Type	Result	Points received
System stability	*Transient*	0	0
	Voltage	0	0
	Frequency	0	0

MCA E04 – Project maturity

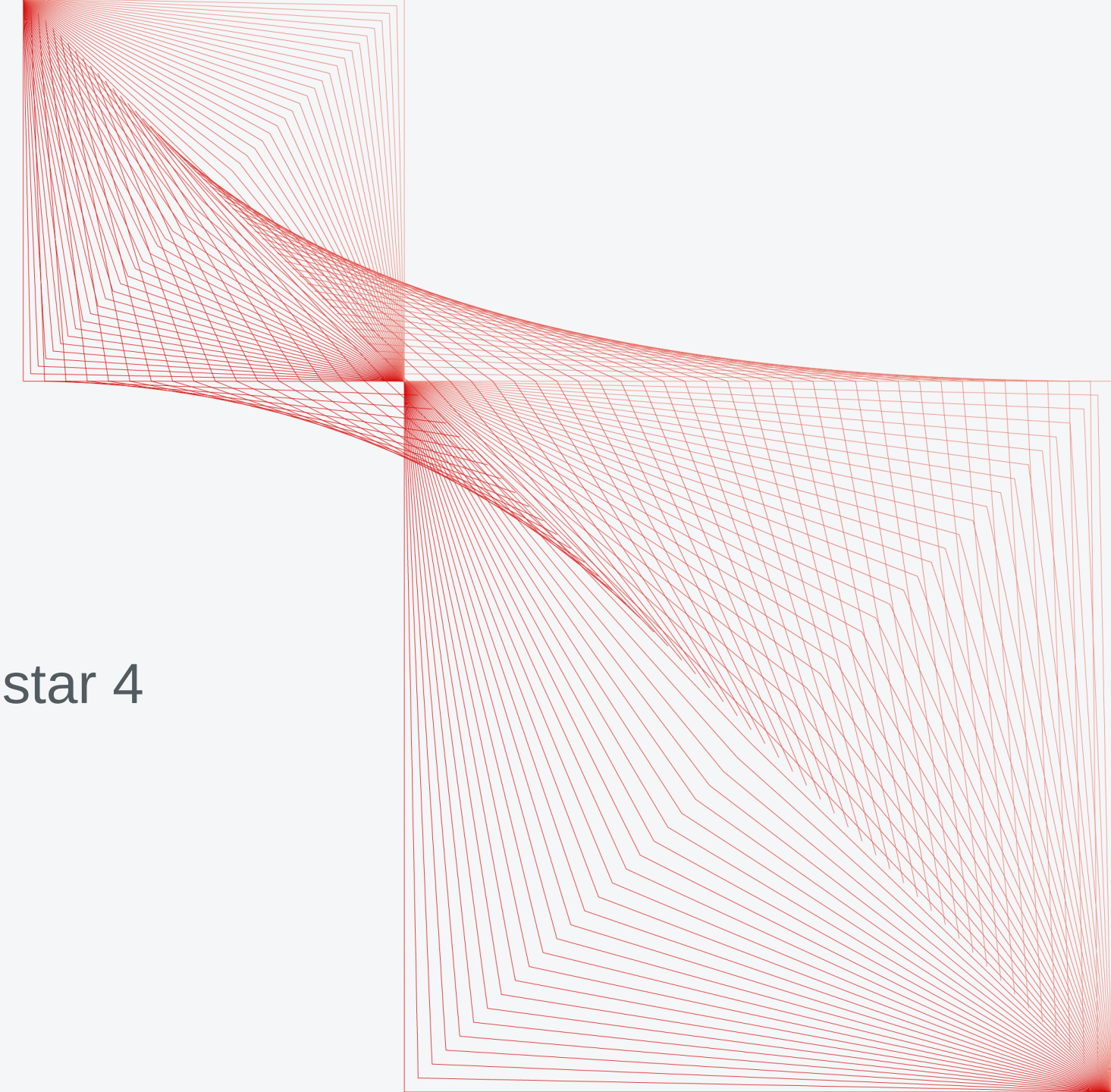
Indicator	Type	Result	Points received
Project maturity	*Prefeasibility study*	YES	**0,5**
	Technical feasibility study	YES	**0,5**
	Economic feasibility study (Cost-benefit analyis)	YES	**0,5**
	Environmental impact assessment	YES	**0,5**
	Detailed design study	YES	**0,5**
	Resolved financing	NO	**0**
	Obtained approvals/permits	NO	**0**
	Approval by regulatory authority	NO	**0**
	Final investment decision	NO	**0**
	Tendering procedure	NO	**0**

MCA E04 – Result

Number	Name	B/C	System stability	Project maturity	Total
E04	*Trans Balkan Corridor: Double OHL 400 kV Bajina Basta (RS) – Visegrad (BA)/Pljevlja (ME) (BA & ME sections)*	**13**	**0**	**2.5**	**15.5**

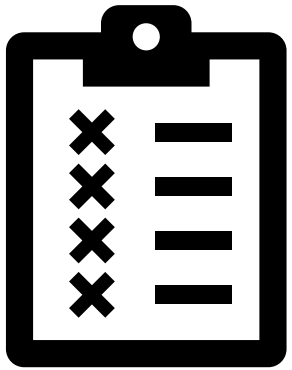
CBA E05

400 kV Banja Luka 6 – Mostar 4



MCA E05 – B/C

Indicator	Result	Points received
B/C	0.06	0



CBA E06

400 kV Prizren – Fierza

MCA E06 – B/C

Indicator	Result	Points received
B/C	**4.07**	**14**

MCA E06 – System stability

Indicator	Type	Result	Points received
System stability	*Transient*	+	0.4
	Voltage	+	0.4
	Frequency	+	0.4

MCA E06 – Project maturity

Indicator	Type	Result	Points received
Project maturity	*Prefeasibility study*	NO	**0**
	Technical feasibility study	NO	**0**
	Economic feasibility study (Cost-benefit analyis)	NO	**0**
	Environmental impact assessment	NO	**0**
	Detailed design study	NO	**0**
	Resolved financing	NO	**0**
	Obtained approvals/permits	NO	**0**
	Approval by regulatory authority	NO	**0**
	Final investment decision	NO	**0**
	Tendering procedure	NO	**0**

MCA E06 – Result

Number	Name	B/C	System stability	Project maturity	Total
E06	*Reconfiguration of 400 kV grid and new 400 kV interconnection Albania-Kosovo*	**14**	**1.2**	**0**	**15.2**

CBA E07

400 kV Fier – Rrashbull – Tirana 2

MCA E07 – B/C

Indicator	Result	Points received
B/C	**7.43**	**17**

MCA E07 – System stability

Indicator	Type	Result	Points received
System stability	*Transient*	+	0.4
	Voltage	+	0.4
	Frequency	+	0.4

MCA E07 – Project maturity

Indicator	Type	Result	Points received
Project maturity	*Prefeasibility study*	NO	**0**
	Technical feasibility study	NO	**0**
	Economic feasibility study (Cost-benefit analyis)	NO	**0**
	Environmental impact assessment	NO	**0**
	Detailed design study	NO	**0**
	Resolved financing	NO	**0**
	Obtained approvals/permits	NO	**0**
	Approval by regulatory authority	NO	**0**
	Final investment decision	NO	**0**
	Tendering procedure	NO	**0**

MCA E07 – Result

Number	Name	B/C	System stability	Project maturity	Total
E07	*Closing the 400 kV Albanian internal ring*	**17**	**1.2**	**0**	**18.2**

CBA E08

400 kV Balti – Dnestrovsk HPP 2

MCA E08 – B/C

Indicator	Result	Points received
B/C	**549**	**20**

MCA E08 – System stability

Indicator	Type	Result	Points received
System stability	*Transient*	0	0
	Voltage	0	0
	Frequency	0	0

MCA E08 – Project maturity

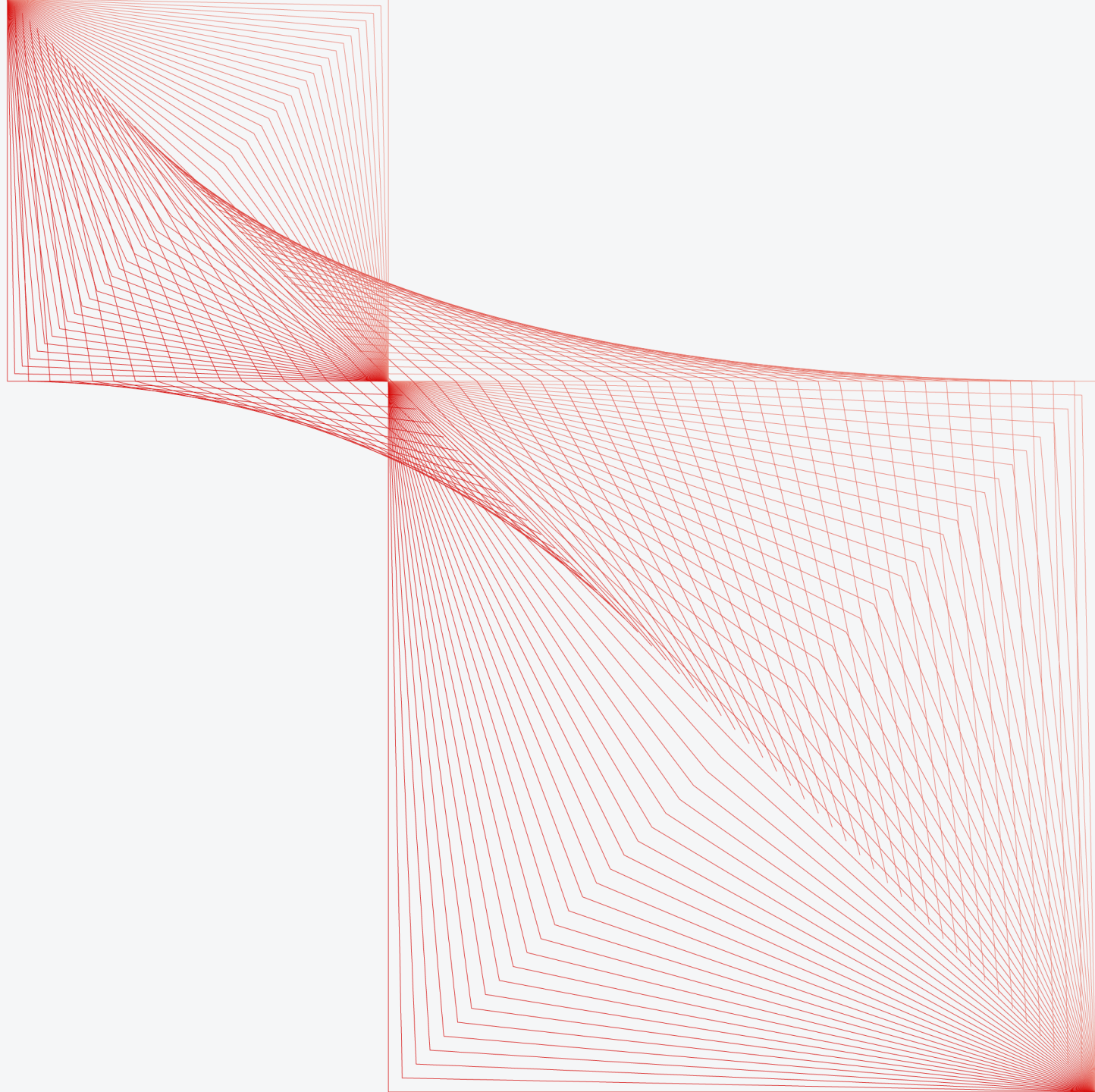
Indicator	Type	Result	Points received
Project maturity	*Prefeasibility study*	NO	**0**
	Technical feasibility study	NO	**0**
	Economic feasibility study (Cost-benefit analyis)	NO	**0**
	Environmental impact assessment	NO	**0**
	Detailed design study	NO	**0**
	Resolved financing	NO	**0**
	Obtained approvals/permits	NO	**0**
	Approval by regulatory authority	NO	**0**
	Final investment decision	NO	**0**
	Tendering procedure	NO	**0**

MCA E08 – Result

Number	Name	B/C	System stability	Project maturity	Total
E08	*330 kV OHL Balti (MD) - Dnestrovsk HPP-2 (UA)*	**20**	**0**	**0**	**20**

CBA E13

BESS 225 MW



MCA E13 – B/C

Indicator	Result	Points received
B/C	**2.05**	**12**

MCA E13 – System balancing

Indicator	Points received
Balancing services	2

MCA E13 – Project maturity

Indicator	Type	Result	Points received
Project maturity	*Prefeasibility study*	YES	**0.17**
	Technical feasibility study	YES	**0.17**
	Economic feasibility study (Cost-benefit analyis)	YES	**0.17**
	Environmental impact assessment	YES	**0.17**
	Detailed design study	YES	**0.17**
	Resolved financing	NO	**0**
	Obtained approvals/permits	YES	**0.17**
	Approval by regulatory authority	YES	**0.17**
	Final investment decision	NO	**0**
	Tendering procedure	NO	**0**

MCA E08 – Result

Number	Name	B/C	System stability	Project maturity	Total
E13	*DTEK STORAGE 225 MW*	**12**	**2**	**1.2**	**15.2**

Projects ranking

OHLs					
Number	**Name**	**B/C**	**System stability**	**Project maturity**	**Total**
E01	*Increasing the capacity of existing 220 kV interconnection between Bosnia and Herzegovina and Montenegro, 220 kV OHL Trebinje – Perućica*	**20**	**0.4**	**0.5**	**20.9**
E08	*330 kV OHL Balti (MD) - Dnestrovsk HPP-2 (UA*	**20**	**0**	**0**	**20.0**
E07	*Closing the 400 kV Albanian internal ring*	**17**	**1.2**	**0**	**18.2**
E04	*Trans Balkan Corridor: Double OHL 400 kV Bajina Basta (RS) – Visegrad (BA)/Pljevlja (ME) (BA section)*	**13**	**0**	**2.5**	**15.5**
E06	*Reconfiguration of 400 kV grid and new 400 kV interconnection Albania-Kosovo*	**14**	**1.2**	**0**	**15.2**

Energy storage					
Number	**Name**	**B/C**	**System stability**	**Project maturity**	**Total**
E13	*DTEK STORAGE 225 MW*	**12**	**2**	**1.19**	**15.2**

Thank you for your attention

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