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Gap analysis of the power transmission infrastructure in the Western Balkans

CONNECTA2-ENE-INFR-REG-RS-01

Kick-off meeting 08 November 2024

Implemented by **Mott MacDonald** in consortium with **COWI**

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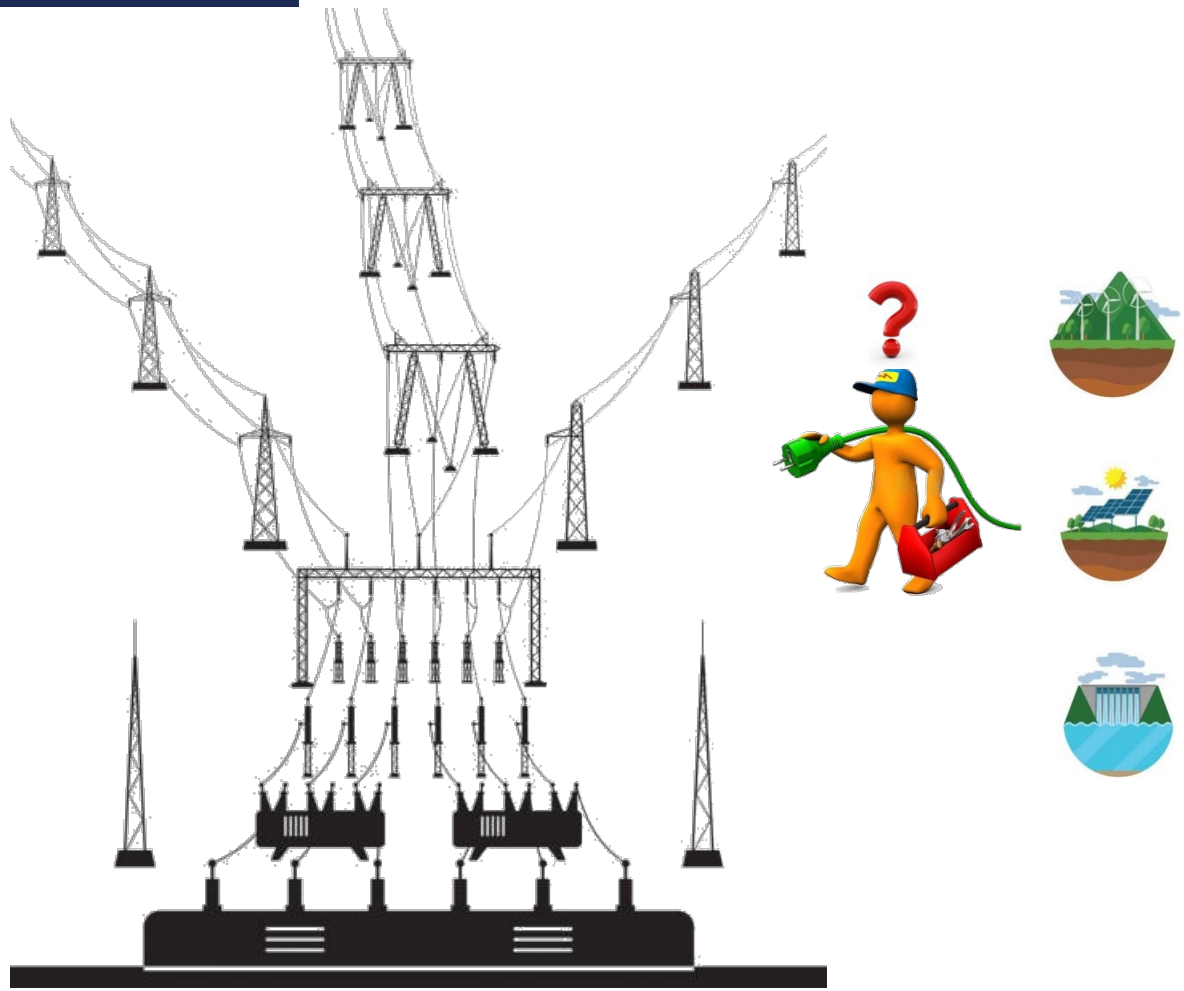
Objectives



- **To identify the gaps in the Western Balkan power transmission systems, which prevent the integration of RES on a large scale, replacing the obsolete fleet of the coal-fired generation units.**
- **To analyse the connectivity of the electricity transmission systems in the Western Balkans with neighbouring countries along the TEN-E networks.**

Promotor

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Energy Community Secretariat (EnCS)

Am Hof 4, Level 5,

1010 Vienna, Austria

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Final Beneficiaries

Country	Transmission System Operator (TSO)
Albania	**Operatori i Sistemit Te Transmetimit sh.a. (OST)**
Bosnia and Herzegovina	**Elektroprijenos BiH a.d. (ELPRENOS)**
	Independent System Operator in Bosnia and Herzegovina (NOSBiH)
Kosovo	**Kosova Operatori i Sistemit, Transmisionit dhe Tregu J.S.C. (KOSTT)**
Montenegro	**Crnogorski Elektroprenosni Sistem (CGES)**
North Macedonia	**Transmission System Operator of the Republic of North Macedonia JSC (MEPSO)**
Serbia	**AD Elektromreža Srbije (EMS)**

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Stakeholders

Country	Ministries
Albania	**Ministry of Infrastructure and Energy**
Bosnia and Herzegovina	**BiH - Ministry of Foreign Trade and Economic Relations (MOFTER)**
	Federal Ministry of Energy, Mining and Industry (FMERI)
	RS - Ministry of Energy and Mining
Kosovo	**Ministry of Economy**
Montenegro	**Ministry of Mining and Energy**
North Macedonia	**Ministry of Economy**
Serbia	**Ministry of Mining and Energy**

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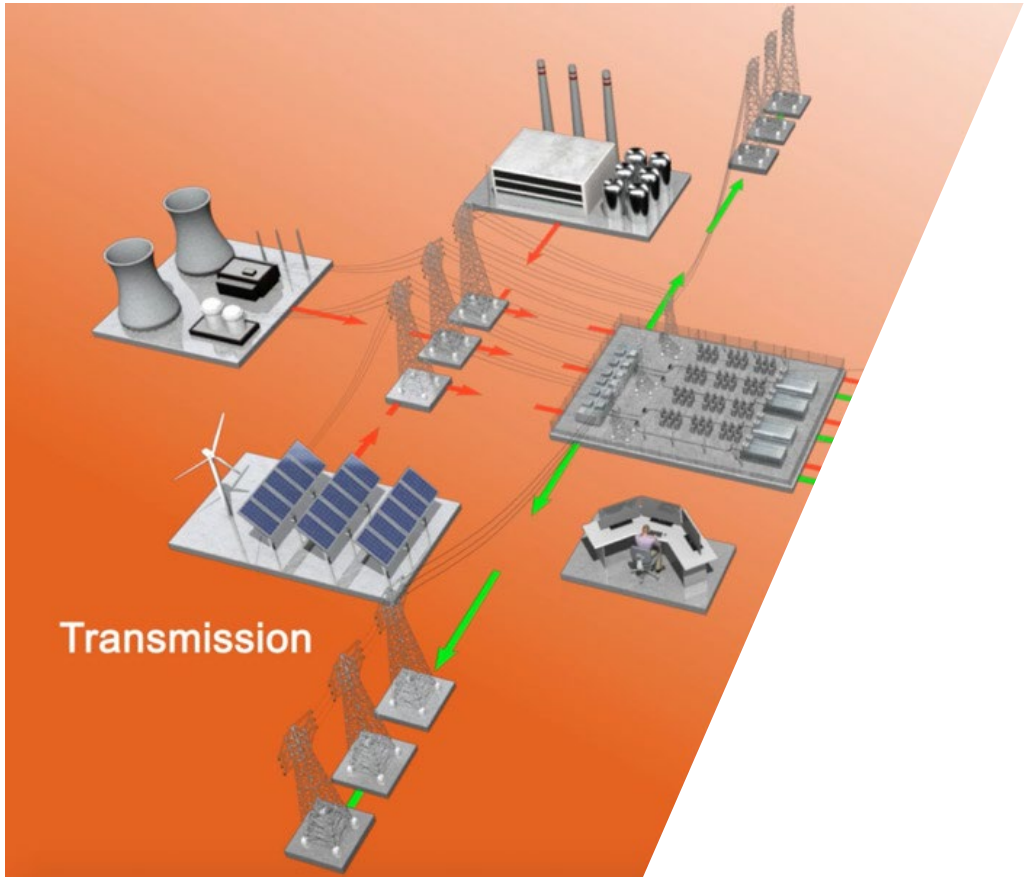
Tasks



- **Capacity analysis**
- **Electricity market**
- **Balancing analysis**
- **Regulatory and Policy analysis**
- **Risk analysis**
- **Gap analysis report**

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Capacity analysis

- ❑ **Evaluate the existing power generation, transmission lines, and substations capacity in the Western Balkans, including interconnections with neighbouring countries**
- ❑ **Assess the current load demand patterns, possible locations of the renewable energy sources and declared transmission constraints**
- ❑ **Identify bottlenecks or areas where capacity is insufficient to meet current or projected demand, or when transmission capacity is insufficient to accommodate new RES projects**
- ❑ **Forecast future electricity demand growth. Determine the impact on the need for additional capacity**
- ❑ **Identify potential transmission corridors for expanding the grid network to connect new generation sources and load centres and evaluate the feasibility and cost-effectiveness of building new transmission lines or upgrading existing ones including initial ESIA**

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Electricity market and Balancing analysis

- ❑ **Forecast the potential future electricity demand and the generation mix including power plants based on fossil fuels and renewable energy (solar, wind, biomass, etc.) for target years 2030 and 2040**
- ❑ **Analyse electricity price trends in the market**
- ❑ **Identify potential investment areas for expanding or upgrading transmission infrastructure to meet future demand and enhance efficiency**
- ❑ **Assess the existing mechanisms for managing variability in renewable energy generation, such as wind and solar**
- ❑ **Assess the current mechanism for balancing supply and demand in the power grid**
- ❑ **Analyse the effectiveness of existing demand response programs, energy storage systems, and flexible generation resources in balancing the grid**
- ❑ **Evaluate the power transmission system to balance supply and demand in real-time**
- ❑ **Consider the potential for implementing advanced grid management technologies**
- ❑ **Identify and propose possible locations for deploying energy storage facilities based on grid requirements and resource availability including initial environmental and social examination**

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Regulatory and Policy analysis

- **Evaluate existing regulatory frameworks and policies related to grid integration, renewable energy deployment, and energy storage**
- **Recommend regulatory reforms or policy incentives to promote investments in transmission capacity and balancing resources, including energy storage**

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Risk analysis

- **Identify potential risks and uncertainties associated with infrastructure investments, technological developments, and regulatory changes**
- **Conduct initial risk analysis with respect to potential impact from climate change such as extreme weather events, temperature variations impacting the lifespan of transmission and transformers, threat to underground cables and potential wildfires in regions with OHTL and recommend on mitigation strategies**
- **Initial assessment of the impact of acquiring land for new transmission lines on local communities, particularly indigenous populations including risk of displacement and / resettlement**
- **Initial assessment of differential impacts on women and minorities groups, particularly in rural areas, including access to electricity and economic opportunities**

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Deliverables

Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25

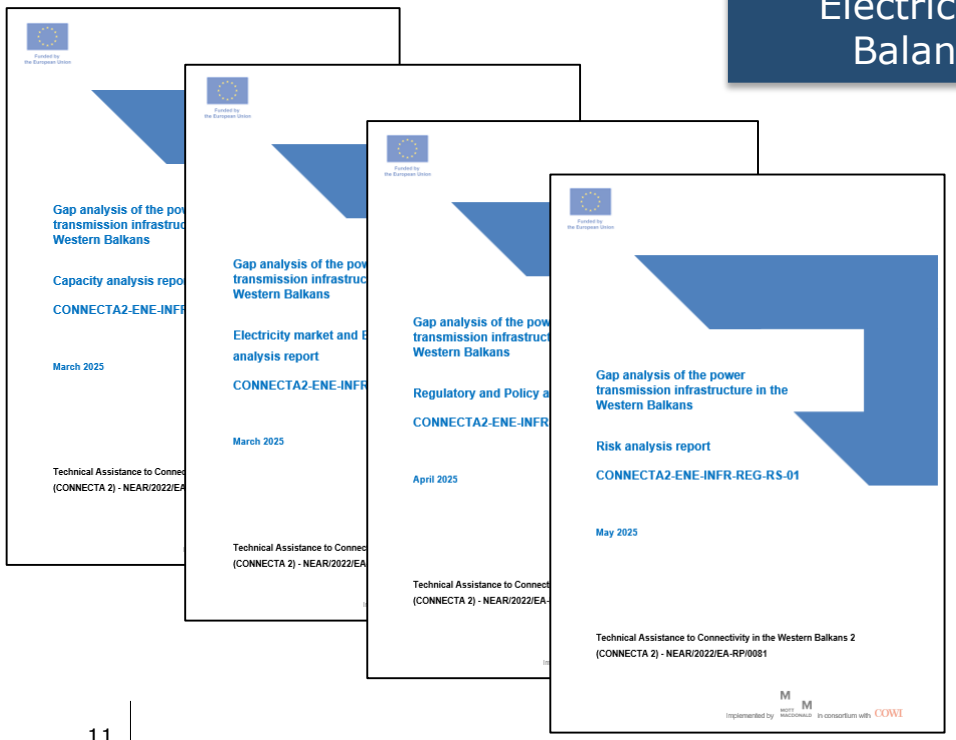
Capacity analysis

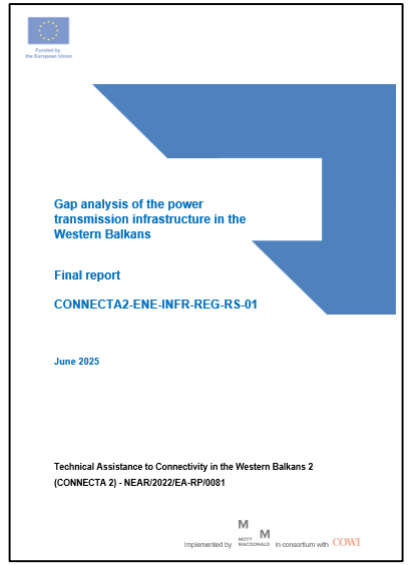
Electricity market and Balancing analysis

Regulatory and Policy analysis

Risk analysis

Gap analysis report





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References

Consistent approach for the current and projected capacities through information based on sources:

1. **EnC - primary**
2. **ENTSO-e - secondary**
3. **TSO TYNDPs - tertiary**
4. **NECP**

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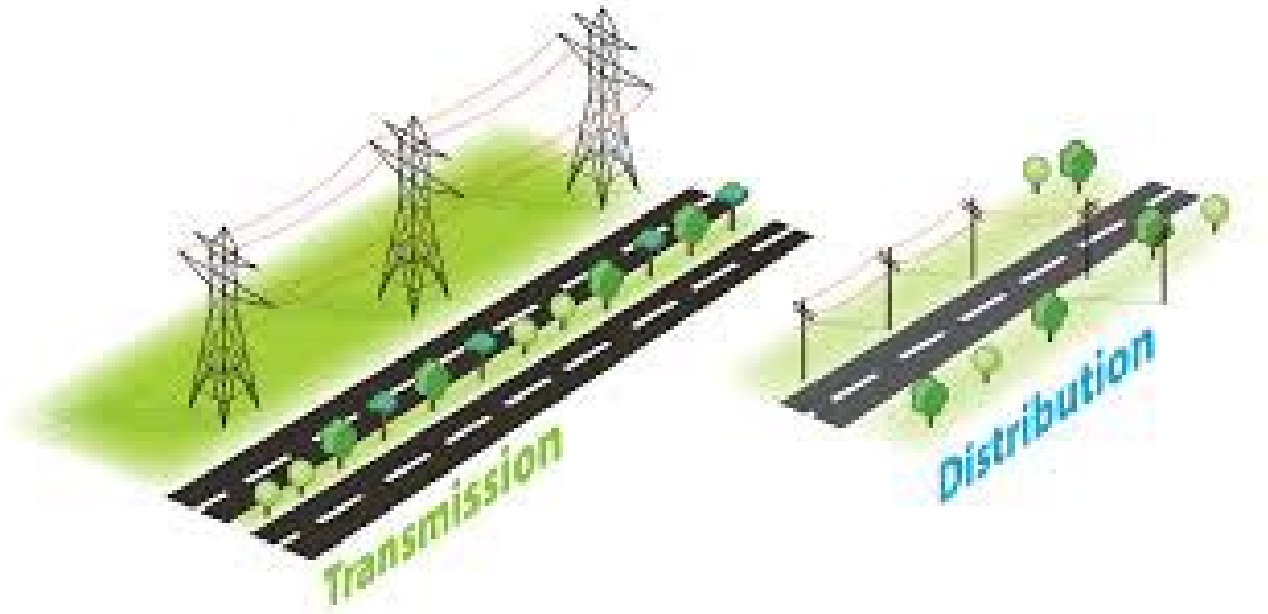
Base year 2023



The model to include the 400 kV, 220 kV, and 110 kV transmission networks as well as part of the electricity distribution networks of interest for capacity analysis.

Thank you

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Sub-project management

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