IAIA 12 Energy Future: The Role of Impact Assessment

The SEA in the Transmission Network Development

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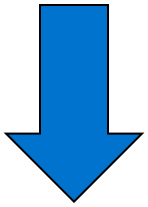
REN is the Portuguese Electrical Transmission System Operator



Accomplished for the second time a SEA for Network Development and Investment Plan (NDP) of the National Electric Transmission Grid (NTG).

The Portuguese Nacional Electric Transmission Grid: Very High Voltage Network in 2011

POWER LINES

LINE LENGTH (km)	**8.371**
400 kV	**2.236**
220 kV	**3.492**
150 kV	**2.643**
SUBSTATIONS (Nº)	**65**

The Network Development and Investment Plan (NDP)

The SEA process: approach and methodology followed to integrate the major drivers for long term network development

The NDP and SEA: The process take some time, due to the detailed technical analysis that is carried out and the public consultation

	Dec Yr-	Jan	Feb	Mar/Apr	May	Jun	Jul
The NDP and SEA Process	Network studies			Public consultation	Improvements and response to stakeholders		Submitted to DGEG *
	Simultaneously environmental assessment (SEA)			Public consultation			

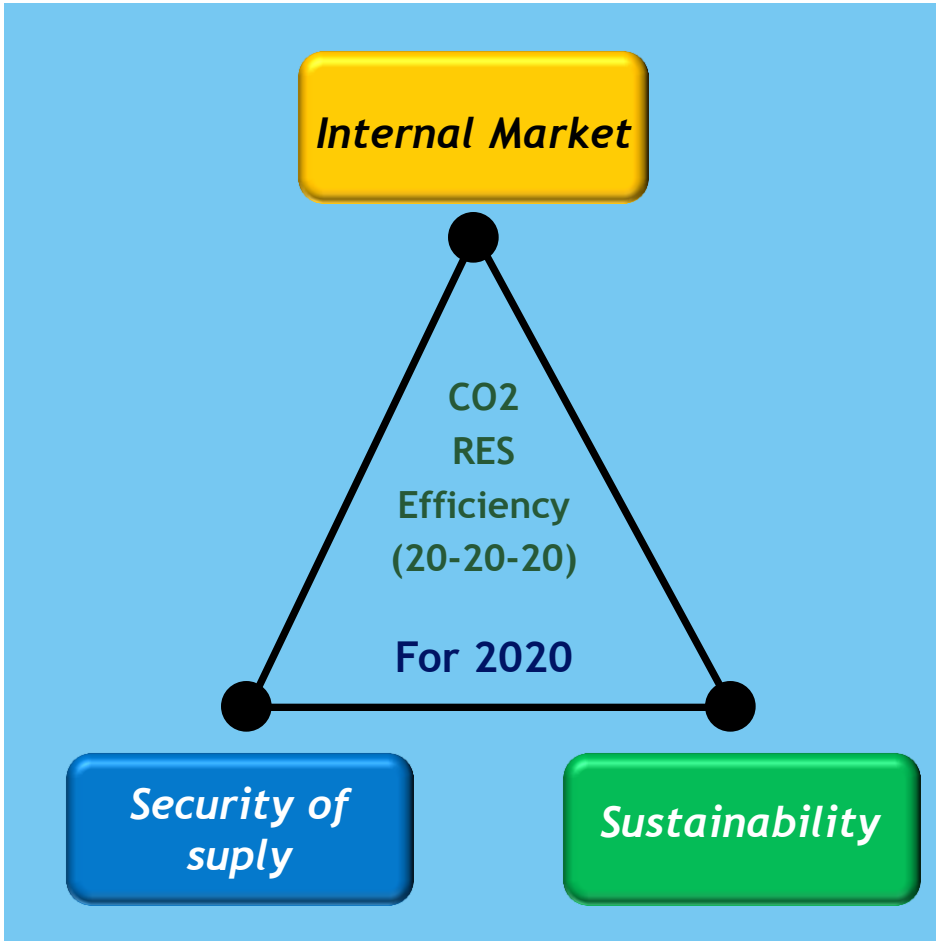
** Simultaneously available on the internet*

Trends and Drivers for long term network reinforcement

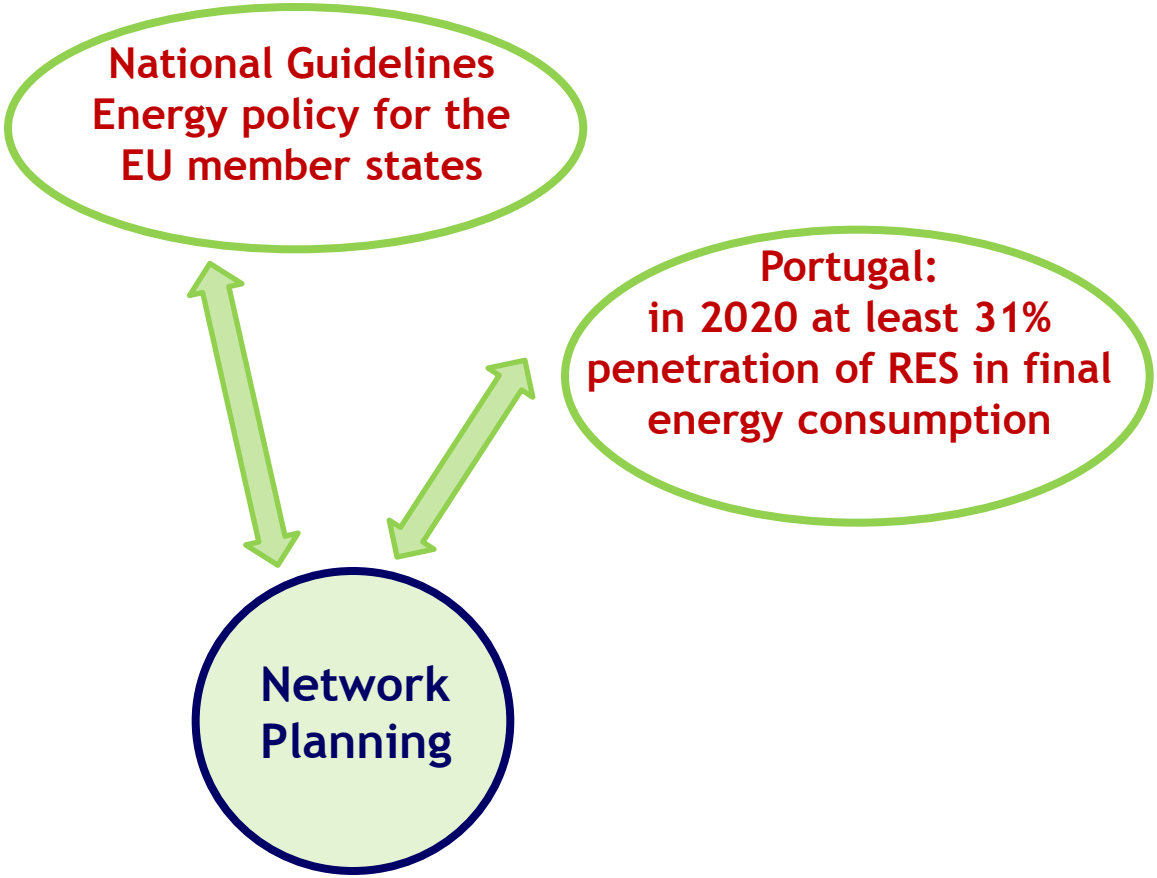
- Guarantee an uninterrupted supply of electricity at the lowest cost, ensuring the fulfillment of the quality and safety criteria
- Integration of renewable: ensure the reception and transmission of electric energy between the producers and consumers.
- Development of energy markets

European Union Energy Policy

- ✓ 20% reduction in emission levels of greenhouse gases by the year 1990.
- ✓ 20% increase in consumption efficiency.
- ✓ 20% penetration of renewables in final energy consumption in the European Union (EU).

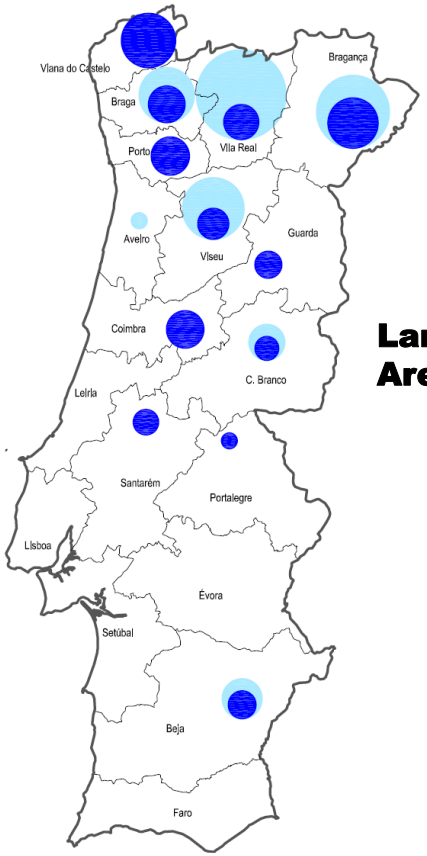


Network Planning Process - RES integration

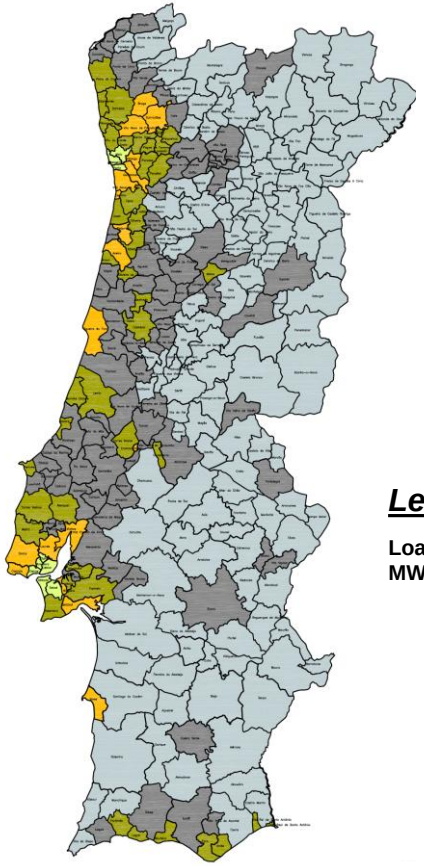


- ✓ Most of RES (wind, solar and the large hydro) sit far in zones where generation largely exceeds the consumption, and network structure is generally weak.
- ✓ This production need to be transmitted through the network, which must be reinforced.

Trends and Drivers



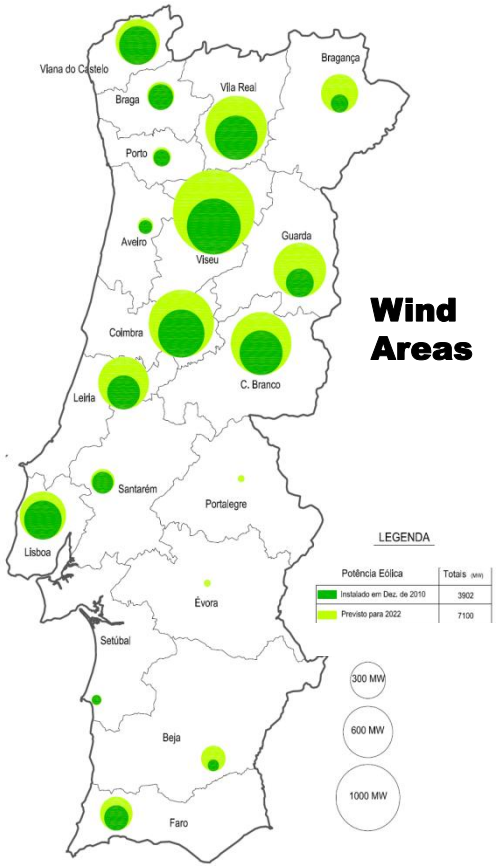
Large Hydro Areas



Legend:

Load density in MWh/km2

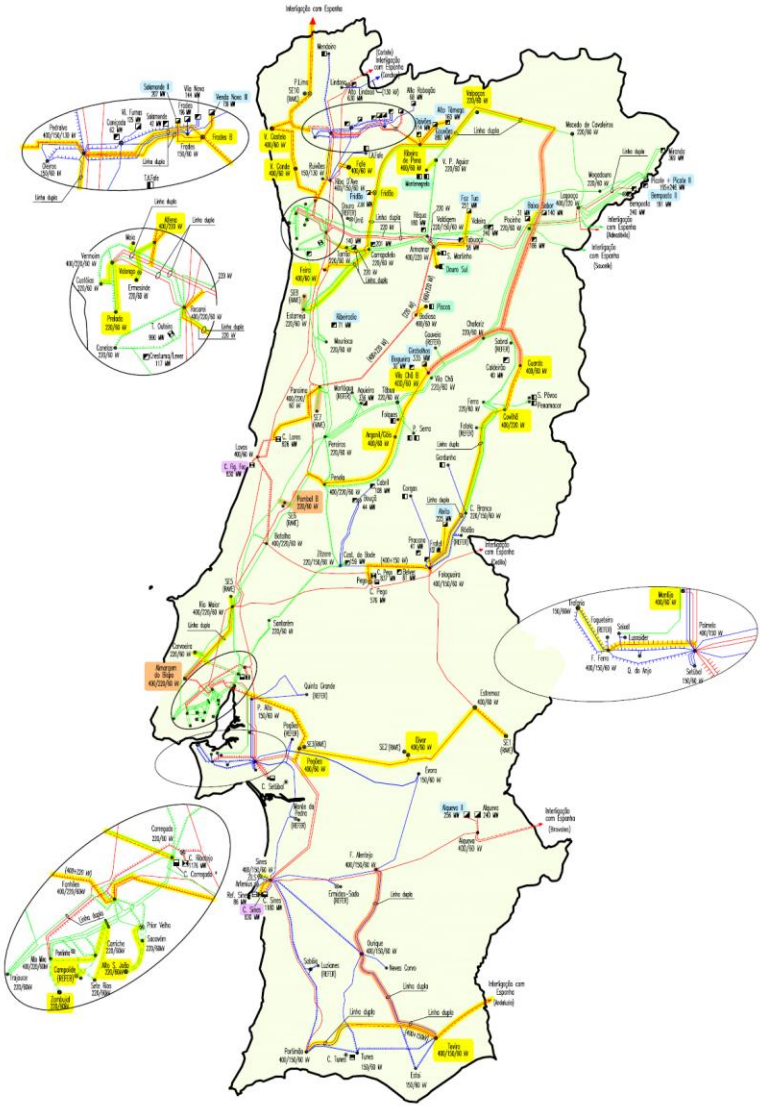
- > 7 500
- > 3 000 a ⩽ 7 500
- > 800 a ⩽ 3 000
- > 200 a ⩽ 800
- ⩽ 200



Wind Areas

Trends and Drivers

The map give an idea of the main projects to be carried out in the NDP in new lines and new substations for the period 2012-2022 (marked in yellow and orange).



The SEA in NTG Development Planning

- The objectives of the SEA of the Portuguese NDP were to identify, describe and evaluate, from an environmental and sustainability point of view, strategic options for the expansion of the NTG .

- To evaluate and identify the potential significant environmental effects on the implementation of the NDP.

- The leading drive force is to anticipate and influence the plan based on the major strategic options that are formulated within the technical decision process.

The SEA methodology has taken a strategic approach in the assessment, considering alternative strategic options of development as the object of assessment.

The strategic options correspond to different possible scenarios for expansion of the NTG and will give shape and substance to the NDP: 4 policy options were analyzed.

Three critical factors for decision CFD were selected : Energy, Fauna and Spatial Planning.

A fifth strategic choice (based on the first four) proved to be a better option when integrating environment and sustainability, while still keeping the NDP driver objectives.

The two SEA's in REN

The second cycle of NDP is a continuance of the first one especially in the long-term development drivers of the gird.

- It regards and decode the opportunities and risks achieve in the first cycle into the new one.
- Helps working with the uncertainty context that is inherent to the planning and development of an electrical network process.

Conclusions

A balance between ensuring security of supply and renewable integration, environmental protection and competitiveness must be accomplished.

- SEA brought a more active dialogue with stakeholders, allowing the identification with anticipation of the “best” and more “adequate” long term strategy for NDP.
- With the identification of the best strategy to be pursued, SEA facilitated the planning process in reaching both technical and environmental goals.

Thank you for your attention