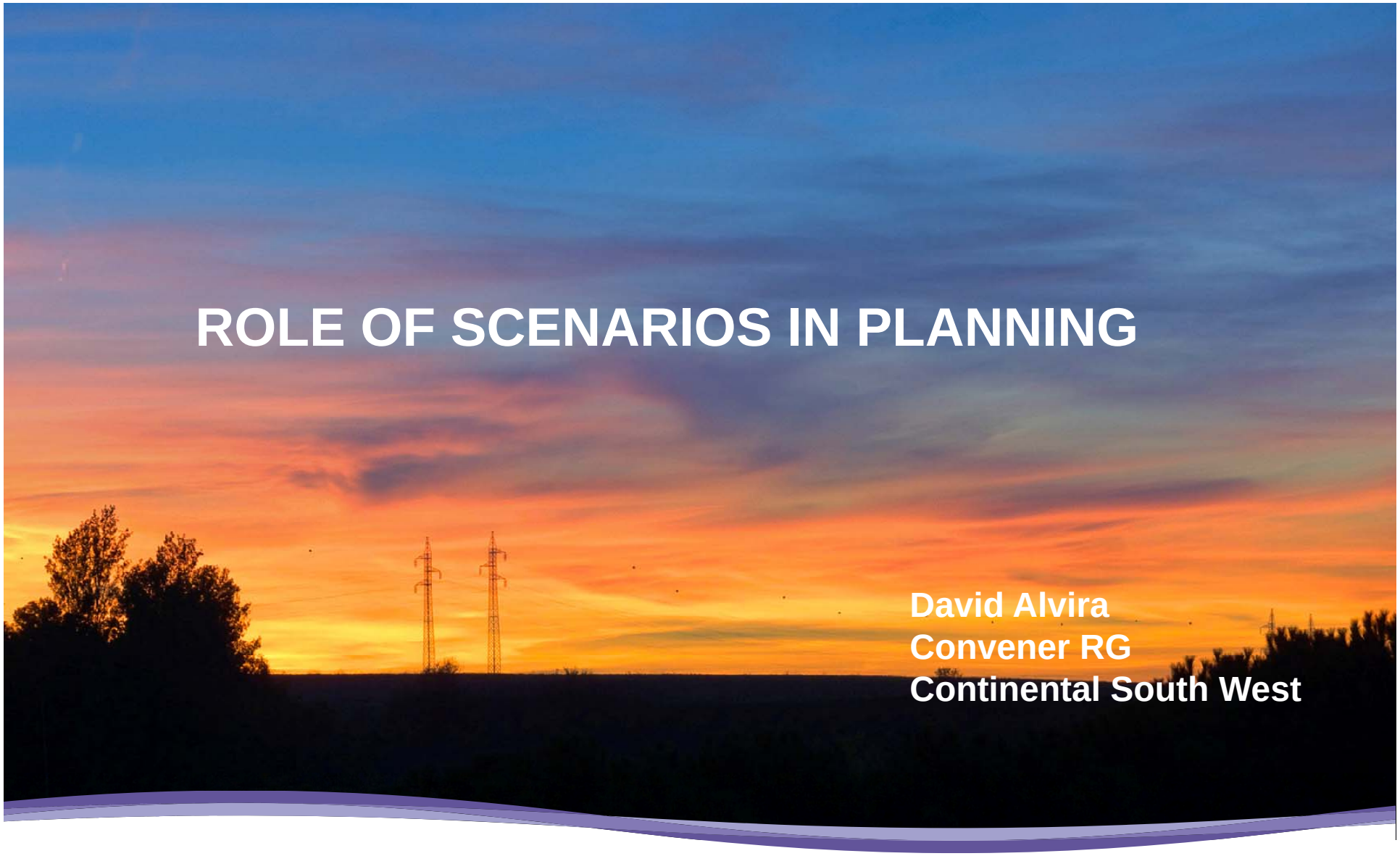

ROLE OF SCENARIOS IN PLANNING

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2nd ENTSO-E Workshop with Stakeholders on “202020 Scenario”
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entsoe
Reliable Sustainable Connected

Planning scenarios and planning cases

Goal of **planning scenarios**:

- Represent alternative future environments
- Take care of uncertainties and interaction between uncertainties

Planning scenarios are defined to represent technical and economic conditions taking several **inputs** into account such as demand forecast, generation mix and set of exchange patterns with systems outside the studied region

Each scenario is represented through several **planning cases.**

A **planning case** will take into account that, in a scenario, the following points occur:

- Demand, generation, power exchange depend on the time horizon
- Demand and generations fluctuate through a day and a year
- Weather factor influences demand, generation and network

Planning scenarios

Planning scenario

- Is a coherent, comprehensive and internally consistent **description of plausible futures** (in general composed of several time horizons) built on the imagined interaction of **economic key parameters** (including economic growth, fuel prices, CO2 prices, etc.);
- is characterized by a **generation portfolio** (power installation forecast, type of generation, etc.), a **demand forecast** (impact of efficiency measures, rate of growth, shape of demand curve, etc.), and **exchange patterns** with the systems outside the studied region;
- may be based on **trends** (bottom-up scenarios) or **energy policy targets** (top-down scenarios).

Representative planning scenarios are defined from EU objectives and/or from trends by ENTSO-E and TSOs, taking into account regional and national particularities.

Planning cases (I)

Planning case represents a particular situation that may occur within the framework of a planning scenario, including:

- **one specific point-in-time** (with its corresponding demand and environmental conditions)
- **a particular realisation of random phenomena** (generally linked to climatic conditions or availability of plants (forced and planned);
- **the corresponding dispatch** (coming from a market simulator or a merit order) of all generating units (and international flows);
- **detailed location of generation and demand**;
- **power exchange** forecasts with regions neighbour to the studied region;
- and **assumption on grid development**.

Representative Planning Case are those that are considered **relevant** to represent a planning scenario in order to assess the need of grid reinforcement and/or grid optimization. They are defined based on **criticality and/or frequency of occurrence.**

Planning cases (II)

Main considerations for building planning cases:

- Two **time horizons** will be considered:
  - Mid term horizon: **5 years**
  - Long term horizon: **10 years**
- Final planning cases should contain:
  - Situations with **high consequences**
    - **Energy Not Supplied**
    - **NTC congestions** (price differences)
    - **Curtailment of renewable**
  - **Probable situations** with less severe consequences

Planning cases (III)

The cases are built making variations on:

- **Seasonal variation**
  - Winter
  - Summer
- **Demand variation**
  - Peak
  - Valley/off-peak
  - Special situations like cold or heat spell
- **Renewable production** (wind and hydro):
  - High production (by regions)
  - Low production
- Estimated **main power exchanges**

MARKET STUDIES

LOCAL PARTICULARITIES