

Power generation assets valuation adopting a real options approach applied to the Colombian electricity market

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“Valuation is not an objective exercise, and any preconceptions and biases that an analyst brings to the process will find their way into the value. And even the very best valuation will yield an estimate of the value, with a substantial likelihood of you being wrong in your assessment.”

- Domodaran



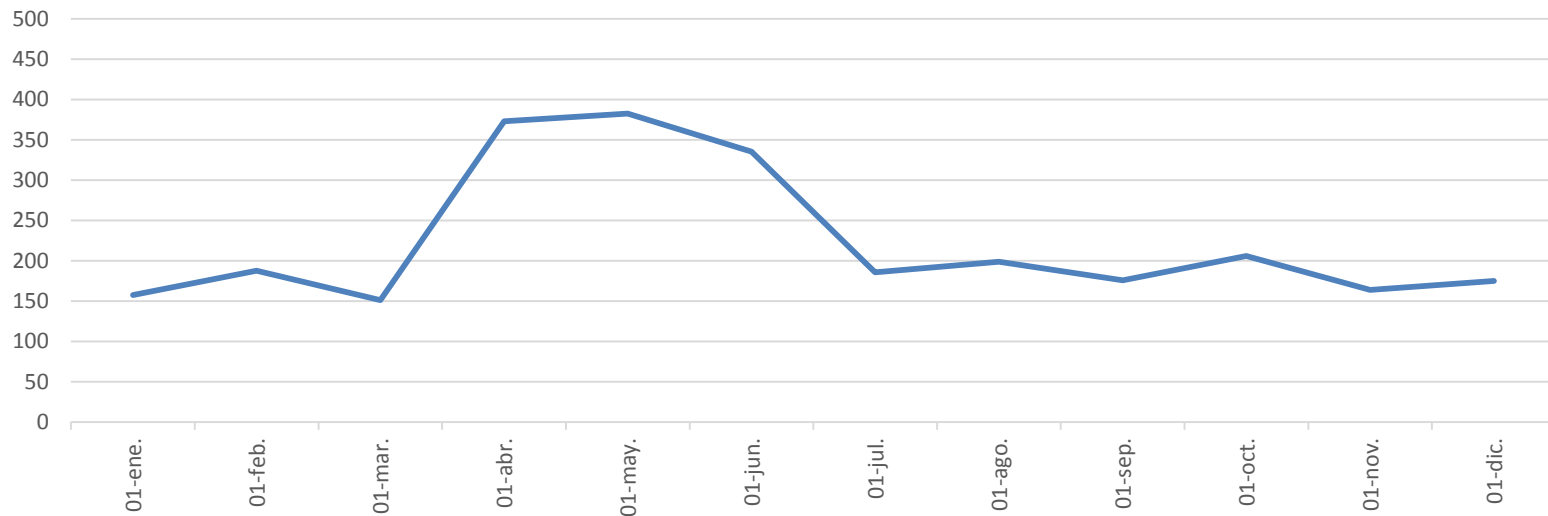
Problem definition

- Power generation sector develops in a highly uncertain and competitive environment where private investment is the main driver of expansion.
- Discounted cash flow valuation is the conventional technique used for power generation assets valuation.
- The Classic DFC method is inappropriate to value this kind of assets due to high uncertainty of the sector and its lack of capability to assign value to possible particular competitive advantages beach asset.
- This project pretends to pose an alternative methodology to value power generation assets in the Colombian market

Uncertain environment?

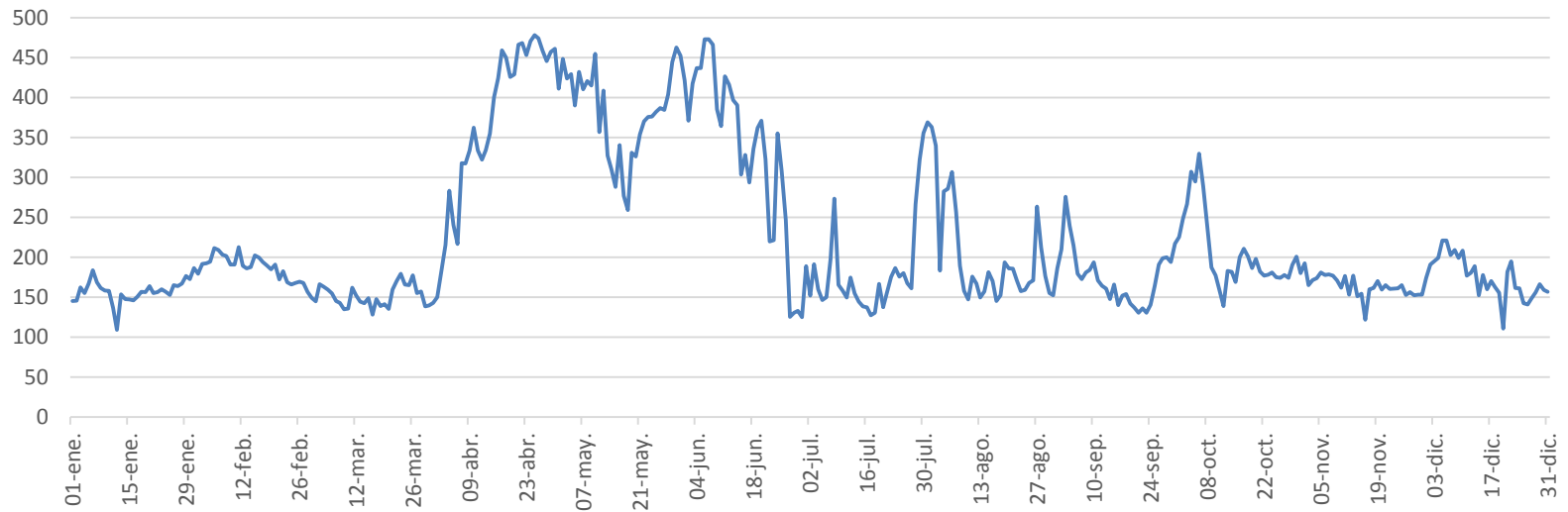
Uncertain environment?

Monthly electricity spot price 2014 [COP/kWh]



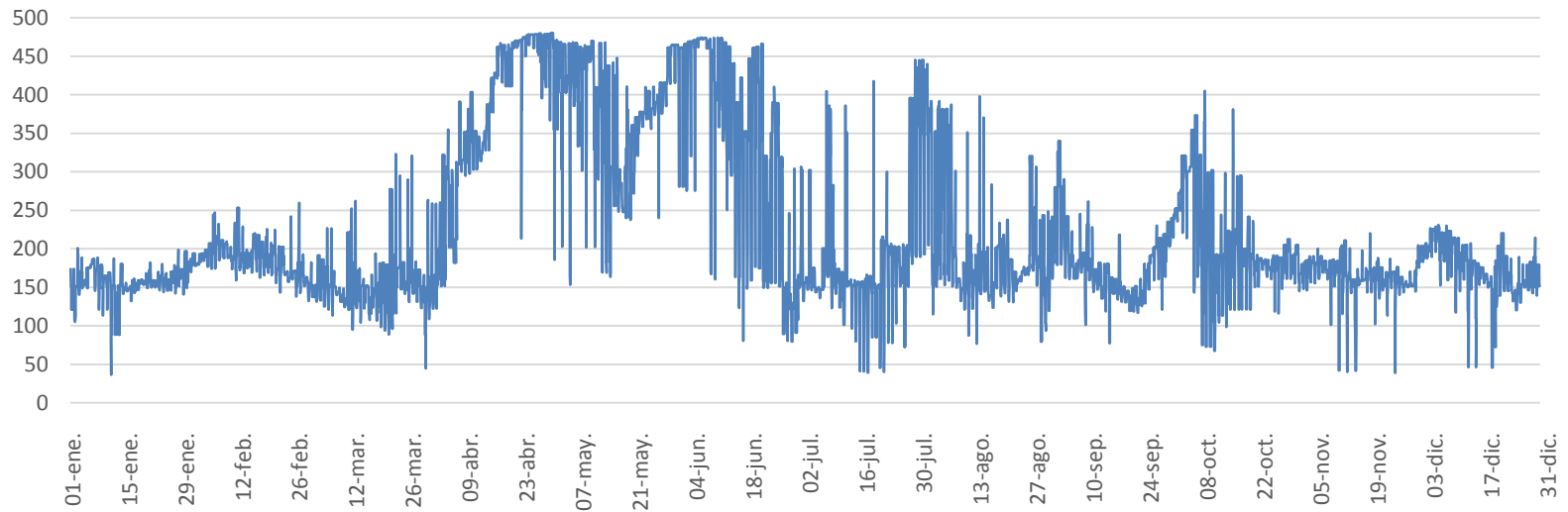
Uncertain environment?

Daily electricity spot price 2014 [COP/kWh]



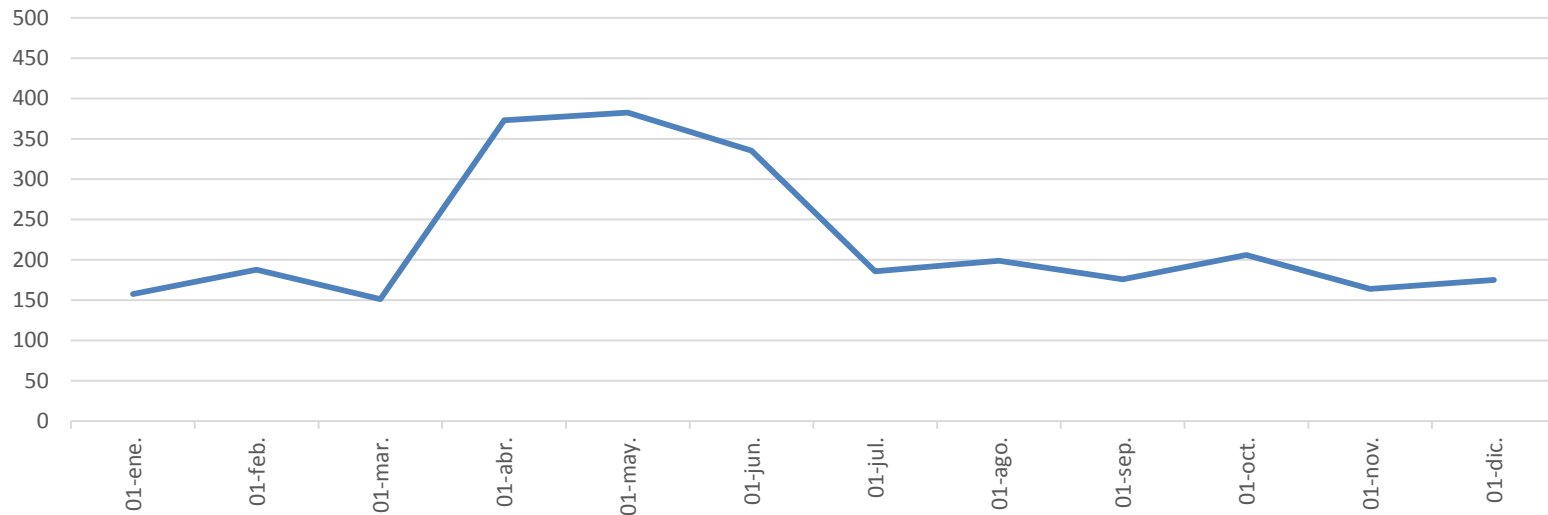
Uncertain environment?

Hourly electricity spot price 2014 [COP/kWh]



Accurate valuation method?

Monthly electricity spot price 2014 [COP/kWh]



Justification

- An accurate valuation method is necessary when an eventual investment opportunity takes place.
- The valuation method must consider not only the present and future expectations of the electricity market but the particular decisions in the investment that could add value to the asset such as:
 - Operational flexibilities
 - Commercial flexibilities
 - Investment configuration flexibilities

Methodology

- Real options valuation, represent a flexible valuation technique devolved as an analogy to financial options, applied to real assets.
- Real options valuation technique includes in the estimated value the positive or negative impact that uncertainty has on the asset.
- When the project's nature is uncertain, flexibility is valuable and constitutes optionality, so, different and particular flexibilities can be included in the valuation.

Objetctives

Main:

- Develop a generation assets valuation methodology based on real options applied to the reality of the Colombian electricity sector.

Specific:

- Literature Review
- Potential flexibilities analysis
- Define the methodology
- Experimental valuations
- Contrast results with DCF technique

Questions?

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