

## Is Colombia stunting renewable energy growth?

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*Despite plummeting costs, short lead times, and proven effectiveness, non-conventional renewable energy sources in Colombia are yet to make their mark. David Harbord, the director of economics consultancy Market Analysis, spoke to BNamericas about why Colombia must rethink its electric power strategy and reduce its reliance on unsustainable sources.*

#### About the company

**BNamericas:** In Brazil wind has become the most competitive source at auctions for new generation projects over the past year. Why hasn't the source taken off in the same way in Colombia and other Latin American countries?

**Harbord:** Colombia currently has a very low penetration of non-conventional [non large-scale hydro] renewable energy sources, having a single experimental wind farm of less than 20MW and limited penetration of solar power. This reflects the dominance of large-scale hydro projects within the generation sector. However, increasing concerns over the impact of periods of serious drought in El Niño periods, most recently in 2009-10, have meant that Colombia is investing heavily in new thermal power capacity, thereby increasing the country's carbon footprint.

**BNamericas:** What needs to change for renewables such as wind to gain a foothold?

**Harbord:** Many other large developing countries, including Brazil, Peru and Mexico, are already encouraging private investment in a range of renewable energy sources, especially wind power. However, under current regulatory arrangements in the Colombian power sector, these technologies appear not to be financially viable. A key factor is the *cargo de confiabilidad* - a capacity payment system - for non-conventional renewable power generation in Colombia. The [regulator] Creg estimates the capacity credit factor for wind power at between 6% and 7.3% of the wind plant's capacity. This compares to a factor of over 90% for coal and gas-fired plants, and between 30% and 55% for hydro plants. In our view, the Creg's methodology probably undervalues the contribution of wind to system reliability and possibly by a significant margin.

**BNamericas:** What should this figure be, in your view?

**Harbord:** Our estimates, based on international experience and best practice, suggest wind's capacity credit factor should be at least 15% and possibly as high as 33%. The

current methodology underestimates wind's contribution, and this in turn means that wind power stations receive lower capacity energy payments than they should. This is an important barrier to investment in wind power in Colombia.

**BNamericas:** It is often said that wind and hydroelectric power are complementary. Can these two sources conceivably become the staples of Colombia's power grid without the need to expand thermoelectric generation?

**Harbord:** There appears to be a natural complementariness, or hedge, between hydro on the one hand, and wind generation on the other: during periods of el Niño, less rain coincides with stronger winds. Any assessment of the backup sources to hydro generation should reflect this complementariness. In particular, the capacity credit factor for energy from wind and solar should reflect the contribution of these technologies to system reliability at times of water shortage, especially during El Niño periods. Of course, the complementariness has to be demonstrated for the specific plant in question.

**BNamericas:** What are some of the other benefits of prioritizing renewable development?

**Harbord:** The negative externalities and the long lead times required for large hydro and coal plants contrast with relatively limited externalities and flexibility offered by non-conventional renewable sources of power. Whenever a new hydroelectric project is under consideration, it is likely to involve extremely complicated and controversial impact assessments, especially when the project involves deviating rivers and flooding valleys where people live. By comparison, wind power and other non-conventional renewables have a relatively benign impact on local communities and the environment. This is particularly important since the record, not only in Colombia, on treating fairly - let alone properly compensating - communities negatively affected or displaced by large hydro developments is far from perfect.



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