



Fifty Shades of Green

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Opinion

The purity of gold is expressed by the number of parts of gold that make up the bar or jewelry. An object with 18 parts gold and 6 parts another metal (75% gold) is said to be 18 carats. A piece of pure gold (100% purity) is 24 carats. Similarly, each kWh delivered to a point of consumption can be seen as a “mixture of electrons” produced by both renewable and non-renewable sources.

Just as experts attest to the purity of gold, it would be possible to certify the percentage of renewable energy contained in the “mixture of electrons” used by each consumer, over a given period. The calculation would be made based on the electricity consumption from the grid, the composition of power sources that feed the grid and, eventually, the self-generation with a local renewable source.

Industries that use electrical energy to produce goods aimed at buyers concerned with climate change can label their products based on certificates, as is already done regarding the energy efficiency of household appliances.

Certification would gain greater relevance if developed countries were interested in the “green tone” of electrical energy used in industrial production. Germany, for example, is interested on

partially replace fossil fuels with “green hydrogen” produced in developing countries.

It would be in the interests of both, developed and developing countries, to create a market for green hydrogen with “purity” in the range, for example, between 75% and 100%. The price of such product would almost certainly be lower than, for example, green hydrogen produced by Saudi Arabia. This is so because the capacity factor of solar generation is low, even in a sunny region.

The situation is quite different in developing countries blessed with a balanced blend of renewable power. Brazil, for example, could produce almost 24/7 green hydrogen for export with “purity” greater than 90%, thanks to the mix of hydro, wind, solar and biomass power plants.

For developed countries, the acceptance of green hydrogen with purity lower than 100%, but greater than, say, 75%, would mean getting a greater quantity of green hydrogen or low carbon goods, without increasing expenditure in relation to what was already budgeted. For us, people from developing countries, it would mean taking advantage of the “new green” wave also in our favor.