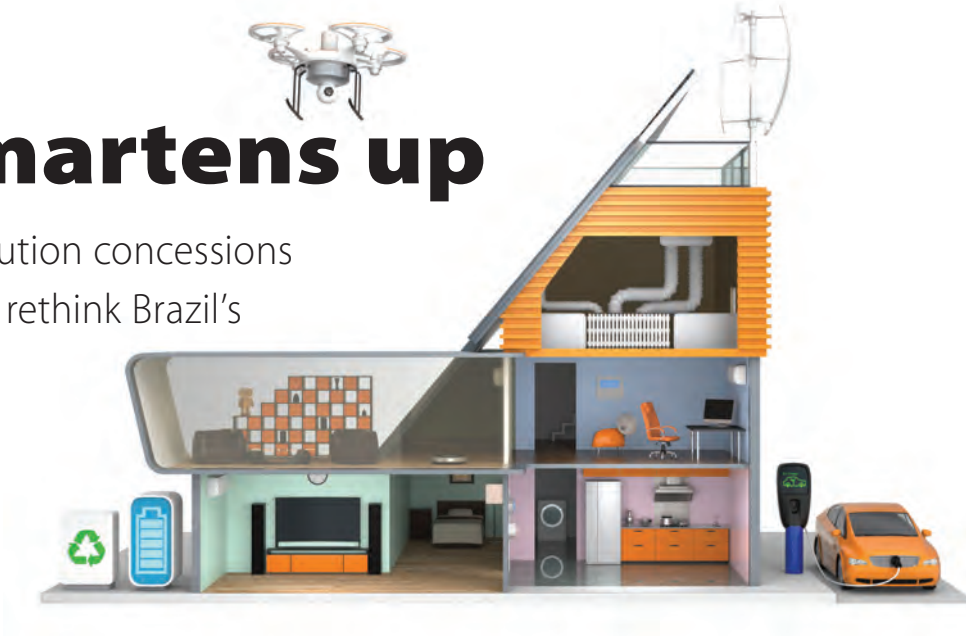
Energy smartens up

Expiration of power distribution concessions may offer opportunities to rethink Brazil's whole energy system.



Solange Monteiro

ELECTRONIC METERS that help manage daily energy spending and small power generation from renewable sources connected to the electric distribution grid are turning consumers into producers. Smart grids and distributed power have multiplied around the world. In Brazil in recent years, such power distributors as AES Eletropaulo, Light S.A, Ampla Energia e Serviços S.A. in Rio de Janeiro state, and CPFL Energia have announced smart grid projects worth over R$1 billion that will be completed by 2018. Among the innovations are bidirectional meters in homes, which will make it possible not only to monitor consumption but also to transfer energy to the grid: customers who decide to generate their own power through photovoltaic solar panels would be able to sell any excess energy to distributors.

As yet these are pilot projects and they are concentrated in the Southeast. But creation of this two-way street between energy consumers and distributors may be advantageous for both, including better utilization of power generation potential, less energy lost, and more reliable energy supplies. Getting this done, however, will depend heavily on proper regulation.

For residential customers, in addition to the high cost of equipment, the value-added tax on micro generation reduces the return on investment. For distributors, the list of barriers is even more substantial. "We have studied a variety of alternatives, but the regulator has not indicated who will pay the bill," says Nelson Fonseca Leite, president of the Brazilian Association of Electricity Distributors (Abradee). One issue that needs to be clarified, he says, is how to charge network usage by consumers who also sell energy, since the current electricity tariff includes the costs of both the energy and the transmission. "Today, a residence that balances generation and consumption and has its account zeroed would entail a loss of revenue for the distributor and a subsidy for other consumers using the grid," Leite says. Another challenge is how to calculate depreciation of the assets of these new systems, which are closely linked to telecommunications and information technology, when regulations were designed to cover the depreciation of equipment such as electrical transformers. "Electrical transformers are assets that have a short life span, and that has to be reflected in the electricity prices," Leite says.

In a conservative scenario, Abradee calculates that deployment of smart grids for 50% of Brazilian consumers would require investment of R$46 billion. To improve the return to distributors who invested in modernization of their grids, Abradee presented to the Brazilian Electricity Regulatory Agency (Aneel) a proposal to reduce the pass-through to consumers of productivity gains resulting from market growth and increased consumption, known as "X factor." Aneel plans to hold public hearings on the issue of how distributors will be remunerated.

Joisa Dutra, coordinator of the FGV Center for Studies in Regulation and Infrastructure (Ceri), thinks that distributed generation will transform

the market but will require broader changes, which should be discussed when distributor concession contracts are renewed. By 2017, the contracts of 42 electricity distributors will expire. "Today regulation sets a price cap, which became popular in the 1990s to replace the rate of return," Dutra says. A price cap gives companies an incentive to adopt measures that would generate efficiency gains until the price cap is reviewed (every four or five years), when the distributor shares the efficiency gains with consumers. "This means that distributors profit more the more they sell. But we are now in a world where smart grids and distributed generation (with small solar, wind generator, and a small biomass plant) require another concept: incentives to reduce power consumption, which means lower sales for distributors," she says.

The question of what incentives will work in this new context has not yet been answered. "We are living in a time of transition throughout the entire world," Dutra says. In Brazil, tariff policy is defined in the concession agreement, the Concessions Law, and procedures for tariff review. Here, as in most Latin American economies, Dutra reminds us, infrastructure is heavily regulated, and so the moment when concessions are renewed is an exceptional opportunity to rethink the electric system.

Abradee has discussed changing distributor remuneration to a revenue ceiling so that the distributor can profit by promoting energy efficiency because the revenue will be determined. "We do not yet have a position on the revenue ceiling. In fact, what we have discussed is that with the price cap there is no way to deploy distributed generation," says Leite. "In the case of smart grids, that would be a possibility, if assets were included in the base for calculating the distributor's remuneration. Today what concerns us most is that so far we do not know what are the rules and requirements in terms of service quality and investments for renewing concessions," he says.

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Joisa Dutra

"In a country like ours, people may perceive the ceiling revenue system as misappropriation by the distributor," adds Dutra. "But the key issue is to understand that we could seek arrangements and solutions in which distributors have a better deal but [consumers] benefit from gains in efficiency later," she adds, noting that the experience in the recent past has not led to a win-win solution for distributors and consumers. "Today distributors have to deal with a significant amount of loans, tens of billions of dollars at high interest rates, whose cost is being paid by consumers. The perception of increased risk creates difficulties for the power distribution sector, as companies' cash flow is uncertain and they are dependent on transfers from government," she says. "Are we going to miss this opportunity to reexamine incentives for distributors, or simply hand over 30-year contracts to them?"

Smart grids

Proper incentives and regulations.

