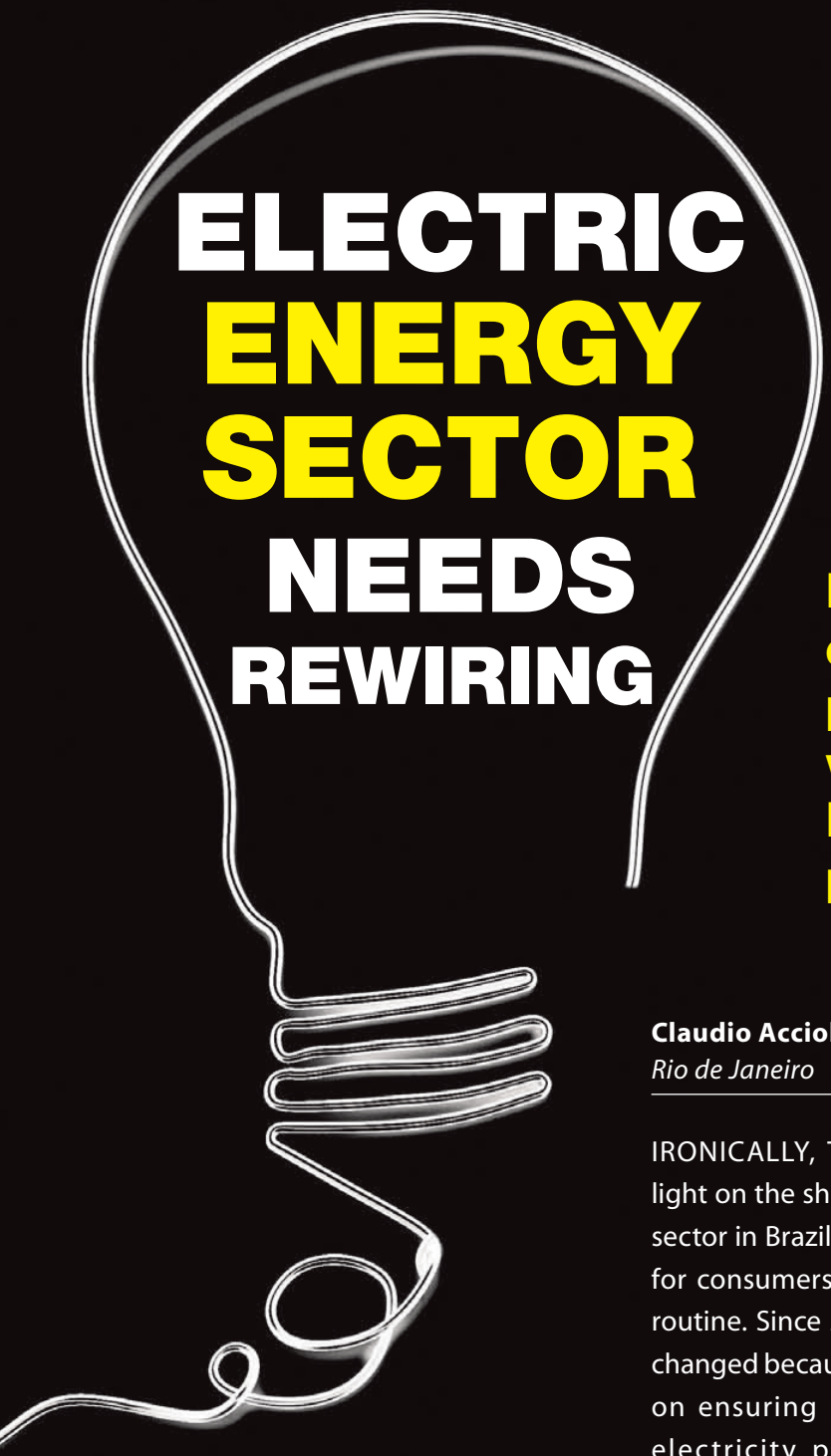


ELECTRIC ENERGY SECTOR NEEDS REWIRING

Review of energy pricing policy highlights weaknesses in the Brazilian electric power industry.

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IRONICALLY, THE 2011 BLACKOUT shed light on the shortcomings of the electricity sector in Brazil, as did the power shortages for consumers and business that became routine. Since 2004, the electric sector has changed because a new framework focused on ensuring power supply, recovering electricity production capacity, and consolidating Brazil's position as a clean energy producer. It demonstrated the feasibility of alternative sources of electric power and encouraged a free market that today represents 25% of the power of the National Electric Power Grid.

Nearly a decade later, however, the restructuring process is still incomplete. This is clear from the tax burden on electric rates, which is one of the heaviest in the world, and from the faltering pace of making the regulatory changes needed to attract investments into the sector.

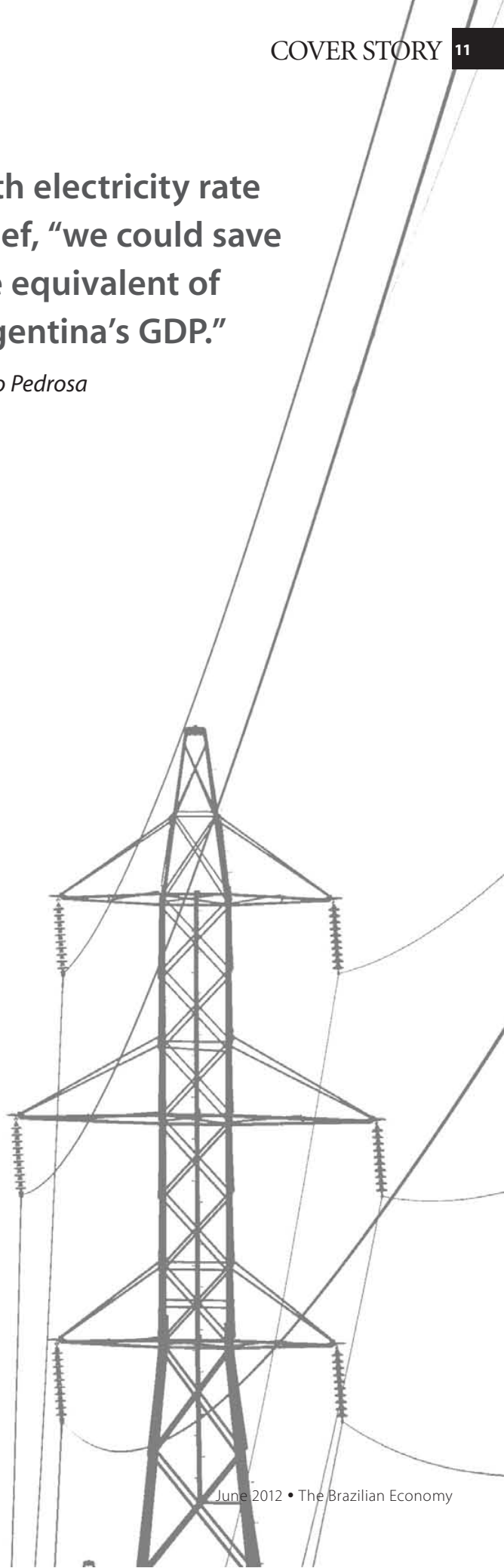
After innumerable complaints from industries suffering from the high electricity rates, last May President Rousseff promised to make the issue a priority, leading the market to expect a substantial reduction in industrial rates. "The president understands that we have an inadequate and distorted system," said João Carlos Mello, president, Andrade & Canellas consulting, justifying the need to reduce charges and taxes on electric rates. Speaking at the Brazilian Energy Seminar put on by Brazilian Institute of Economics, Getulio Vargas Foundation (FGV) in late May, Paulo Pedrosa, chief executive, Brazilian Association of Large Power Consumers and Free Consumers (Abrace), said that with electricity rate relief, "we could save the equivalent of Argentina's GDP."

To reduce the cost of electricity, the government needs to lower charges and taxes, which together represent about 45% of the electricity price, and also lower the price of the energy concessions that will expire after 2015.

Among the principal charges are those for the Energy Development Account (CDE), which gives the poor access to electric power, and Quota and Fuel Consumption (CCC), which subsidizes thermal power production in isolated regions off the energy grid. As more of these regions are connected to the national grid, the need for the subsidy should dissipate. José Goldemberg, former environment minister and now professor,

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Institute of Electrotechnics and Energy, University of São Paulo, argued for reduction of the CCC because it subsidizes inefficient thermal power systems.

Pedrosa pointed out that a major problem is the lack of transparency about how the charges collected are spent, citing the social program Light for All, which was funded by the CDE. In his opinion, "The CDE and the CCC, for example, would be better managed if they were incorporated into in the federal government budget."

Mauricio Tolmasquim, president, Energy Research Company (EPE), agreed in general with the ideas offered to solve the cost problem, but believes that charges related to social issues, especially subsidies for low-income consumers, should be maintained. If European countries do this, he said, "It is hard to imagine that a country with as many inequalities as Brazil should not have this kind of social policy"

Regarding the taxes on electricity rates, the issue is how much the federal government is willing to give up in terms of the taxes for the Social integration Program (PIS) and Contribution for the Financing of Social Security(Cofins), and what the states will be willing to do about the VAT on electricity rates. "The VAT is the tax base for the states, especially taxation of electricity, fuel, and telecommunications, whose collection is more difficult to evade," Tolmasquim explained. The state VAT varies from 12% to over 30% in Minas Gerais and Rio de Janeiro.



Photo: Rose Brasil/ABr.

Clean and renewable hydroelectric power accounts for 80% of total electric power in Brazil.

A number of concession contracts for generation, transmission, and distribution will expire between 2015 and 2017, which should open an opportunity to reduce electricity prices. Factoring in the cost of energy investments that are completely paid off could reduce electricity rates by as much as 8%, it is estimated. But since 2008 there has been debate about how to get this done: conduct auctions, as the law authorizes, or simply extend the current concessions. The 112 power plants whose contracts expire represent 28% of Brazil's power capacity, and the transmission contracts account for 73,000 km of lines—82% of the grid.

BRAZIL'S ELECTRIC POWER IS CLEAR AND RENEWABLE

(% of total electric power)

BRAZIL (87.2% renewable energy)	
hydroelectric power	81.2
natural gas	5.8
biomass	5.6
oil	3.1
nuclear	2.6
coal	1.3
wind power	0.4

WORLD (19.8% renewable energy)	
hydroelectric power	16.5
natural gas	21.4
oil	5.1
nuclear	13.4
coal	40.3
other	3.4

Source: Energy Research Company (EPE).

In late May, Nelson Hubner, director general, National Electric Power Agency (Aneel), told the media that the government had already decide to send Congress a proposal to allow concessions to be renewed under certain conditions. This decision is opposed by the Federation of Industries of São Paulo (Fiesp), which supports auctioning of the concessions and their assets. Fiesp points out that the average selling price of older power plants, now that the initial investment has been paid off, is R$90.98 per MWh, yet the average production cost is only R$6.80 per MWh. "The auctions are a more transparent way to ensure a fair price for electricity," said Paulo Skaf, Fiesp president. "With auctions held in terms of the lowest tariff, as has been the rule in the electric sector, the competition between the parties will lower prices," he went on.

Unica studies show that the potential of biomass energy is equivalent to three Belo Monte power plants, 15 GW.

Although Fiesp represents one of the most powerful industrial groups in the country, its position is not unanimous. "With the extension of concessions, we can capture the gains [lower prices] with less distress to the corporate structure we have today," said Mario Menel, president of the Brazilian Association of Investors in Independent Energy Production (Abiape) He believes that the government delay in deciding what to do about expiring concessions has stalled investment in the electricity sector.

Speaking for an industry that carries one of the highest electricity rate burdens, Adjarma Azevedo, president, Brazilian Aluminum Association (Abal) argued for special treatment to try to make up for lost time and investment. Aluminum processors have been unable to

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build new plants since 1985, yet "Since 2001, our industry has seen an average increase in energy prices of 12.6% a year." Fiesp, on the other hand, believes the benefit of lower prices of energy should be extended to all sectors. Skaf said that "Fiesp's study estimates that electricity production and transmission costs would fall by about 75% by removing the cost corresponding to investments already amortized and auctions—and for consumers savings in energy costs could reach 20%."

For Abrace's Pedrosa, the ideal would be to set priorities now for eliminating charges and revising taxes on electricity rates to give relief to industry until concessions are renewed. He said Abrace was optimistic because "we see that the government understands that there are distortions that need to be corrected."

Marcia Leal, chief, Electric Energy Department, National Bank for Economic and Social Development (BNDES), explained that the bank has acted vigorously to finance power production and transmission in order to reduce electricity rates for consumers. She added that "In 2011, we approved more than R$14 billion investment in electricity, equivalent to 4,120 gigawatts and 2,704 km of transmission lines."

BEYOND PRICE

Reducing electricity rates, however, does not solve all the problems in the electricity sector. Joisa Campanher, coordinator, Center for Regulatory Studies, FGV Graduate School of Economics, explained that energy policy depends on more than the relationship between production costs and high electricity rates. Brazil lives the paradox of having abundant and clean sources of electric power but not having a competitive system. How can a country that has a share of renewable energy well above the world average, the third



Photo: Niels Andreas/Unica.

The potential of biomass energy is estimated at 15 GW, almost three Belo Monte power plants.

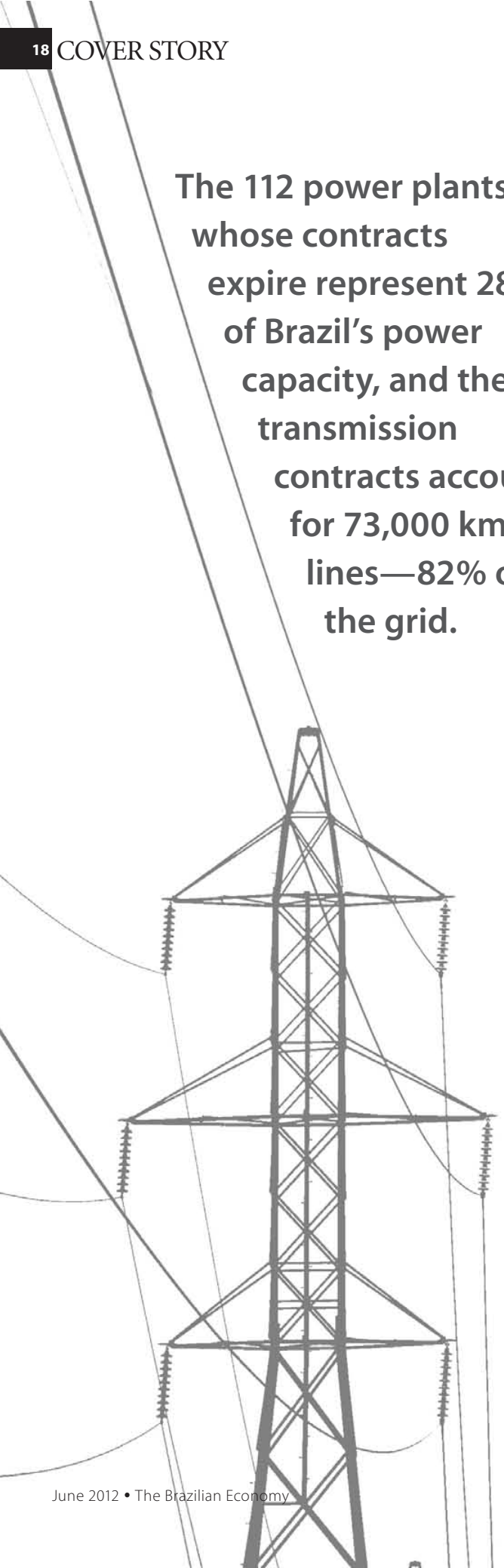
largest hydroelectric potential on the planet, and complementarity between the hydraulic and alternative sources not get better results? Production factors are only one engine of an economy; as an economy develops, it also needs to boost efficiency and innovation.

Exacerbating the poor results is the inefficiency of power distribution by the state company Eletrobras in the north and northeast and the lack of a framework for regulating natural gas to break the monopoly of the state oil company, Petrobras. "Today in the U.S. natural gas is sold for US$3.5 per thousand cubic feet, in Brazil, it is US$17," Campanher pointed out, noting that this price disparity is a barrier to productive investments. Abiape's Menel added that "We have shelved three GW cogeneration projects in São Paulo state for lack of a natural gas policy."

How can a country that has renewable energy well above the world average, the third largest hydroelectric potential on the planet, and complementarity between hydroelectric and alternative sources not get better results?

One somewhat successful alternative is wind energy. Since the Incentive Program for Alternative Sources of Electric Energy (Proinfa) established price guarantees to encourage wind power enterprises, the market has developed rapidly, and over time production of wind energy has become more efficient, bringing the price down from R$300/MWh in 2004 to R$102/MWh in 2011. "It was through this public policy that we learned how to make

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wind power [productive] in Brazil," said Elbia Melo, chief executive, Brazilian Association for Wind Energy (Abeeólica). The industry already has 14,258 MW to supply for the next auction. Melo added that "Today we have all [the component] industries here, like wind turbine blades and other equipment." However, environmental licensing is still a problem, and a shortage of transmission lines prevents suppliers from selling more production.

Another example of policy being somewhat reluctant is electricity generated from sugarcane biomass. "Brazilian energy policy is credited with targeting mostly clean energy, but that alone does not prevent internal imbalances like those faced by the sugarcane industry," said economist Jacques Marcovitch, who chaired the Energy Companies of São Paulo state. He argued for exempting ethanol from taxes to make it more competitive with gas prices.

According to Zilmar José de Souza, manager, Unica Bioelectricity, today the main obstacle to more sugarcane biomass generation is competing with low wind energy prices. Goldemberg added that "The government does not understand that new energy can be more expensive initially," he said, "but prices fall rapidly as production increases. To require only the lowest prices eliminates potential sources of energy, such as cogeneration with sugarcane bagasse, which has wide possibilities in Brazil." Unica studies show that the potential of biomass energy is equivalent to three Belo Monte power plants, almost 15 GW. "We need a long-term sectoral policy," de Souza urged.