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Brazil's energy policy

Scarcity in the midst of surplus

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Thanks partly to ethanol from sugar cane, Brazil aims to be an energy superpower. But can it keep its own lights on?

THE president, Luiz Inácio Lula da Silva, has just returned from a five-country tour taking in Mexico and Central America, where he touted Brazil's claims to be an energy superpower. Blessed with sunshine, watered by huge rivers and close to self-sufficiency in oil, Brazil's energy potential is indeed enormous. But for various reasons, ranging from government lethargy to environmental lobbies, it runs a serious risk of energy shortages at home.

Acende Brasil, an electricity-industry body, predicts a 28-32% chance of blackouts by 2012 if the economy grows at 4.8% a year (the government's forecast is 5%). Officials dismiss this as alarmist. But Lula is worried enough to have attended a recent meeting of his National Energy Policy Council for the first time.

Even if economic growth disappoints, power could still run short. At present, four-fifths of Brazil's electricity comes from hydroelectric dams. But at times of high demand or low rainfall, hydropower needs topping up with thermal supplies, mostly natural gas. About half of the natural gas consumed in Brazil comes from Bolivia. Relations between the two countries have been tense since Bolivia declared the nationalisation of the Bolivian operations of Petrobras, Brazil's state-owned oil and gas company, last year.

Petrobras has also had problems in ensuring consistent production from its gasfields at home. This month the company admitted that there would be a shortfall in promised deliveries, earning a fine of \$90m from the electricity regulator. Uncertainty over future gas supplies meant that at a government auction for new electricity-generation plants held last month only oil-fired projects were proposed.

The government's hopes are pinned on two big projects, both of which have their critics. It recently gave the go-ahead for a third nuclear reactor at Angra dos Reis. Even more controversially, Ibama, the environmental agency, has given approval for two new dams on the Madeira river in the state of Rondônia.



Supporters point out that the two dams will flood an area only one-sixth as large as that inundated by the giant Itaipu dam. But because of their modern turbines, and the strength of the Madeira's flow, they will generate electricity equal to 8% of Brazil's current output.

Opponents predict that the turbines will silt up and that the dams will produce only half the energy advertised. Wesley Ferreira Lopes, of the Movement for Dam Victims, claims that 5,000 families, rather than the official estimate of 900, will be displaced by the dam. His group promises an "uprising" to block the scheme.

If all goes to plan, the Madeira dams should be completed by 2012. But Roberto Smeraldi, of Friends of the Earth, says that every dam project in Amazonia has run between 60% and 120% over its planned construction time. The backup plan is to add thermal energy until the dams can be finished. But from where?

Bolivian gas might have been an option. But, because of the nationalisation, Bolivia may struggle to expand output, despite a deal this month under which Venezuela will invest \$600m. Bolivia is committed to expanding exports to Argentina, rather than Brazil. And Bolivian officials are furious about the Madeira dams. They claim these will raise water levels in their country, perhaps encouraging malaria and displacing families and wildlife. After a meeting on August 3rd in São Paulo, Bolivia's deputy environment minister threatened "all necessary measures, legal and international" if the dams go ahead. That could include reducing gas exports.

Brazil insists it has a sovereign right to go ahead with the dams. Evo Morales, Bolivia's president, should stop "sticking his beak" into Brazil's affairs, says Ivo Cassol, the governor of Rondônia.

Another possibility is to generate electricity from sugar cane, in conjunction with ethanol production, though the technology for this is still fairly new. Using sugar cane, Brazil produces far more ethanol per hectare, with fewer emissions, than the United States does with its corn-based equivalent. McKinsey, a consultancy, reckons that if the area under sugar cane were doubled, fertiliser applied and farming mechanised, Brazil's ethanol output would increase from 17 billion litres (4.5 billion American gallons) a year today to 160 billion litres by 2020.

But ramping up ethanol production has drawbacks. Although very little of Brazil's sugar cane is grown in the Amazon region, expanding the crop could put pressure on the rainforest nonetheless, by pushing ranching and soyabean farming farther into the interior.

Environmentalists argue that Brazil could do much more to conserve energy. But that is a long-term effort. The country faces difficult trade-offs between development and the environment. As Jerson Kelman, the electricity regulator, notes, it would be ironic if green opposition to dams means that Brazil ends up using more oil to keep the lights on.