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INVESTING IN INDIA PRESENTS GREAT HURDLES, BUT GREATER REWARDS

Within the next three decades, it will be the most populous nation on the face of the earth.

It has been a nuclear power since the 1970s and boasts one of the few vibrant, stable democracies in the Asian hemisphere.

It has launched several communications satellites, and is now on the verge of attempting its first manned space flights.

They are the next world superpower - yet they battle daily with maintaining an uninterrupted supply of electricity to their customers.

India is a giant that is hobbled by an overtaxed infrastructure. New businesses and industries are sprouting up across the entire subcontinent, eager to take advantage of a world market hungry for Indian products and services.

It is the second-fastest growing major economy in the world, with a current GDP of 9.2 per cent; but that growth is tempered by a per capita income of \$3,400, classifying India as a low-income economy in the eyes of the World Bank.

Although two-thirds of the population earn their livelihood either directly or indirectly from agriculture, the country is used by global companies for their outsourcing and customer service support. The Electronics City section of Bangalore is India's answer to California's Silicon Valley - the only difference being the major access highway, Hosur Road, is a potholed, four-lane stretch of uneven pavement.

But poorly maintained roads are just the tip of the iceberg as to the challenges faced by India to establish a solid infrastructure.

As a rule of thumb, major cities lose power one day a week just to relieve pressure on the grid. In the city of Pune, which has 4.5 million people, the lights go out every Thursday, forcing factories to maintain expensive backup generators.

It shouldn't have come as a surprise to Indian officials when Intel Corporation decided to locate its new computer chip



Powerlines can more resemble Christmas trees covered in tinsel as people attach their own lines to steal electricity.

assembly plant in Vietnam instead of India (although Intel wouldn't comment on the decision to choose Vietnam, industry insiders said the reason was mostly due to the lack of reliable power and water in India).

In Gurgaon (near Delhi), the average power cut in January 2007 was 7.45 hours and 5.07 hours per day in industrial and residential areas respectively. The longest recorded cut for that month was 11.10 hours on January 13, with an astounding 10-hour daily power cut from January 19 to 26.

What makes these January power cuts all the more ominous is that peak demand doesn't hit until the summer months.

One quick solution to the problem has been to introduce Captive Power Plants (CPPs), allocating dedicated generation to an industry for its exclusive

consumption. Although Indian Central Electricity Authority sources put a figure of 11,600 MW for CPPs, industry experts state that the figure is much closer to 20,000 MW.

More industries are avoiding the grid altogether, using their own generation (captive and cogeneration) rather than roll the dice on unreliable and poor quality grid supply (not to mention the high tariff resulting from heavy cross-subsidization).

For Indian officials, the growth of CPPs is a concern, as it leaves utilities in a position of having industrial load as their main source of revenue and limits their ability to manage the grid when there is a surplus of power.

Another concern of government officials is the widespread theft of power by residential consumers - a practice that has become so commonplace utilities have thrown up their hands and learned to live with it as the price of doing business. Officials estimate that as much as 42 per cent of the power supplied to India's capital of Delhi disappears through "transmission losses" (compared to 3 per cent in China). Serious yes, but better than in years previous, when transmission losses accounted for more than half of the electricity distributed in Delhi.

And this doesn't take into account the industrial power theft that occurs with the help of corrupt officials, or the power farmers' lobby that pushes hard (and often gets) free power or ridiculously cheap electricity.

Aside from the loss of revenue, it makes managing demand during peak periods virtually unmanageable for Indian utilities.

The promise of smart metering may hold the key for Indian utilities, allowing them to crack down on electricity theft and providing them with a more surgical option for cutting back on power, instead of having to resort to sweeping black-outs.

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The 2003 Electricity Act made power theft a criminal offence for the first time. Private utilities like Tata Power have cut transmission losses from over 50 per cent to a more manageable 30 per cent.

On the generation side, government planners are seriously looking at developing the massive hydroelectric potential in the north of the country, along with a significant expansion of the nuclear generation component.

Naturally, any new generation that is developed would require greatly

enhanced transmission corridors, concurrent to a strengthening and hardening of the distribution network.

For foreign investors, like the French company Areva T&D, it is this commitment by the Indian government to expanding and improving the transmission and distribution network that has spurred their commitment to building factories in Pallavaram and Perungudi.

For Areva T&D, who held the 6th instalment of their Technical Days in India recently, building the transformers in India that are destined for that country's electrical grid is essential to developing that nation as a great power. Areva T&D, whose projects and investments

stretch from Russia to Brazil, sees opportunity - not obstacles - in helping nations strengthen and grow their vital electrical infrastructures.

Even the most inward looking North Americans have to admit that the global marketplace is forcing change. The obstacles of today - like those faced by India - can either be ignored by Western CEOs at their own peril or embraced and overcome, to the benefit of India, its people, and those companies who choose to invest and prosper with them.

See Special Feature "Opportunity and challenge: Developing India's electrical infrastructure" - Pages 16-29