



Wanted: caution, purpose, flair

By Walt Patterson

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In the golden age of traditional electricity - perhaps that should be the gold-plated age - the cost of generation was a marginal issue. To be sure, planners compared the cost of electricity from, say, a coal-fired versus that from a nuclear station, to justify choosing one over the other. However, when the bills fell due, over the succeeding decade or more, the original cost-estimates almost invariably proved fallacious, when not complete fantasy. The planners were blithely unconcerned. Captive customers would pay. Only when the discrepancies grew egregious did they become at last embarrassing. Some critics took exception to the investment analysis and cost-accounting methods employed; but even after the onset of liberalization the financial structures and processes of electricity systems remained stubbornly idiosyncratic and arbitrary.

In the years following liberalization, in the UK, Latin America and elsewhere, investors including many major companies poured thousands of millions of dollars, pounds and euros into generation, on the apparent presumption that it would still be easy money. It proved instead a way to lose not only your shirt but your company. Major corporations such as Texas Utilities, Entergy and Reliant and newly-fledged commercial entities such as the UK's National Power and PowerGen floundered in the rough seas of competitive electricity markets. The risks proved far higher than anticipated, and the downside far deeper. The financial analysis that guided investment in generation in the 1990s turned out to be akin to corporate Russian roulette. But the same woefully inadequate financial techniques still undermine electricity policy around the world.

In November last year the International Energy Agency published *World Energy Investment Outlook 2003*. The report concluded that cumulative investment in fuel and electricity supply infrastructure required by 2030 worldwide would be US\$16 trillion, of which no less than 60 per cent would be for electricity, divided almost equally between generation and networks - that is, some \$5 trillion for generation alone. Those investing sums that size will need and want something better than back-of-the-envelope wishful thinking beforehand. Liberalized, innovative electricity cries out for a new suite of financial implements and instruments, adequate to the radically altered circumstances now prevailing.

The absence of persuasive analysis may have unnerving consequences. Some pointers are already unmistakable. The 2004 version of a recurring North American study called *Electricity Outlook*, now published by GF Energy in Washington, DC and available at <www.gfenergy.com> , suggests that generation of any kind is slipping rapidly down the agenda of companies active in electricity. A survey of chief executives of electricity companies in the US and Canada found that for the next five years most are intending to focus on networks, with their regulated income, rather than the risky competitive business of generation. Some commentators go farther, insisting that liberalization and competition have failed, and that the traditional monopoly system should be reinstated as the only way to keep the lights on.

On the other hand, a growing number of major players are now putting serious effort, and serious money, into innovative electricity, both generation and networks - and the players now include forward-looking financiers. In the UK, an informal series of receptions called Renewable Connections, running since the late 1990s, used to attract mostly technical and environmental enthusiasts for renewable generating technologies. The first gathering of 2004, however, was hosted by Shell Renewables in London, in an office looking down on Shell's 750kW Vestas wind turbine on the Thames embankment; participants came not only from generators, engineering companies and NGOs but also from merchant banks and investment houses, from the City of London and financial centres elsewhere in Europe. One of the banks on hand was Climate Change Capital, established in 2003 by City people and diplomatic colleagues convinced that climate policy should be seen not as a threat but as an opportunity, especially for innovative electricity and other high-performance energy infrastructure investments. (Declaring an interest, your correspondent was surprised and delighted to find himself recruited onto the advisory board of CCC.)

In the UK alone, for instance, offshore wind developments now involve Shell, General Electric, RWE through Innogy, E.On through PowerGen and other major multinationals. BG Group and E.On through PowerGen are both on the threshold of marketing compact domestic cogeneration appliances, visualizing sales eventually in millions of units. But investors remain hesitant about innovative generation, partly because financial messages remain inconsistent and contradictory. Policy-makers, advisors and advocates - those not betting their own money - continue to pluck numbers out of the air, purporting to compare the cost of a unit of electricity from different generating technologies. They argue that renewable generation is too expensive compared with traditional generation; or that subsidies are distorting the market; or that only government support for a renaissance of nuclear power will keep the lights from going off. The stakes, however, are far too high to put up any longer with this shallow and tendentious approach to comparative financial analysis, almost invariably thinly-disguised special pleading.

When electricity was liberalized, those designing the new framework appear to have assumed that electricity was just another energy carrier, and could be treated exactly as though it were analogous to oil. They therefore imported all the conceptual tools of the oil industry. For the oil industry the key concept was the price of a barrel of oil; all transactions and all business relationships turned on that. Accordingly, for liberalized electricity the key concept would be the price of a unit of electricity. However, unlike oil, electricity cannot be stored; but it can be generated anywhere - a crucial difference. What matters for electricity finance is not a quasi-commodity price, but the financial treatment of system assets - generation, network and loads. That in turn depends absolutely on policy - as it always has. All revenue flows in electricity, traditional and innovative alike, are artefacts of policy - of company and contract law, accounting procedures, taxation, regulation, standards, the whole array of levers available. Electricity finance should start from this premise, and proceed accordingly - with caution, purpose and flair.