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South Africa

Nuke the Nukes

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It was said recently that South Africa was going to lead Africa into a nuclear revolution. After having wasted billions on research into the matter and with our inability to pay for our own brand-new (cheaper-than nuclear) coal power stations without indebting our children to the World Bank, are we really going to charge off northwards and convince poorer countries than us to pay for exorbitant electricity that they might not need and aren't able to distribute?

Whoever made that comment was courageous. I can quite picture the room rapidly transforming itself into the sort of stony silence that polite people adopt when presented with nonsense; although there could have just as easily been soft applause from the sort who promote megaliths as cutting-edge technology. I suppose it depends on where this comment was made and what the average age was in the room.

Nuclear was quite sexy in the sixties and seventies, and that's about when the bulk of the world's nuclear specialists had hit adulthood. This isn't a frivolous point. The world is rather short on nuclear specialists, experienced or not, especially the sort that might be entrusted with the management of a power station. Of those still functional, very few are African.

Even South Africa's Koeberg nuclear power station still requires foreign expertise after three decades of being in operation. There aren't many universities on the continent that can churn out nucleomanics, so if South Africa went nuclear we'd have to be searching elsewhere for the necessary high-skilled crew. Even then, we might have to make use of a combination of geriatrics (poetic licence) and college kids.

The world did eventually get sensible about nuclear energy, possibly after that little warning from the Ukraine in 1986. From the 1990s onwards there wasn't much effort made to produce that particular skills set; it was considered too expensive and too unsafe. Essentially, South Africa does not have the technology and skills base to roll out nuclear in its own territory, let alone across Africa.

Should we even bother mentioning safety concerns when talking about nuclear? It might be good to mention that minor trouble that happened in one of the world's most conscientious and prosperous nations 25 years ago. The land around that European incident is still uninhabitable. But apparently, all we need to prevent nuclear disaster is regulation and efficiency, right?

Well, we know that Africa has excellent regulatory systems, plus good operating records and absolutely no interest whatsoever in nuclear weapons. Let's be real – nuclear is entirely harmless as long as nobody leaves a nut in the wrong place, falls into the waste pit or has an argument with their neighbouring dictator.

Or as long as the planet stops shrugging her shoulders in that irritatingly irrational way. Not that earthquakes are much of an issue in Africa, mind you. Firstly, most of the continent is quite stable geologically, and secondly, there's not that much to damage, given the vast expanses that are sadly (or not) free of high-rise buildings and roads and such measures of progress and wellbeing – also mostly free of electricity grids, it might be worth pointing out.

Even if some impressionable LDC (least developed country) were to have its ego twisted into buying one of these big toys, and even if it instilled good governance and management practices, it would still have to give up its economic sovereignty and any opportunity for good development for having committed its income for generations

to pay off the loans.

Nuclear comes in large boxes that are better suited to large-scale grids and high technical skills levels, most of which will need to be imported, even in some areas of construction. It is very complex equipment that takes a long time to build and requires a lot of money upfront. Once you've committed to it, you don't have room to adjust if your electricity demands change, which makes it a very risky and very expensive option.

Nuclear power stations do provide a steady base load supply if they are run optimally, which makes them attractive to large industries – except that every 18 months or so they need to be shut down entirely for at least a month for refuelling. If this is your country's main or only power station, I suppose it provides a good chunk of time to go holidaying.

And for any who'd dare invoke the climate change argument at this point, I'd have to ask if they'd noticed the wind or that big ball of energy that appears in the sky most mornings. Renewables, such as biogas digesters and wind farms have short lead times, which means that if demand changes over a short to medium term, capital expenditure can be adjusted fairly easily.

They can be built in a range of sites across the continent and thus bypass the need for a massive and inefficient grid. The biggest plus is that more jobs are provided per unit of output from renewables than any other electricity generation option, and the skills set required for most aspects of renewables construction and maintenance is quite accessible. In passing, they're also a lot cheaper than nuclear.

Yes, Africa needs electricity. Yes, access to energy will enhance the lives of millions, reduce the burden on women, facilitate the instalment of plasma TVs and a deep freeze in every homestead, and so on, but you have to ask some questions about the timing. If electricity provision is such an urgent need, why would you want to spend over a decade building a single central power station when you could install a series of wind, solar and small hydro options throughout your country that could come online within a few years?

Nuclear is a mismatch for what Africa requires. As South Africans, do we want to be building a string of these things across an impoverished continent?

PS: Just to be absolutely clear: "No nukes" does not equal coal.

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