

Where has all the power gone?

By

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It was extremely surprising to read Naeem Tahir's article on the Power Sector as appearing in the op-ed pages of Daily Times of August 7, 2010. The gentleman's foray with comparatively less insight into the subject has resulted in a skewed analysis. Consider. As against what has been written, we see that it was the immense load shedding in late 2007 that led to the demise of the earlier political set-up and that the power deficits were carrying on since 2004-05, albeit spread away from the bigger of the urban areas. The writer is again wrong when he casually mentions Pakistan's demand of April 20, 2010 as 14,500 MW, whereas in actuality it was 17,000 MW on that day, while it reached the 20,000 MW mark during late June and early July this year. Indeed, it was 14,500 MW for the PEPCO area (excluding KESC) and the low production of that day was on account of extreme low hydel generation of only 2300 MW against the projected 4,000 MW or so. However, because of lower temperatures and inundation of large areas, the demand for the last few days has remained a little less than 18,000 MW.

Mr. Tahir thereafter presented the list of power stations that were once (installed in the country since 1959 till 1992) and then simply sum totals the installed capacities, which incidentally have no relevance with the present capability of these very plants. The various technicalities related to power house operations and availability thereof during various times of the year was also ignored. Actually, it has to be understood that immediately on installation, power generation equipment reduces in capacities, which thereafter is only maintained through stringent maintenance and rehabilitation processes. In case, somehow, the needed level of maintenance is not able to be conducted, then the capacities de-rate like anything. Actually, during the last 15 years in general and the decade in particular upto 2008, the Power Sector was denied the required funds leading to overall stunted generation capabilities.

The actual available capacities for the whole country are being presented as under. The Nuclear Power Stations are categorized as IPPs:

WAPDA Hydel Power Capacity

Tarbela 3,478 MW, Mangla 1,000 MW, Ghazi Barotha 1,450 MW, Warsak 243 MW, Chashma 184 MW, Dargai 20 MW, Rasul 22 MW, Shadiwaal 18 MW, Nandipur 14 MW, Kurram Garhi 4 MW, Renala 1 MW, Chitral 1MW, Jagran 30 MW. Total Hydel Capacity is 6,465 MW. However, the bandwidth or the spread of hydro generation is not 2,424 MW in dead winters to the maximum of 6,761 MW in extreme high water months, but was as low as 683 MW during January 2010 (because of poor hydrology) and has presently reached a maximum of only 5,800 MW, although the reservoirs are brimming full. This is because of various technical issues and loss of required head level on account of flooding of the rivers downstream in case of the run of the river plants, like Ghazi Barotha and Chashma.

PEPCO Thermal Power Capacities

TPS Jamshoro 655 MW, GTPS KOTRI 127 MW, TPS Guddu 839 MW, TPS Quetta 25 MW, TPS Muzaffar Garh 740 MW, NGPS Multan 47 MW, SPS Faisalabad 70 MW, GTPS Faisalabad 200 MW, FBC Lakhra 30 MW (Power Stations at Panjgur and Pasni were shut long ago) and total PEPCO Thermal Capacity is 2733 MW and not 4,811 MW. Actually, due to various reasons, most of the plants have de-rated drastically, many have been decommissioned in the last ten years, while most of these were forced to use RFO as fuel against the denied gas, which leads to reduction in capacity and lesser availabilities. PEPCO on its own, has now undertaken a huge re-hab programme containing seven modules, at a cost effective price of US\$ 169 million, which will result in a recovery of 1015 MW of the lost capacity. These modules primarily include rehabilitation and repowering of Public Sector GENCOs. Out of these, the first of the modules have been completed last month with a recovery of 300 MW of power, while the next four are in various stages of completion under PEPCO and the USAID. The left over modules will be taken- up by PEPCO for completion by the end of 2012. The long gestation is because of the requirement to lay-off the machines in a staggered manner. On the other hand, had extra generation capacity been available or the demand been low, then the re-hab could have been taken up in hand within the year or so.

IPPs Thermal Power

KAPCO 1316 MW, HUBCO 1200 MW, KEL 100 MW, AES LALPIR 342 MW, AES PAKGEN 342 MW, SEPCOL 119 MW, HCPC 111 MW, FKPC 132 MW, ROUSCH 390 MW, SABA 125, JAPAN 65 MW, UCH 548 MW, ALTERN 28 MW, LIBERTY 200 MW, CHASNUPP 300 MW, JARGAN 30 MW, Malakand 74 MW, AGL 135 MW, Engro 217 MW, Atlas 214 MW, Saif 202 MW, Orient 204 MW, Nishat Power 200 MW and the total is 6594 MW.

KESC:

TPS Korangi 60 MW, GTPS Korangi 196 MW, GTPS SITE 88 MW, TPS Bin Qasim 1080 MW, RPPs 138 MW, CPPs 20 MW, IPP Gul Ahmad 125 MW, IPP Tapal 125 MW and KANUP 80 MW. KESC's Total generation capacity is 1812 MW. (Both TPS Korangi and the GTPS SITE are programmed to be mothballed).

We see that Naeem Tahir, in his article, quotes installed capacities which are totally different from the available limits because a chunk of MWs is lost in commissioning, some is needed to feed the auxiliaries, while a substantial capacity has been lost in de-rating etc. Decommissioning of old power station too is a norm. incidentally, the KESC has just last month requested NEPRA for allowing it to do so. Consequently, the power generating capacity of Pakistan, inclusive of all categories is 17,606 MW, and not 19,855 MW, as listed in the article.

Additionally, it is seen that utility practices cater for scheduled and forced outages of upto 16% of the capacity for IPPs (also substantiated in the relevant PPAs) and 20% for older Public Sector GENCOs. After catering for these outages, definitely required for maintenance purpose as no machine in the world can work day in and day out, we see that the maximum available power generation capacity in Pakistan is around 15,000 MW to 15,500 MW, which is far less in comparison to the current demand. And that too is dependent upon the vagaries of nature, because hydel generation can be as low as 683 MW, as was the case early this year, and an average of 5,600 MW during the high water months.

It is because of this, that a very ambitious programme of adding nearly 4,000 MW of new generation was prepared in late 2008 comprising of 9 IPPs totaling 1675 MW, 14 RPPs of 2250 MWs and GENCO rehab of 300 MW – all scheduled to be available within 2009. Terrorism and security issues, controversy around RPPs, belated RPP audit by the ADB (taking 5 months for the job and delivering the

report in late January 2010 only) led to the addition of only 437 MW during 2009. The situation for 2010 is of course much better. PEPCO has added a total of 1708 MW since March 2008 and would Inshallah add a hefty 2000 MW by December this year. The conservation campaign is going strong through the help received from the Provincial Governments and the people and which has led to the chipping of the peak demands by a hefty 1100 MW or so. The great discipline seen in load management after the Energy Summit of late April 2010 is ample testimony to the same. The near continuous availability of supply during the great floods being seen at the moment, although due to the clammy two big power generating complexes have been shut down as precautionary measures, also proves the above point. Actually, we are using all possible generation and not even one MW is idle. KESC, on the other hand, does save on fuel sometimes and then places undue pressure on PEPCO supplies.

In addition to the above numbers to be added by late this year, a huge short term, medium and long term power generation plan is under implementation and Inshallah the Country will come out of the energy crisis being faced. This will be a great feat, because our neighboring India facing 40,000 MW deficits, probably, is destined to remain in the negative for at least the next 10 years. We must also remember that the days of cheap energy are long gone and nor do anyone, including our Chinese friends who themselves are facing an energy crunch, can offer to supply us power at Rs.300/- per month. It is all rumor mongering and nothing else.

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VIEW: Where has all the power gone? —Naeem Tahir

Why are the existing power plants not made to work full swing? Is it true that the Chinese government has made offers to meet the national electricity requirement at Rs 300 per month?

There was some load shedding in 2007-08, but suddenly, after the new government took over, an acute shortage was discovered. Since then we have returned to a 'dark' age. It may be suggested that ex-president General Pervez Musharraf is responsible for it. The installed capacity in Pakistan is 19,855 MW, our current need is about 14,500 MW and even this is not being met. The shortage is 5,000 MW. What is the matter? We need to do a careful analysis.

Details of the installed capacity first. Electricity produced in Pakistan is from three main sources: 1) hydel, 2) thermal (gas/steam/furnace oil), and 3) nuclear. There are four major power producers in the country, which include the Water and Power Development Authority (WAPDA), Karachi Electric Supply Company (KESC), independent power producers (IPPs) and Pakistan Atomic Energy Commission (PAEC). Below is the break-up of the installed capacity of each of these power producers (as of June 2008).

1) WAPDA:

a) Hydel power capacity: Tarbela 3,478 MW, Mangla 1,000 MW, Ghazi-Barotha 1,450 MW, Warsak 243 MW, Chashma 184 MW, Dargai 20 MW, Rasul 22 MW, Shadi-Waal 18 MW, NandiPur 14 MW, Kurram Garhi 4 MW, Renala 1 MW, Chitral 1 MW, Jagran (AK) 30 MW. Net hydel production by WAPDA comes to 6,461 MW. Hydel electricity generated by WAPDA varies between two extremities, i.e. between minimum of 2,414 MW and maximum of 6,761 MW, depending upon the river flows through the whole year.

b) Thermal power capacity: Gas Turbine Power Station Shadra 59 MW, Steam Power Station Faisalabad 132 MW, Gas Turbine Power Station Faisalabad 244 MW, Gas Power Station Multan 195 MW, Thermal Power Station Muzaffargarh 1,350 MW, Thermal Power Station Guddu 1,655 MW, Gas Turbine Power Station Kotri 174 MW, Thermal Power Station Jamshoro 850 MW, Thermal Power Station Larkana 150 MW, Thermal Power Station Quetta 35 MW, Gas Turbine Power Station Panjgur 39 MW, Thermal Power Station Pasni 17 MW. The net installed thermal capacity of WAPDA comes to about 4,811 MW.

WAPDA's combined hydel and thermal capacity is 11,272 MW.

2) KESC thermal power capacity: Thermal Power Station Korangi 316 MW, Gas Turbine Power Station Korangi 80 MW, Gas Turbine Power Station SITE 100 MW, Thermal Power Station Bin Qasim 1260 MW. KESC's total installed capacity: 1,756 MW.

3) IPPs thermal power capacity: Hub Power Project 1,292 MW, AES Lalpir Ltd Mahmood Kot Muzaffargarh 362 MW, AES Pak Gen Mahmood Kot Muzaffargarh 365 MW, Altern Energy Ltd Attock 29 MW, Fauji KabirWala Power Company Khanewal 157 MW, Gul Ahmad Energy Ltd Korangi 136 MW, Habibullah Coastal Power Ltd 140 MW, Japan Power Generation Lahore 120 MW, Kohinoor Energy Ltd Lahore 131 MW, Liberty Power Limited Ghotki 232 MW, Rousch Power Khanewal 412 MW, Saba Power Company Sheikhpura 114 MW, Southern Electric Power Company Ltd Raiwind 135 MW, Tapal Energy Limited

Karachi 126 MW, Uch Power Ltd Dera Murad Jamali Nasirabad 586 MW, Attock Gen Ltd Morgah Rawalpindi 165 MW, Atlas Power Sheikhupura 225 MW, Engro Energy Ltd Karachi 217 MW, Kot Addu Power Company Limited 1,638 MW. IPPs' total installed capacity: 6,365 MW.

4) PAEC's nuclear power capacity: KANUPP 137 MW, CHASNUPP-1 325 MW. PAEC's total capacity: 462 MW.

The total power generation capacity of Pakistan (including all sources) is 19,855 MW and the electricity demand as of April 20, 2010 is 14,500 MW and all these producers put together are merely generating 10,000 MW.

The inconvenience caused to the domestic sector by the power shortage is immense. The loss of business and revenue is devastating. This is a crisis people have protested against repeatedly. The short cut that the government has found to get out of one crisis is to let another crisis happen — price hikes that are nerve shattering; target killings that destroy peace; food shortages raising the spectre of starvation; general economic meltdown, and so on. The democratic governments of today have used diversionary tactics fairly successfully, but they have failed in solving the people's problems. This is a serious matter if the country is to be given decent governance. Sooner rather than later, these issues will need to be resolved and the key to many of these issues is electricity.

Looking back, one remembers the promise that the power crisis will be over by the end of 2009. The promise was false. Then we heard of solutions like rental power projects. Instead, why are the existing power plants not made to work full swing? Is it true that the Chinese government has made offers to meet the national electricity requirement at Rs 300 per month?

Ex-prime minister Shaukat Aziz must be asked why he did not add to the sources of power production, and why did the proposed dams get damned. Probably they will have some explanations. But what is the explanation for not utilising what we already have? Will somebody, some politician, some civil servant, or some technocrat, please tell us? We may be just worth a piece of paper called a 'vote' once in five years, but still please be magnanimous and tell us: where has all the power gone?

Naeem Tahir is a culture and media management specialist, a researcher, author, director and actor