



# Fact Sheet

## Pakistan's vast hydropower pipeline at risk of not being materialized

Pakistan's future energy security under jeopardy

**A favorable policy environment and an entrenched association of hydropower with nationalistic pride have led to a highly ambitious hydropower pipeline.**

- According to the latest iteration of the country's long-term energy plan almost 14 GW of hydropower capacity is supposed to come online by 2030.
- Together with the 9.9 GW of existing hydropower capacity, hydropower generation will be responsible for 46% of the total power generated in Pakistan.

The current hydropower pipeline has vast support from the government and MDBs, yet has already been riddled with significant delays and cost overruns.



**Only 51% of the pipeline capacity has achieved financial closure and only 39% has begun physical construction as of September 2022.**

**Haneeza Isaad**



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## Facts about Pakistan's Hydropower Pipeline

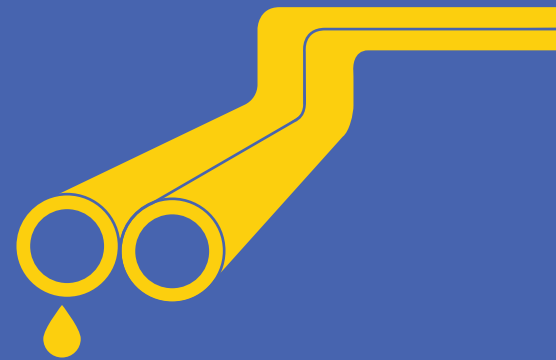
### Almost 81%

of the capacity comprises of large dams or 'run of the river' projects with a dam component



### Ownership of 9.1 GW (68%)

of the pipeline capacity lies with the government while the remainder have been planned in Independent Power Producer (IPP) mode



### A 5.2 GW (37%)

out of the 14 GW will be financed through MDB support

### Almost 9.9 GW (70%)

of the pipeline requires partial or complete funding by either WAPDA or provincial government bodies in KP, AJ&K and Gilgit Baltistan

The total hydropower pipeline is valued at

**USD 31.2 billion** at present



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# Three key risks of Pakistan's hydropower pipeline

## Risk 1:

Cost and schedule over runs are a normal occurrence for large dams, putting a huge economic burden on the national exchequer, higher costs of debt financing, and non-provision of project benefits.

Delays in pipeline realization will most likely lead to power outages and load shedding in the country and prompt a switch back to fossil-fuel based power to bridge the gap.

**Only 15%**

of the **planned capacity** to come online in time according to IEEFA estimates

The total cost of Pakistan's hydropower pipeline could go up from **USD 31 billion at present to**

**USD 49-61 billion**

**Hydropower is not cheap;**

the levelized tariffs awarded to new hydropower projects in Pakistan range from 4-10 usc/KWh

**Cost of generation on domestic gas** has an average value of

8.5 usc/KWh and solar and wind is 4 usc/KWh



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### Risk 2:

Pakistan and the government's hydropower development wing Water and Power Development Authority (WAPDA) were recently downgraded by all three prominent credit ratings agency- Moody's, Fitch and S&P. This hinders the governments' ability to raise capital for these projects, which could further delay project implementation cycles.

The Pakistani rupee has  
**lost 30% of its value**  
so far in 2022

**Inflation is at 47-year high**  
i.e. 27.26% due to recent floods  
and high food prices

**Pakistan's economic outlook remains weak**  
according to the IMF. It will be hard for the country to maintain liquidity to fund the 14 GW pipeline amidst record inflation and rising commodity prices.



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### Risk 3:

The hydropower pipeline is becoming increasingly vulnerable to extreme weather conditions and climate change. An early onset of summers and drought conditions could limit water availability in large dams for power generation.

**China:** A record breaking drought hit Southwest China in July, causing many rivers including the mighty Yangtze to dry up. Sichuan province which relies 80% on hydropower for its energy needs was hit the hardest, as water levels to reservoirs located within the region dropped by half

**France:** France received a rainfall deficit of about 84% in the month of July as lakes and river stocks dropped to a 20 year low. In the Rhone Valley, the Alps and the Cote d'Azur region, responsible for more than 70% of France's hydropower capacity, hydroelectric power capacity fell by 60% since the beginning of this year.

**Norway:** In Norway, where 90% of the power comes from hydropower, reservoir levels are below 50% which will not only affect availability of power within the country but will also hamper exports to UK.

**Pakistan:** Pakistan too experienced an early onset of summers this year, leading to a record breaking heat wave with temperatures exceeding 40 degrees for over two months. Due to the high temperatures and no rainfall, water capacity levels fell for all major reservoirs, Tarbela, Mangla and Chashma in Pakistan.



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### Recommendations:

Instead of mega projects such as large dams, Pakistan's focus instead should be building agile and modular sources of power generation.

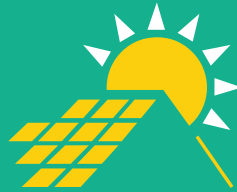
Solar and wind power, or even small hydro, can be quickly built for distributed generation to wide portions of demand, and add flexibility to the grid.

New priorities should include:



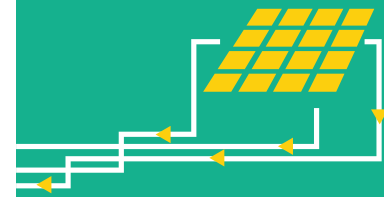
1.

Install Floating solar on existing hydropower reservoirs and canals



2.

Incentivize Private Rooftop Solar Solutions



3.

Divert funds towards upgradation and modernization of grid infrastructure (e.g. smart grid technologies and a higher evacuation capacity for renewables)