HEAT AND DEBT

Steering El Nino Transition And Financial Crisis Of IPPs

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The Bangladesh power sector may face unprecedented climatic stress amid existing deep-seated financial instability due to probable global climate shifts from a weakening La Nina to a projected El Nino in mid-2026. This article explores the connection of the El Nino-Southern Oscillation (ENSO) cycle with the operational and financial outline of Independent Power Producers (IPPs). By studying the 'heat penalty' due to El Nino effect on generation efficiency alongside the growing liquidity crisis and the debatable claim of Liquidated Damages (LD), this paper proposes a policy-oriented proposition for 'LD Moratorium' and instant liquidity injections with cash infusion. The primary goal is to maintain grid resilience during the summer 2026 peak, when demand is projected to exceed 18,500 MW. Simultaneously, the energy sector needs to steer during the changeover that risks technology, technical infrastructure, and the contractual reliability of providers.

1. Introduction: Sensing Climate Shift and A Season with Extreme Heat Wave

The year 2026 marks a critical moment for the power landscape of Bangladesh. For the last few years, La Nina (the 'Little Girl') has mostly dictated global weather patterns. It used to propagate cooler waters to the central Pacific and thereby influenced the South Asian monsoon. The meteorologists worldwide are following this phenomenon and sensing a rapid transition, as of March 2026; ultimately, the world is moving towards ENSO (El Nino-Southern Oscillation) neutral conditions. This condition directs a high probability of an El Nino (the 'Little Boy') establishing itself by the peak summer months of April-June 2026 through August/September 2026.

The weather pattern shift towards El Nino in 2026 is not merely academic for Bangladesh, sitting at the heart of the deltaic plain. El Nino typically brings suppressed rainfall and significantly higher temperatures with tangible changes in temperature, humidity, and rainfall. Coincidentally, this climatic shift arrives at a time when the Bangladesh power sector is already grappling with a severe financial crisis burdened by debt, fuel shortages, and rigid contractual obligations.

2. Climatic Drivers in Brief for Bangladesh: El Nino versus La Nina

- The ENSO is a cycle of warming and cooling in the tropical Pacific Ocean.
- La Nina involves the cooling of the Pacific Ocean surface temperatures. It results in an intense monsoon and

relatively manageable temperatures during summer in Bangladesh.

El Nino weakens the trade winds that normally push warm water towards Asia. This phase is frequently a drought-like condition with intense heat waves for the Indian subcontinent.

The World Meteorological Organization (WMO) suggests a 62% probability of El Nino emergence by mid-2026, after a comprehensive analysis of the data. The Bangladesh Meteorological Department (BMD) has already issued warnings for multiple severe heat waves during these months. The temperatures are expected to hover between 40.0°C and 41.9°C, and the coming summer will not be 'business as usual'.

Figure 1: Monsoon Precipitation Outlook (June-August 2026) - Implications for Bangladesh

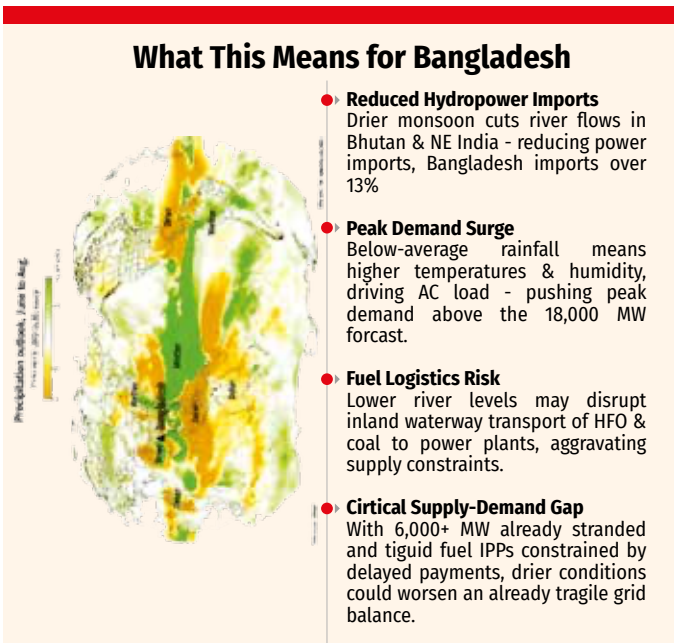

Table 1: Impact of ENSO Phases on Bangladesh During Summer 2026

Projected Effects	El Nino (Summer 2026)	La Nina (Previous Cycle)
Primary Risk	Extreme Heat Waves and Drought	Flash Floods and Monsoon Disruptions
Rainfall	Significant Deficit (Pre-monsoon)	Excess Rainfall
Solar Efficiency	Lower Due to Heat Penalty	Higher (Lower Ambient Temperature)
Hydro Power	Low (Reservoir Depletion)	High (Reservoir Saturation)
Operation Strategy	Focus on Fuel and Capacity Reserves	Focus on Infrastructure Protection

3. The Power Plant Fatigue: 'Heat Penalty' on Power Generation

Extreme heat has physical impacts on the efficiency of power plants. This is often referred to as 'derating' of the energy sector.

3.1 Thermal Power Plants

Bangladesh's grid relies on natural gas, coal, and Heavy Fuel Oil (HFO). These thermal plants require cool air for combustion and cooling systems. As ambient air temperatures rise to 40°C or higher, the air becomes less dense. This means gas turbines cannot pull in the mass of air required for optimal combustion. Historically, a 10°C rise above standard ISO conditions can lead to a 5% to 7% drop in a plant's effective output.

3.2 The Inconsistency of Solar Energy

Bangladesh has made significant steps in 'Agri-PV' and floating solar projects. When El Nino brings clearer skies and more sunlight, it also propagates excessive heat. Solar photovoltaic (PV) cells are semiconductors and become less efficient as they get hotter. Once a solar cell's temperature exceeds 25°C, its voltage drops. Due to this 'heat penalty', solar panels may lose over 10% of their rated capacity during a severe Bangladesh heat wave. Therefore, the panels will underperform due to the sheer intensity of the ambient heat, exactly when the sun is brightest.

3.3 Hydroelectricity and Water Scarcity: Reduction of 'Head'

The Kaptai Hydro Power Plant is the only source of low-cost energy. However, El Nino typically reduces the rainfall necessary to keep the 'reservoir head' high. The 'head' of water available for power generation will drop if, presumably, the pre-monsoon rains fail in April and May 2026. This compels the National Load Dispatch Centre (NLDC) to shift the load to more expensive liquid-fuel IPPs, and thereby increases the overall cost of generation for the Bangladesh Power Development Board (BPDB).

4. The Financial Strain: 'Take-or-Pay' and the Liquidity Gap

Verily, the use of cooling fans and air conditioners increases when the temperature rises. In 2026, peak demand is projected to cross the 18,500 MW mark. This creates a massive financial burden on the BPDB compared to the previous year.

4.1 The Burden of Capacity Payments

The government needs to pay IPPs for their 'availability', under the 'Take-or-Pay' model. During El Nino heat wave, the grid cannot afford for any plant to be offline. Consequently, the BPDB must ensure that almost all contracted plants are ready to generate at a moment's notice. This leads to a surge in Capacity Payments. These payments are, as per the Power Purchase Agreement (PPA), essential for the investment security of the IPPs. Ultimately, these bring an immense strain on the national budget during periods of high fuel prices.

4.2 The Reality of 'Artificial Defaults'

The most pressing issue for the power sector in 2026 is not the heat itself, but the liquidity crisis. As of today, the BPDB owes IPPs approximately BDT 250 billion. The payment is already delayed by 08 to 10 months, and thereby, IPPs lose their ability to open Letters of Credit (LCs) to import fuel (HFO or Coal). Here, a plant cannot run because it has no fuel, and it has no fuel because the Government has not paid the bills. This is known as an 'Artificial Default'. The plant is technically available and functional, but it lacks the fuel to operate.

The situation might even be complicated by looking at the role of the NLDC. IPPs are worried about how the BPDB issues instructions to NLDC. When the plants are already struggling to buy HFO due to not being paid, the BPDB may issue dispatch instructions anyway. Industry experts note this as 'imaginary demand'. The goal of these orders could be to trigger Liquidated Damages (LD) penalties against the IPPs. And it is unfair, if it is true. This seems to be using the IPPs' financial struggles to artificially lower their own debts. Such actions lead against the 'Take-or-Pay' model and make it much harder for power projects' bankability to stay financially viable.

Table 2: ENSO Changeover and Power Sector Vulnerability During Summer 2026

Climate Feature	ENSO Phase During 2026	Effect on Grid Stability
Peak Demand	High (Cooling Load)	Projected >18,500 MW, Grid Strain is Critical
Fuel Supply	LNG/Coal/HFO Dependency	High Spot Price, Logistics Risks
Plant State	Heat-induced Derating	5-10% Generation Loss
Financials	High-capacity Payments	Increase BPDB Debt, Liquidity Crisis

Table 3: Comparative Power Generation Demand - Forecast of Summer 2025 Versus Summer 2026

The statistics are integrated based on recent BPDB projections and actual generation reports for the 2025-2026 cycle.

Period	Summer 2025- Average Peak Demand (MW)	Summer 2026- Projected Average Peak Demand (MW)	Average Increase (MW)	% Increase
Peak Hours (Evening)	16,477	18,500	2,023	12.3%
Off-peak Hours (Day)	14,000	15,500	1,500	10.7%

The summer 2025 baseline represents the highest recorded generation during the last dry season. The summer 2026 forecast accounts for the coinciding of the El Nino heatwaves.

Table 4: Seasonal Generation Change- Recent Winter Versus Coming Summer 2026)

Period	Winter (January 2026)- Average Generation (MW)	Summer (April-June 2026)- Projected Average Generation (MW)	Seasonal Variation (MW)
Peak Hours (Evening)	11,608	18,500	+6,892
Off-peak Hours (Day)	9,800	15,500	+5,700

The electricity-generation jump of nearly 6,900 MW between winter and summer is primarily driven by the massive irrigation load (estimated at 5,000 MW alone) and the high domestic cooling load required due to the El Nino transition.

5. The Legal Conflict: LD

The most contentious issue currently facing the IPPs is the deduction of LD.

5.1 The Penalty Disputes

The root of the legal dispute lies in the imposition of LD by the BPDB during periods of forced outages. As per PPA, the BPDB deducts money as a penalty (LD) if a plant fails to provide power when called upon. However, from a legal point of view, this brings Section 13.2(j) of the standard PPA into sharp attention. This clause entails that if the BPDB fails to settle undisputed invoices within a specific grace period, the producer's contractual obligation to deliver dependable capacity (power) is effectively suspended. Such a period of suspension, necessitated by the buyer's (i.e., BPDB) default, the law advocates that the producer should remain entitled to Capacity Payments without being penalized by LD deductions.

5.2 The 2026 Standoff

Despite clear directives from the Bangladesh Energy Regulatory Commission (BERC) and various legal observations, the BPDB has continued to deduct LDs from IPP invoices. These deductions are the difference between staying solvent and going bankrupt for many producers. In the context of an El Nino summer, where equipment stress is high and fuel costs are peaking, these penalties could cripple the private power sector.

6. Fusion of Systemic Crisis: Facing 'Power Nor-wester' (April-September 2026)

The upcoming situation (April-June 2026 through August/ September 2026), combining three factors, i.e., El Nino heat, Efficiency Derating, and Financial Liquidity, leads to a dangerous trend (could be termed as 'Power Nor-wester' 2026):

- Extreme heat increases the demand for electricity vis-a-vis decreases plant efficiency.
- Decreased efficiency requires more fuel to produce the same amount of power.

- Liquidity shortages make it impossible for IPPs to buy that extra fuel.
- Grid failure or load shedding occurs, leading the BPDB to penalize IPPs with LD penalties.

This cycle is unsustainable. It secures the private sector due to the financial crisis that it did not create, while the climate makes the operational environment more hostile every day. Taking into cognizance, the following table illustrates 'dangerous trends', where environmental, technical, and financial factors unite to create a systemic crisis for the power sector.

Table 5: Systemic Crisis of 'Power Nor-wester 2026'

Issues	Factors	Impacts	Remarks
Trigger	Extreme Heat (El Nino)	Increases national power demand and simultaneously decreases plant efficiency	Primary Catalyst
Technical	Efficiency Derating	Thermal plants lose performance, require more fuel to produce the same amount of power	Efficiency Gap
Financial	Liquidity Shortages	IPPs lack cash flow to purchase extra fuel required by derated plants	Resource Bottleneck
Operational	Grid Failure	Inability to sustain generation leads to widespread load shedding	Systemic Instability
Regulatory	Penalties by BPDB	Failure to supply power results in LD penalties	Financial Penalization

7. Recommendations for 2026

To navigate the coming months, the Government and IPP stakeholders must steer towards a concerted and inclusive survival strategy.

- Immediate Liquidity Injection with Cash Infusion: The BPDB, with close coordination with the Ministry of Finance, must prioritize the release of outstanding dues to IPPs. Without cash flow, the 'fuel chain' will break long before the heat wave ends.
- LD Moratorium: The Government should implement a moratorium on LD for outages directly linked to payment delays or extreme temperature derating, for the duration of the 2026 El Nino peak (April-August 2026).
- Technical Benchmarking: Plants should be allowed to reassess and adjust their 'Declared Capacity' based on ambient temperature. Expecting a turbine to hit its ISO-rated capacity at over 40°C is a physical impossibility and should not be a plea for financial penalties.
- Focusing on Energy Security: The focus must shift from 'punishing' IPPs to 'securing' the supply of electricity. This includes streamlining LC processes for fuel imports and ensuring that coal, HFO, and LNG stocks are buffered before the peak heat arrives in April/June 2026.

8. Conclusion: A Call for Resilience

The El Nino of 2026 is an environmental reality that cannot be altered. However, the financial and legal framework of the power sector is something that should be controlled. IPPs are being proven for their ability to build an efficient power generation infrastructure in record time. Now, it needs an inclusive coordinated effort to prove that all stakeholders are capable of managing a sustained power generation capacity through a time of crisis.

By recognizing the physical limits of technology in extreme heat and the financial limits of IPPs due to payment delays, the Government can prevent a total energy collapse. The goal for this summer 2026 should be simple: keep the lights on, keep the fans spinning, keep the industry functioning, keep the productivity continuing, and ensure that the plants providing power remain financially viable to fight the heat of another day.

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