



Nepal Power
Sector
Financial
Analysis and
Viability
Action Plan

Rationale for financial viability of NEA

Why is financial viability of NEA important

Economic Importance

With immense hydro potential of 42,000 MW, NEA is a determining factor for the economy of country

Annual revenue of NEA forms ~6% of country's GDP, & industry forms around 13% of GDP

Source: NEA annual report and World Economic Forum

Electricity Access & Availability

NEA's financial viability would ensure improved energy access and availability of electricity

Industrial production grew by 9.7% in FY17, up from a -8.0% in FY2016 driven by higher power availability

Source: NEA annual report and World Economic Forum

Private Investment

NEA's financial sustainability would improve risk appetite of private investors which has multi-pronged benefits going forward for the country

Government spending is increasing at ~33% y-o-y while revenue at just ~26%

Source: Nepal Development Update Sep 17, World Bank

Social Impact

Financial performance of NEA has a direct impact on consumer tariffs and Government subsidy

Consumers falling in the highest tariff slab, are spending 9% of their household expenditure on electricity

Source: Nepal Household Survey 2016; assuming income household expenditure of top 20 percentile households and 400 units monthly consumption

Regulatory

Establishment of Independent Electricity Regulator, will lead to increased performance scrutiny of NEA

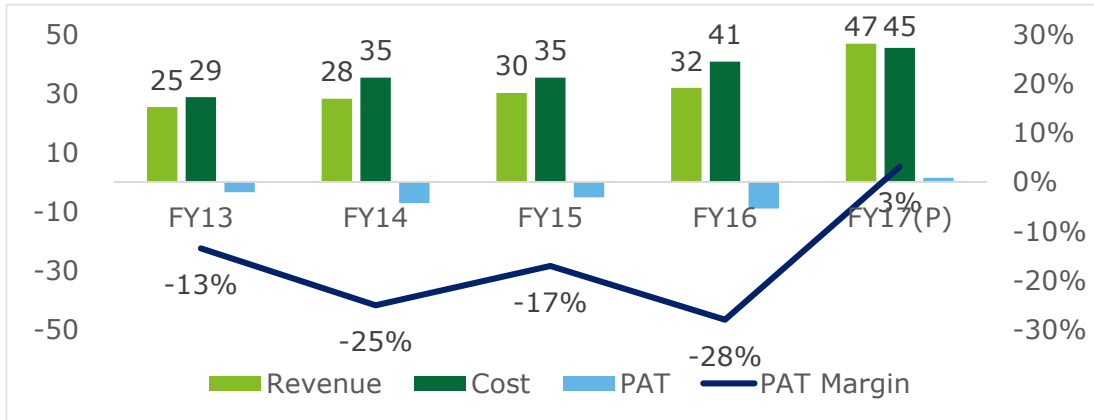
Regulator would apply performance standards on NEA to ensure public good and allow only reasonable costs in tariffs

NEA is a key driver for the economy and society of the country

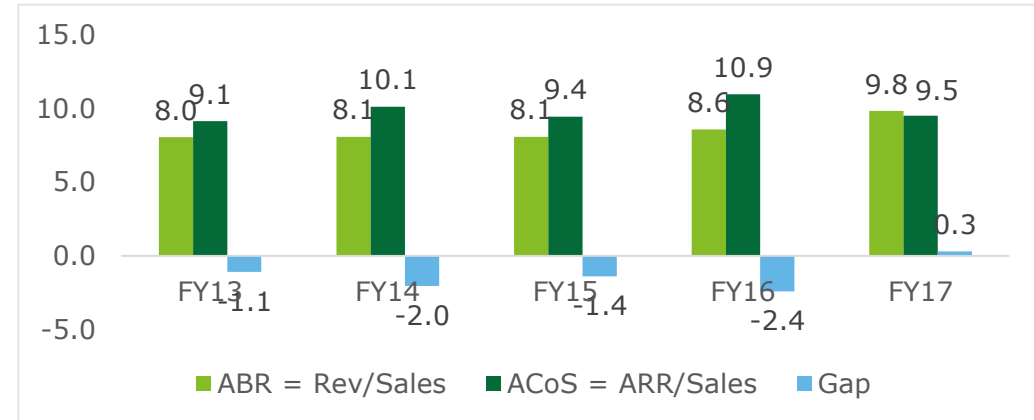
Past performance review of NEA

While historically NEA made operational losses, NEA posted operational profit with a positive 3% PAT margin in FY17 majorly due to tariff revision

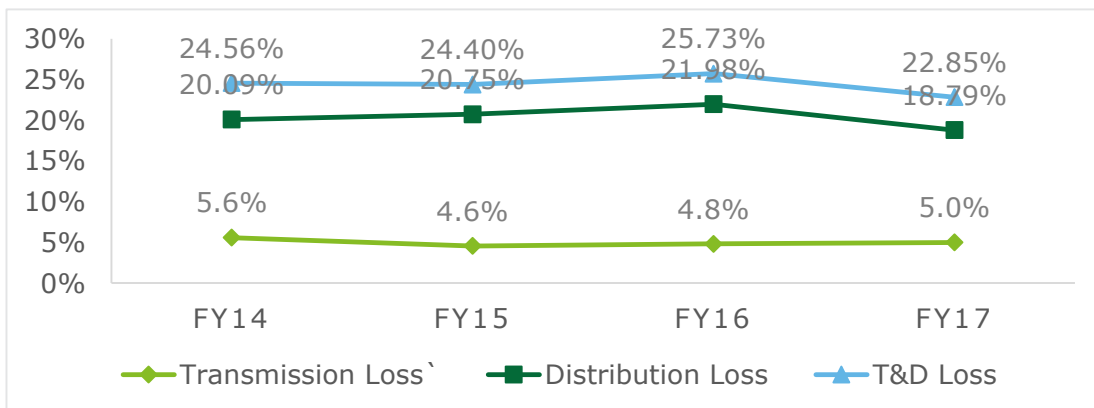
Revenue (Bn NR) and PAT Margin



Per unit sales and cost (NR/kWh)



T&D Loss (%)

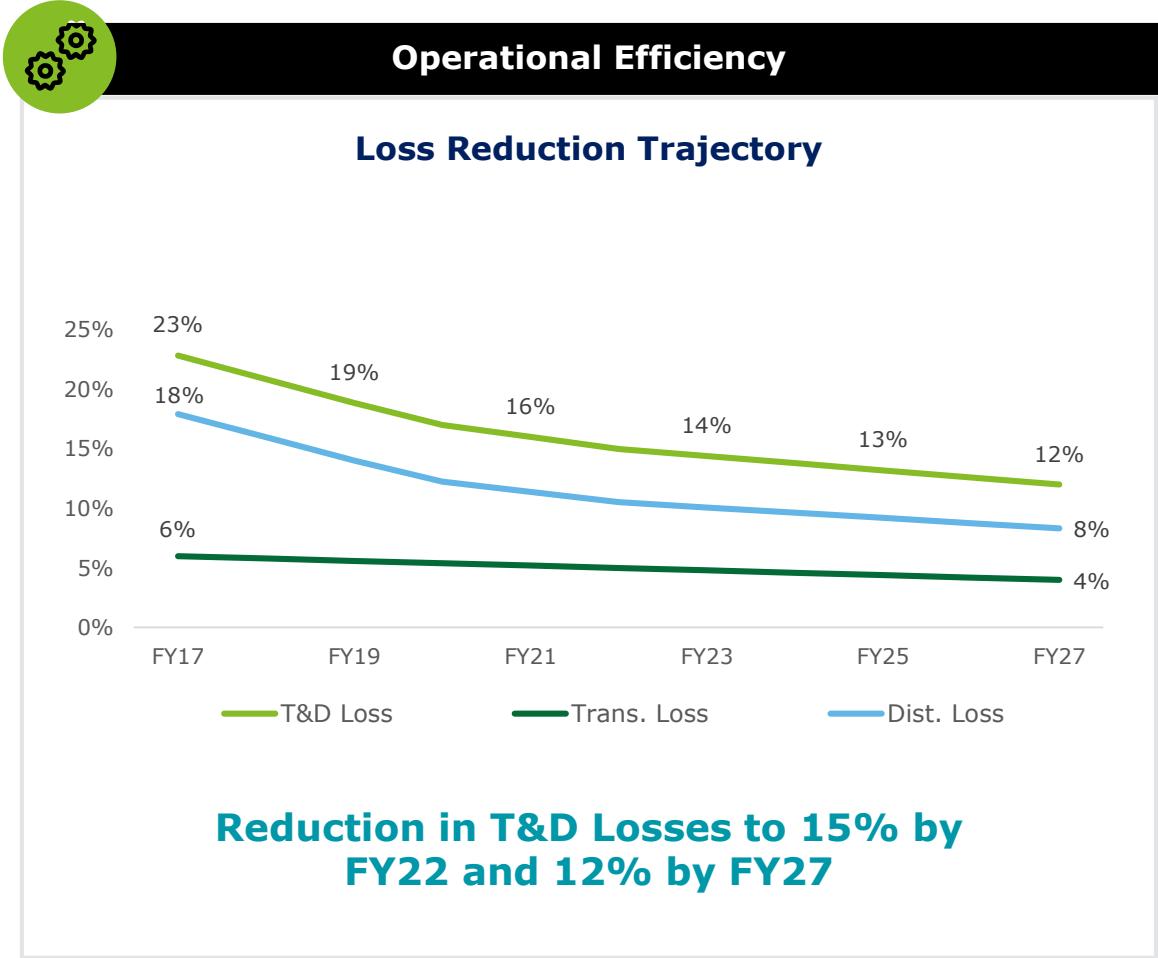
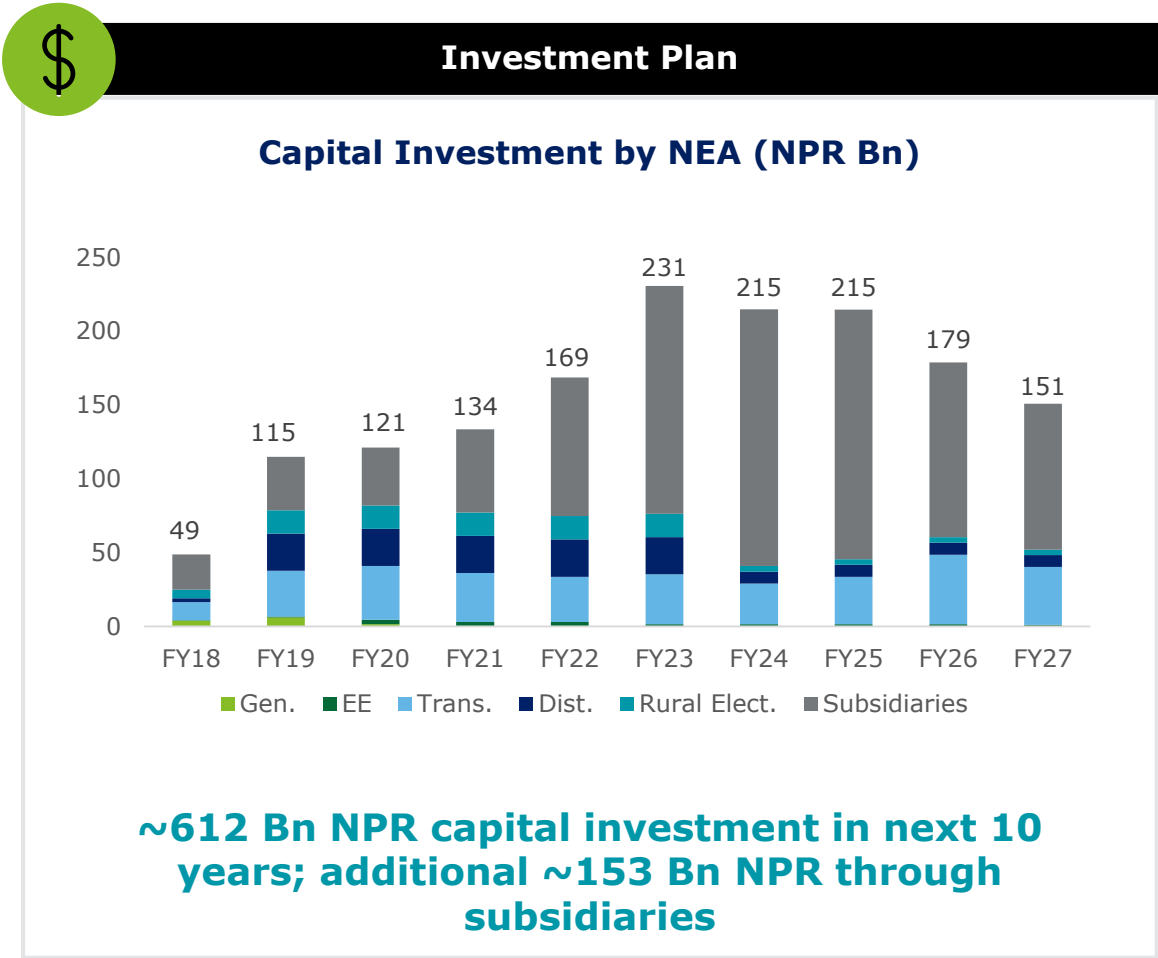


Key Observations

- NEA suffered financial losses from FY13 to FY16 due to non cost reflective tariffs, but NEA posted operational profit in FY17
- The Average Billing Rate (ABR) increased by ~14% in FY17 due to tariff revision and also ACoS reduced by 13% in FY17 due to factors such as reduction in system losses by 2.88%, reduction in interest expenses, etc.

Determinants of NEA's financial viability

Key Drivers that will be impacting the future financial viability



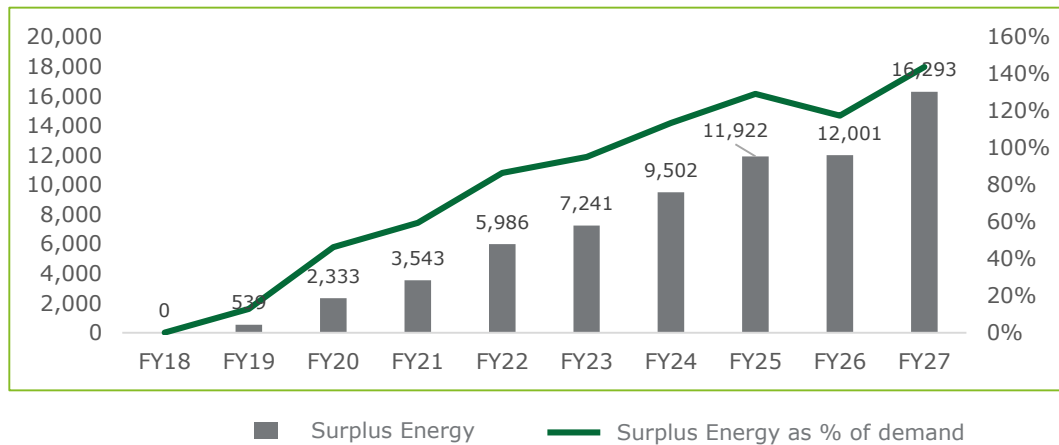
Determinants of NEA's financial viability

Key Drivers that will be impacting the future financial viability

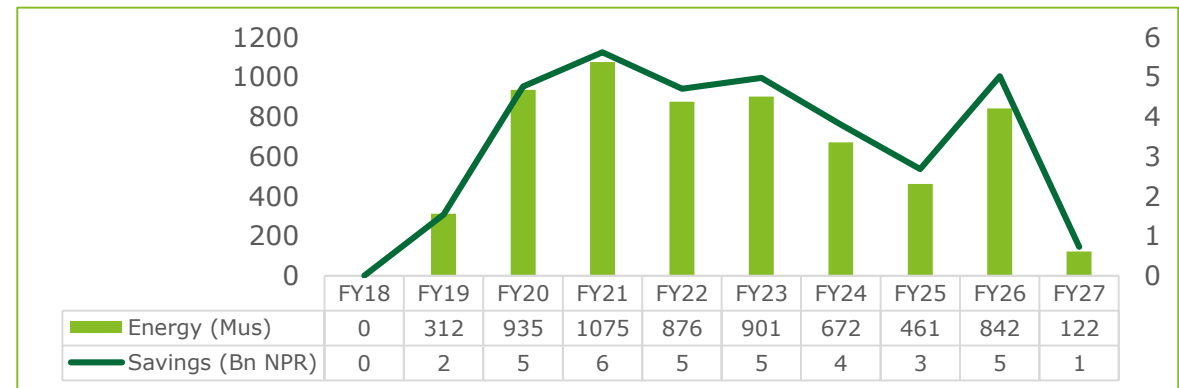


Surplus energy management

Surplus Energy Available – Wet Season



Energy available for banking and the potential savings



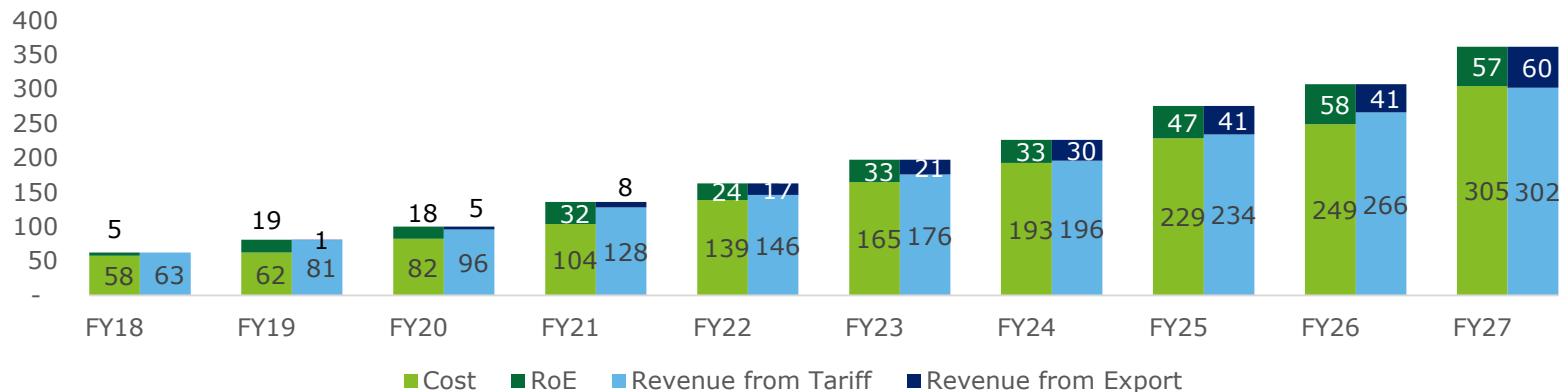
Due to varying generation profile and peak and off-peak demand, sufficient quantum of energy would be available for export/ banking

NEA could save upto 34 Bn NPR over 10 years through banking and can generate additional revenue of 223 Bn NPR over next 10 years by selling 50% of remaining surplus power

Projected Revenue and Cost for NEA

Tariff hike required by NEA can be smoothed by providing an increase in tariff of 14% every 2nd year till FY22 and then 10% every 2nd year till FY25

Revenue and Cost Structure (Bn NPR)



Scenario Analysis on Tariff Adjustment

Scenarios	Y-o-Y Tariff Increase (%)										VGF (Bn NPR)
	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	
Base Case (Export@50% + Banking)	0%	14%	0%	14%	0%	10%	0%	10%	0%	0%	0
Scenario 1 (Export@50% + Banking)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	385
Scenario 2 (Export@50% + Banking)	0%	7%	7%	7%	7%	7%	7%	7%	0%	0%	0
Scenario 3 (Export @75% + Banking)	0%	12%	0%	8%	0%	8%	0%	6%	0%	0%	0
Scenario 4 (Export @90% + Banking)	0%	10%	0%	8%	0%	6%	0%	6%	0%	0%	0
Scenario 5 (No Export + Banking)	0%	10%	10%	10%	9%	9%	9%	9%	0%	0%	0
Scenario 6 (No Export and No banking)	0%	12%	12%	10%	10%	7%	7%	7%	0%	0%	0

Tariff and VGF – the two levers of financial sustainability

- A 14% increase in tariff every 2nd year till FY22 and 10% increase in tariff every 2nd year till FY25 would be adequate to cover all costs and earn NEA a 6% y-o-y RoA
- VGF requirement of 385 Bn NPR (3.70 Bn USD) would be required over next 10 years, if there is no tariff increase assumed for the next 10 years
- A minimum hike of 14% in FY19 would be required to ensure no dependency on government funding for revenue/ capex support
- In case there is a increase in exports quantum of the surplus power to India, a lesser increase in tariff will be required.

Action Items

Cost Optimization

Action Plan	Rationale	Likely Impact
1 Explore possibility of restructuring / rationalizing tariff signed between Hydro IPPs and NEA	A levelised tariff for 10/ 12 years and then a reduced profile for the remaining project life would be useful possibility to explore	There could be a marginal increase in upfront tariff leading to higher initial subsidy support from GoN, but it assures future financial sustainability
2 Developing a robust foreign exchange management mechanism to cover exchange risks	Setting up a separate fund by NEA/ or having a corporate level hedging policy, to cover for all foreign exchange risks would therefore be of essence to avoid currency shocks and financial pitfalls.	Reduced foreign exchange risks and subsidy requirements
3 Aggressive T&D loss and sticking to targets	Operational efficiency improvement would have significant impact in NEA's financial sustainability as any improvement would add directly to profitability and revenue enhancement	Any lack / delay in achieving the targeted T&D loss reduction (by 2% in first 5 years) would reduce profit by NPR 34 Bn over next 10 years

Action Items

Cost Optimization

Action Plan	Rationale	Likely Impact
<p>4</p> <p>Developing a plan to optimize generation cost for the Nepal Power Sector</p>	<p>Surplus energy would be more than 50% of energy demand in Nepal after FY22. A Least cost generation plan/ generation master plan would also provide guidance to investor community to put up new projects</p>	<p>Reduced capital investments/ sunk cost would lead to reduced power procurement cost and requirement for revenue subsidy</p>
<p>5</p> <p>Explore possibility of competitive purchase of hydropower energy within the current policy framework</p>	<p>It is likely, that the cost of power procurement would reduce if projects are developed on competitive basis. Since it is envisaged that there will be surplus power available in future years, NEA may explore the possibility of procuring power competitively from the IPPs.</p>	<p>A Reduction in IPP tariff by 20% would improve profits by 80 Bn NPR, over next 10 years</p>
<p>6</p> <p>VGF Support from Government of Nepal in absence of competitive procurement policy</p>	<p>In absence of any competitive procurement policy, there is a 100% offtake guarantee provided by NEA to all IPPs leading to surplus power being available with NEA to be traded successfully. In absence of such trades possible, NEA would incur losses</p>	<p>Compensation by GoN in form of grant or VGF, in case there is a spillage of energy and NEA unable to recover cost of power procurement, would ensure financial viability for NEA</p>

Action Items

Revenue Optimization

Action Plan	Rationale	Likely Impact
<p>1 Ensuring steady dividend income from subsidiary companies equivalent to the level of expected return on equity</p>	<p>Investment in a project/ company is valued as dividend income + capital gains. Usually dividend distribution rates are substantially lower than return on equity (RoE) rates leading to accumulation of profits at subsidiary end.</p>	<p>Dividend income year on year should be equal to expected return on equity to avoid deferred income through means of capital gains at time of liquidation</p>
<p>2 Strengthening the Electricity Trading Department for power import/export</p>	<p>Export of surplus power can generate additional revenue, reducing the requirement of tariff hike or subsidy from GoN. Regional coordination in terms of trading of electricity, banking of power, etc. could greatly reduce the needs of new capital investments</p>	<p>Increase in export of power from 50% to 90% of surplus would lead to increase in profit by NPR 134 Bn.</p>
<p>3 Dedicated Corporate Planning Wing to carry forward the analysis</p>	<p>The FVAP is an important tool for developing corporate strategy and the analysis needs to be carried forward on an ongoing basis Business plan provided by NEA would be considered for tariff estimation</p>	<p>Negotiations with FIs will become easier. NEA management would be able to arrive at strategic decisions</p>

Action Items

Other necessary measures from long term perspective

Action Plan	Rationale	Likely Impact
4 Waiving of past liabilities	Past cumulative losses (~28 Bn NPR), sitting on balance sheet, would affect investor/ borrower perspective Improves the future financial ratios of NEA	NEA would be able to secure commercial loan from financial institutions at cheaper interest rates as it increases the credibility of NEA.
5 Establishment of the Transmission function as a separate state owned entity / company	With sizeable investments being projected in the transmission sector, it is recommended to corporatize transmission business of NEA going forward.	Independent transmission is required for enabling electricity competition and market operations. Creates the bedrock for private participation across the value chain
6 Adoption of Energy Efficiency measures	Adoption of EE measures can assist in flattening of load curve, which would in-turn reduce peak power requirement	Reduced load shedding during evening hours and reduced power procurement cost



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