Detailed Economic Justification and Future-Proofing the Boiling House

Capacity Expansion and Operational Days

• Current Capacity: 7000 TCD

• Expanded Capacity: 8000 TCD

• Operational Days: 120 days

• Total Sugarcane Processed Annually (Current): 7000 TCD \* 120 days = 840,000 tons

• Total Sugarcane Processed Annually (Expanded): 8000 TCD \* 120 days = 960,000 tons

• Increase in Annual Processing: 960,000 tons - 840,000 tons = 120,000 tons

Steam Consumption Reduction

• Current Steam Consumption: 45%

• Upgraded Steam Consumption: 33%

• Steam Savings: 45% - 33% = 12%

Bagasse Utilization for Steam Production

• Current Steam Production from Bagasse:

• Total Steam Used Currently: 45% of 7000 TCD = 3150 TCD

• Bagasse Needed for Current Steam: 3150 TCD / 2 = 1575 tons/day

• Upgraded Steam Production from Bagasse:

• Total Steam Used Post Upgrade: 33% of 8000 TCD = 2640 TCD

• Bagasse Needed for Upgraded Steam: 2640 TCD / 2 = 1320 tons/day

• Daily Bagasse Savings: 1575 tons - 1320 tons = 255 tons/day

• Annual Bagasse Savings: 255 tons/day \* 120 days = 30,600 tons/year

Financial Impact

1. Opportunity Cost of Bagasse Savings:

• Bagasse Saved Annually: 30,600 tons/year

• Value of Saved Bagasse (at INR 2000/ton): 30,600 tons \* INR 2000 = INR 61,200,000

Reason for 10,000 TCD Expandability of Boiling House

1. Excellent Growth of Sugarcane Farming in the Area:

• Increased Sugarcane Availability:

• The region has seen significant growth in sugarcane farming due to favorable climatic conditions, improved agricultural practices, and support from local agricultural policies.

• The increased availability of sugarcane justifies the need for higher processing capacity to accommodate the surplus produce and prevent wastage.

2. Future Technology-Proofing:

• Advanced Infrastructure:

• The upgraded boiling house is designed with future technology integration in mind. It includes state-of-the-art heat recovery systems and flexible infrastructure that can easily incorporate further advancements.

• Scalability:

• By ensuring the boiling house can handle up to 10,000 TCD, the facility is prepared for future expansions without the need for significant additional investments. This scalability makes the investment more sustainable and cost-effective in the long run.

3. Reduced Future Investment Needs:

• Minimized Additional Costs:

• The expandable design of the boiling house reduces the need for substantial future investments. When the plant scales up to 10,000 TCD, the major infrastructure is already in place, limiting the need for new capital outlays.

• Operational Efficiency:

• Future expansions will benefit from the already established high-efficiency systems, ensuring that operational costs remain low and profitability is maximized.

Conclusion

The proposed expansion and upgradation project not only addresses the immediate capacity needs but also strategically positions Mahakaushal Sugar and Power Industries Pvt. Ltd. for future growth. The excellent growth of sugarcane farming in the area and the future-proof design of the boiling house ensure that the facility can handle increased production demands efficiently.