



ENHANCING ENERGY EFFICIENCY & PERFORMANCE THROUGH ELECTRICAL SYSTEMS IN SPB

Presented by : **UDHAYASREE V**

Presentation Agenda

01

SPB's commitment & approach

02

Utilisation of DCS & EMS in SPB



03

Up gradation of the Power System



04

Grid Islanding

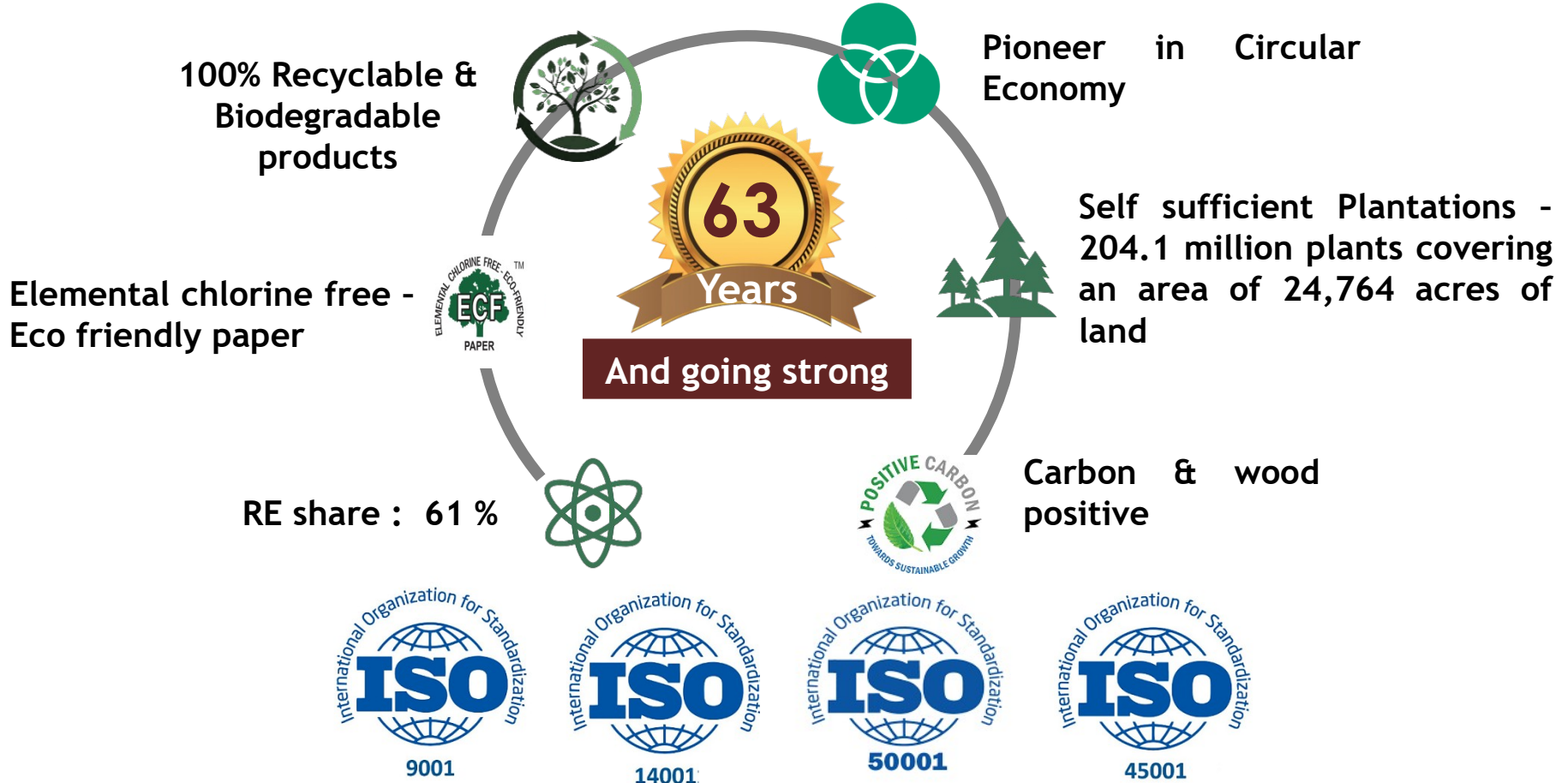


05

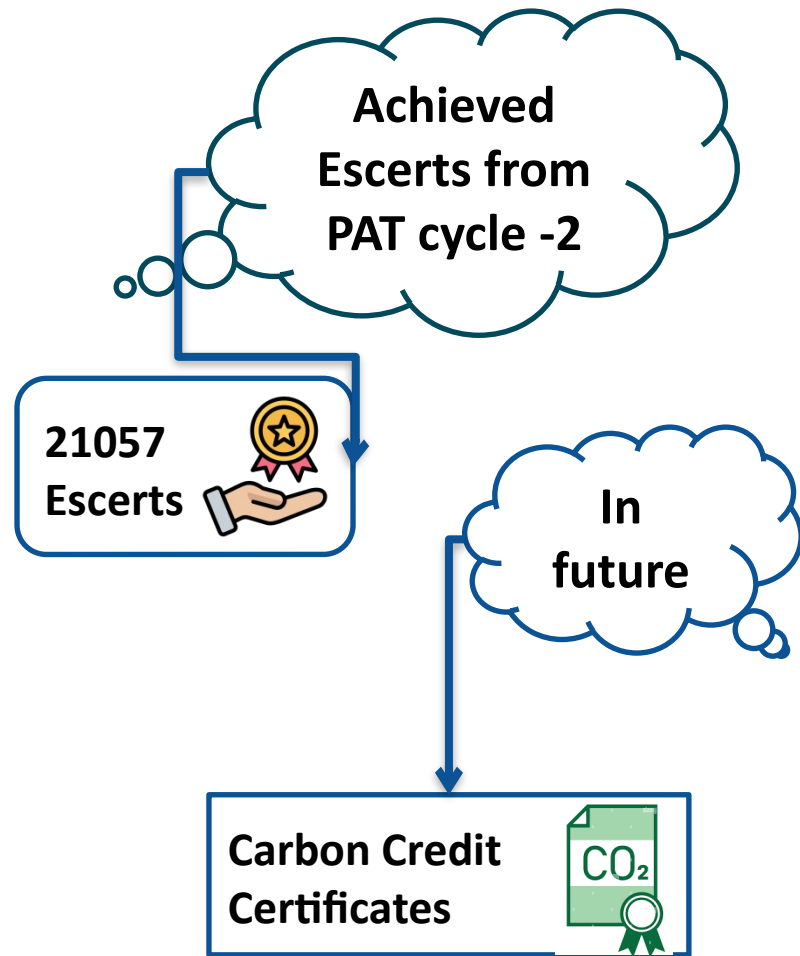
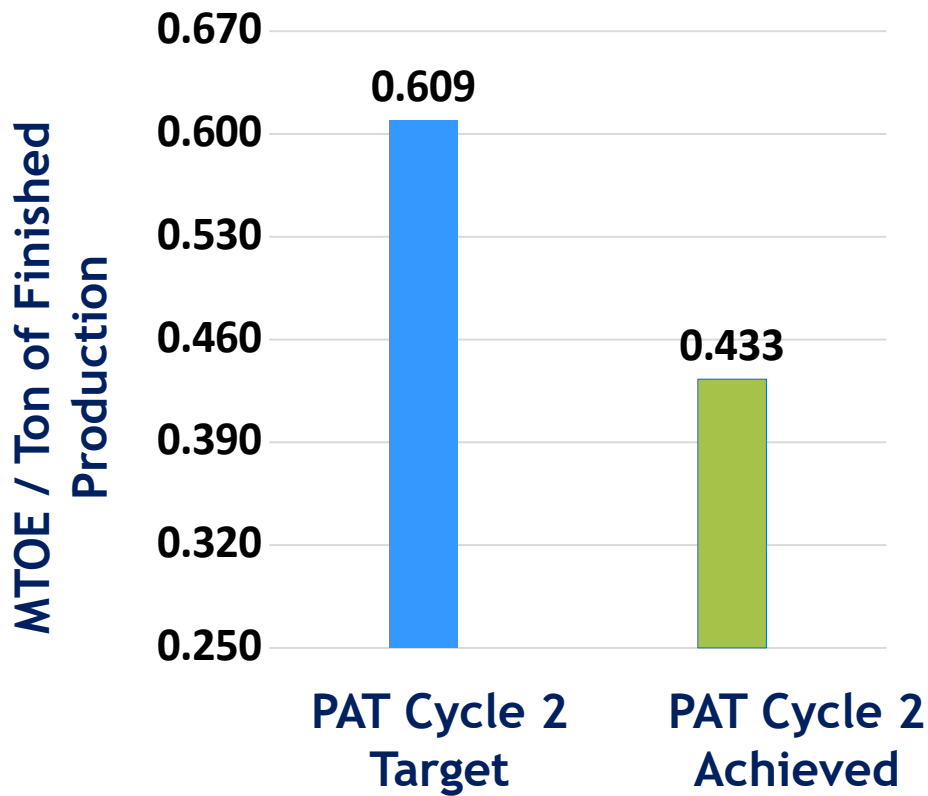
Learning & horizontal application



SPB's Commitment



SPB's Commitment in SEC Targets



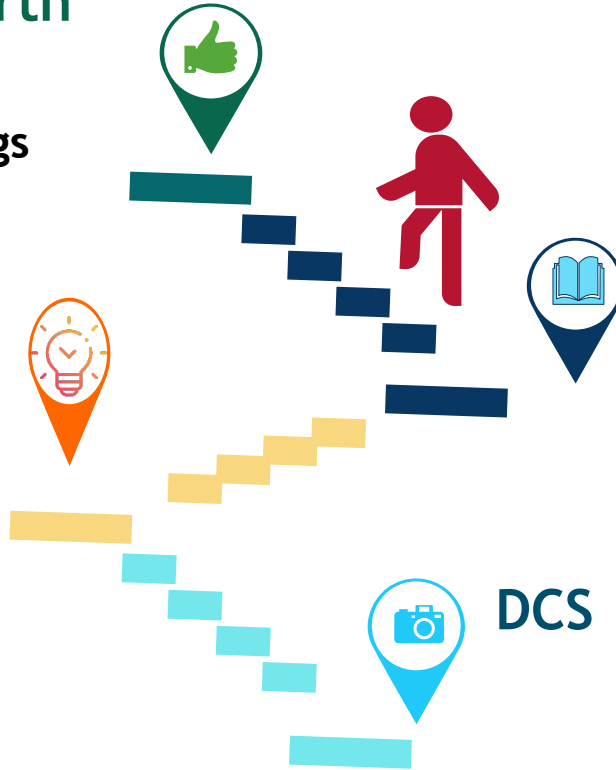
Approach of SPB

Mission for Green Earth

Aiming Net Zero through Energy Savings and reduced GHG Emissions

Energy saving ideas

VFDs, Energy Efficient pumps, capacity optimisations, etc



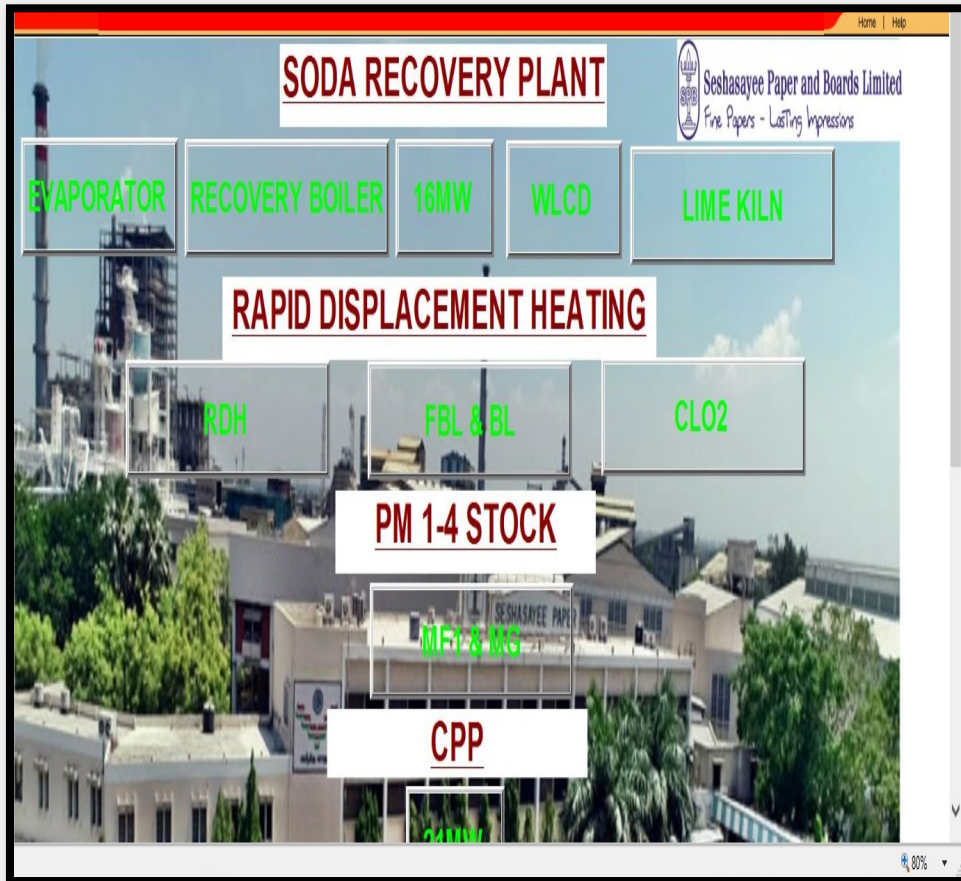
EMS

Live monitoring of Power consumption & comparison of various equipments / plants & Elimination of 22kV Grid System, Grid Islanding

DCS

Effective monitoring and operational control

Utilisation of DCS in SPB



- 👍 Out of 10 departments, 7 are being controlled by DCS
- ✅ Our 21 MW and 16 MW STGs are controlled through DCS
- 🌐 Load monitoring is done through DCS
- ✓ We have Honeywell DCS systems varying from version 300 to 511.



01 Load & Speed Indication

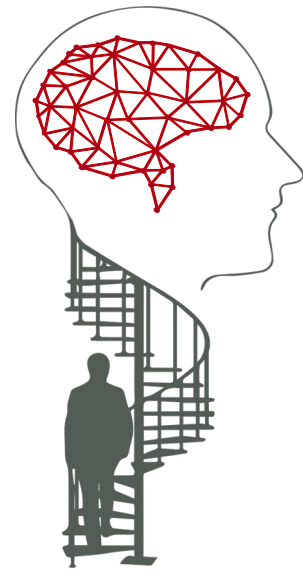
02 ZSS, PCS, BSS, Fire alarms Indications

03 Level controller, VFD control

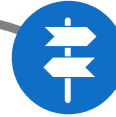
04 Energy Totalizer, GHG Emission Indications

Upsides of DCS

Upgrading to online EMS



EMS



Automatic reading recorder, thus no manual errors



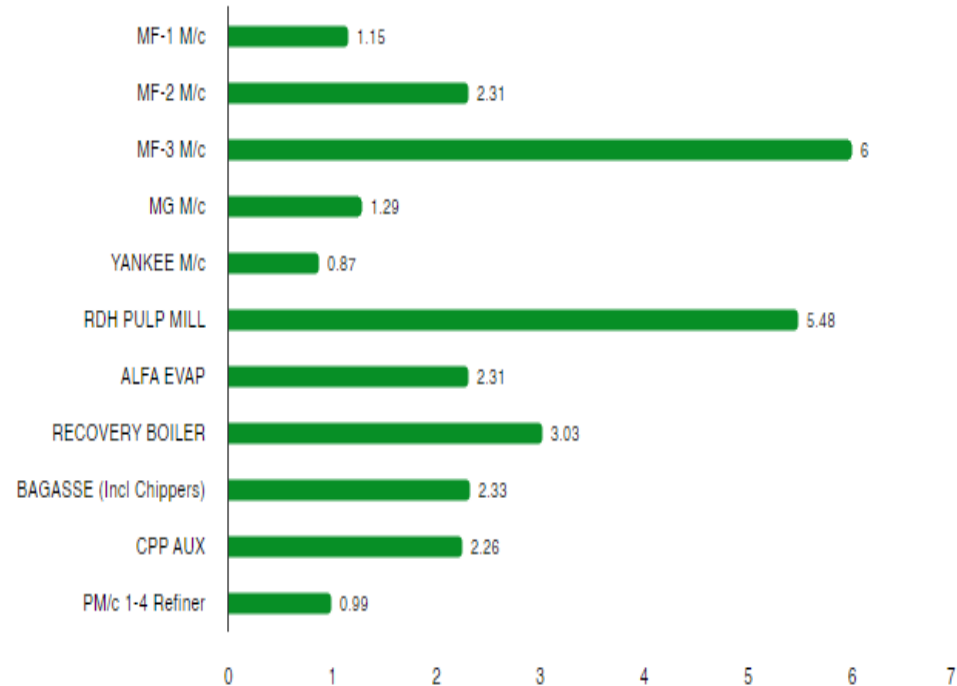
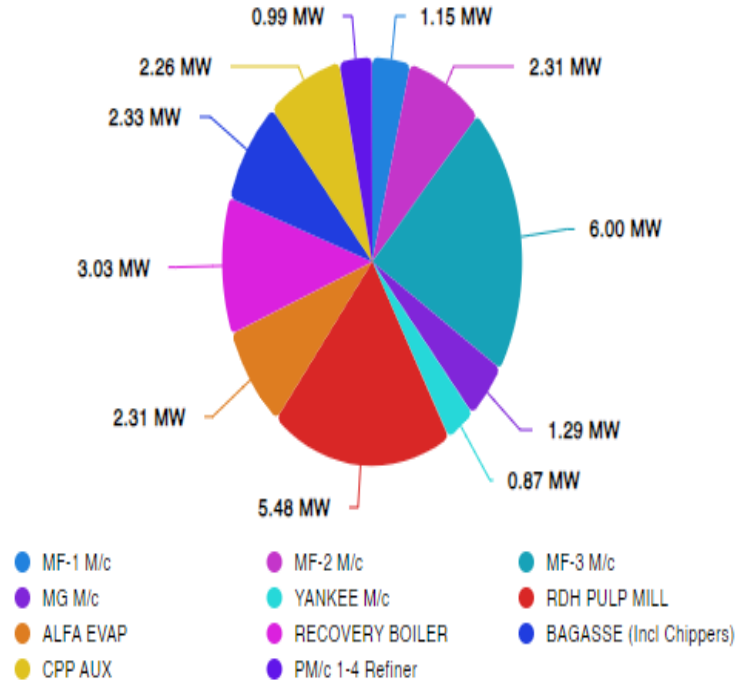
Precise tracking & real time monitoring of energy consumers



Overcomes the drawbacks of DCS in terms of storage and retrieval

Screenshot of online EMS

Power Utilization



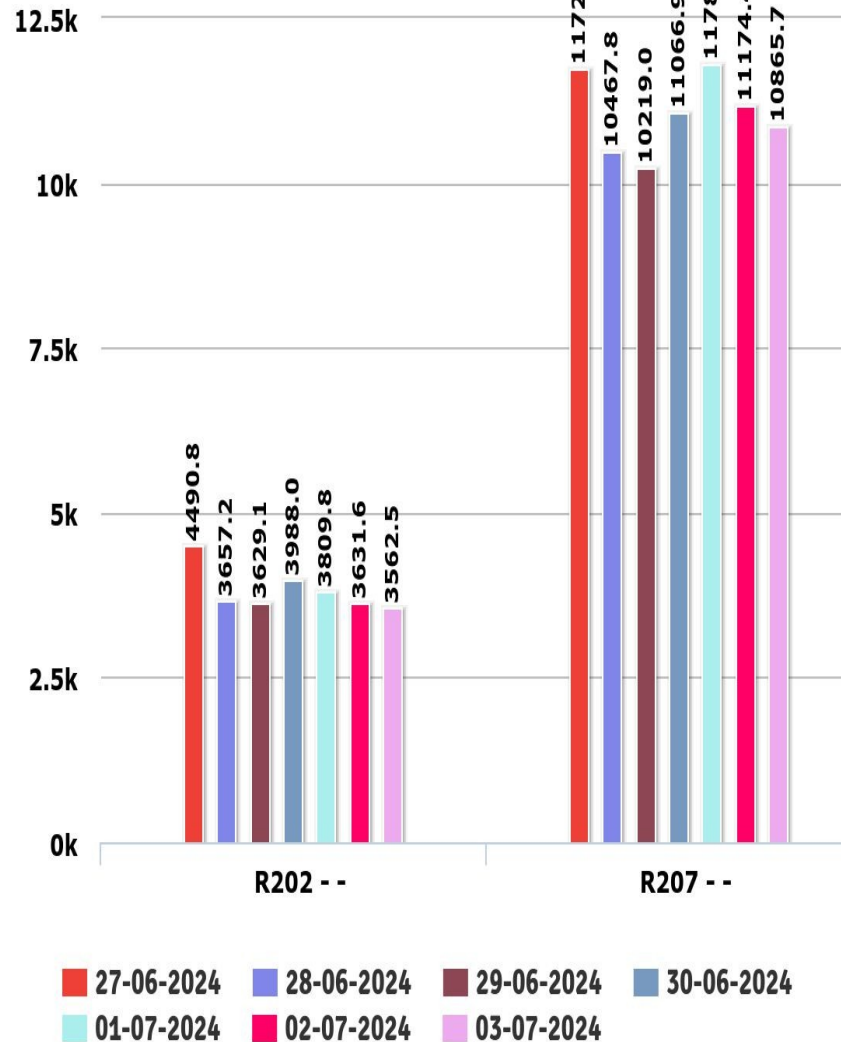
Yields of Online EMS

1. Monetary Benefits:

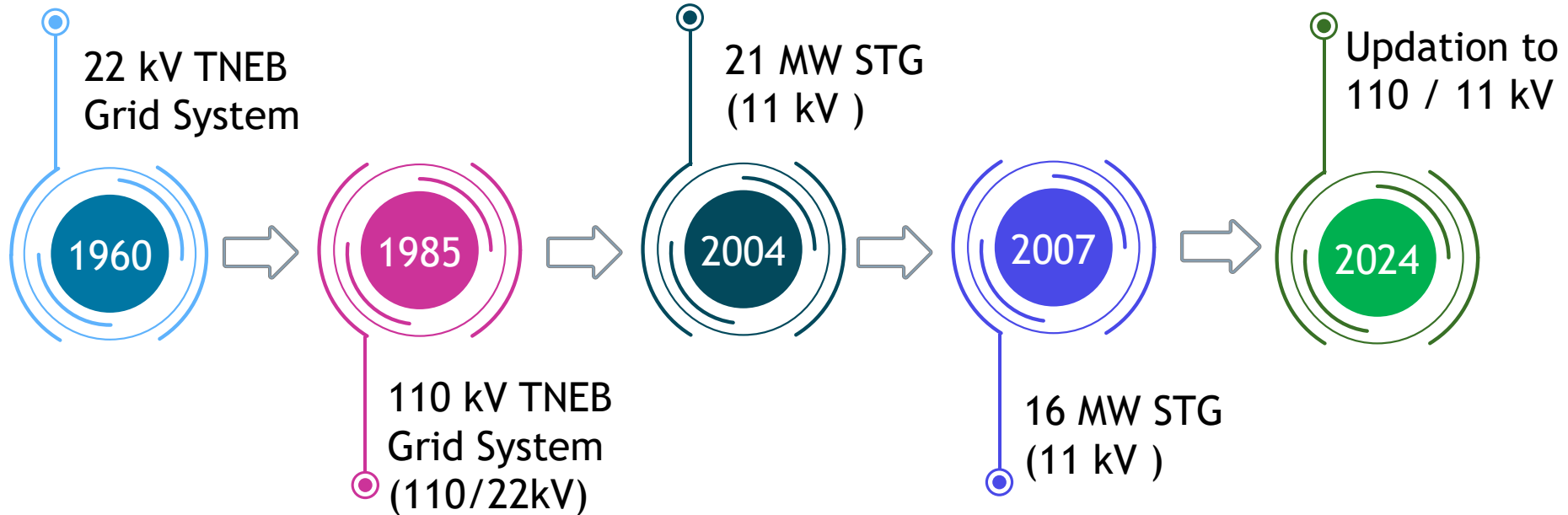
- Comparison of the performance of all Refiners through EMS, led to the power saving of around 2500 units per day, in PM-5, by selecting the combinations of the Refiners.
- Easy Monitoring of Power savings before & after implementing the Projects

2. Visibility to operators, mill wide

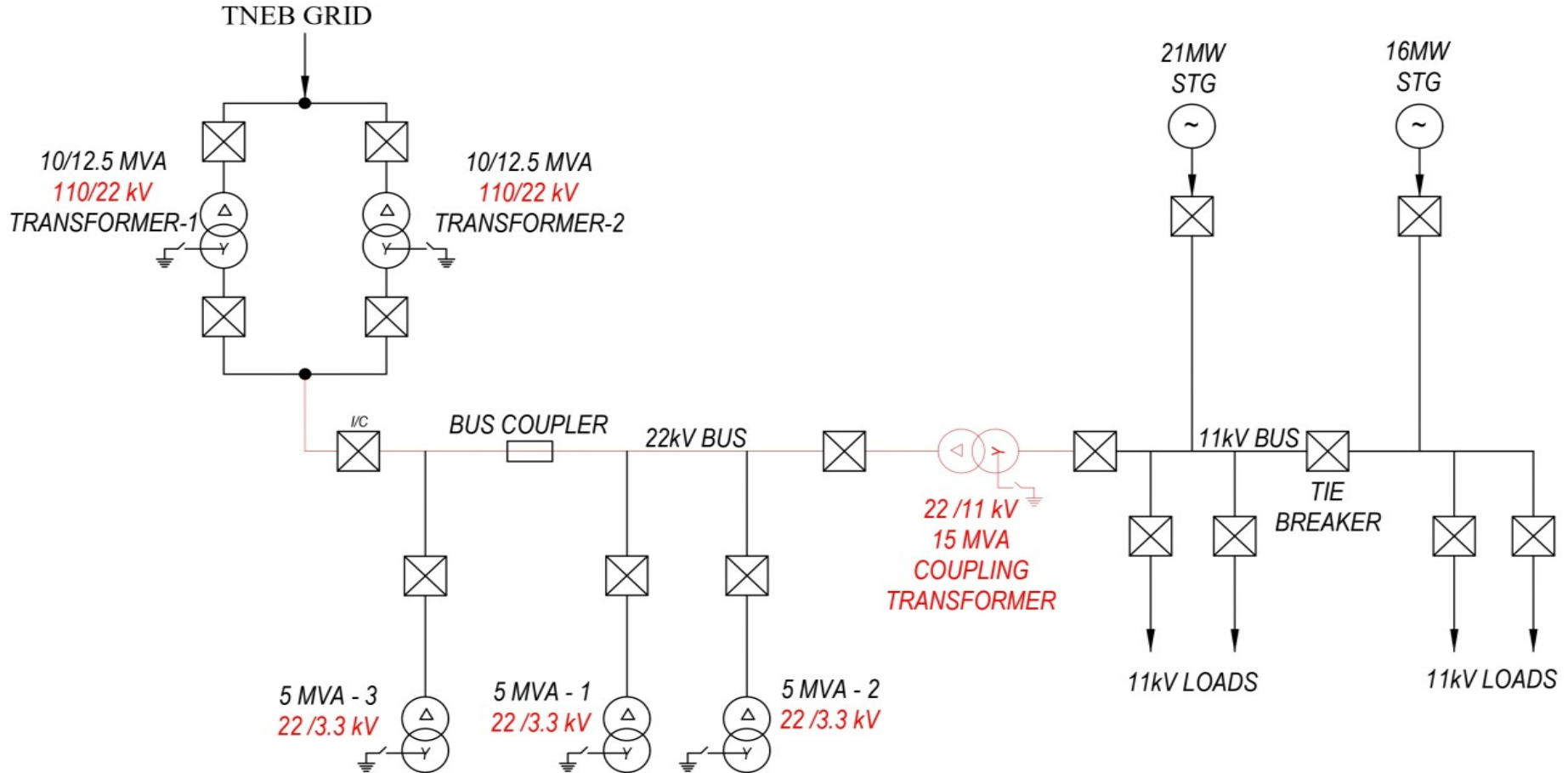
3. Automatic reporting system



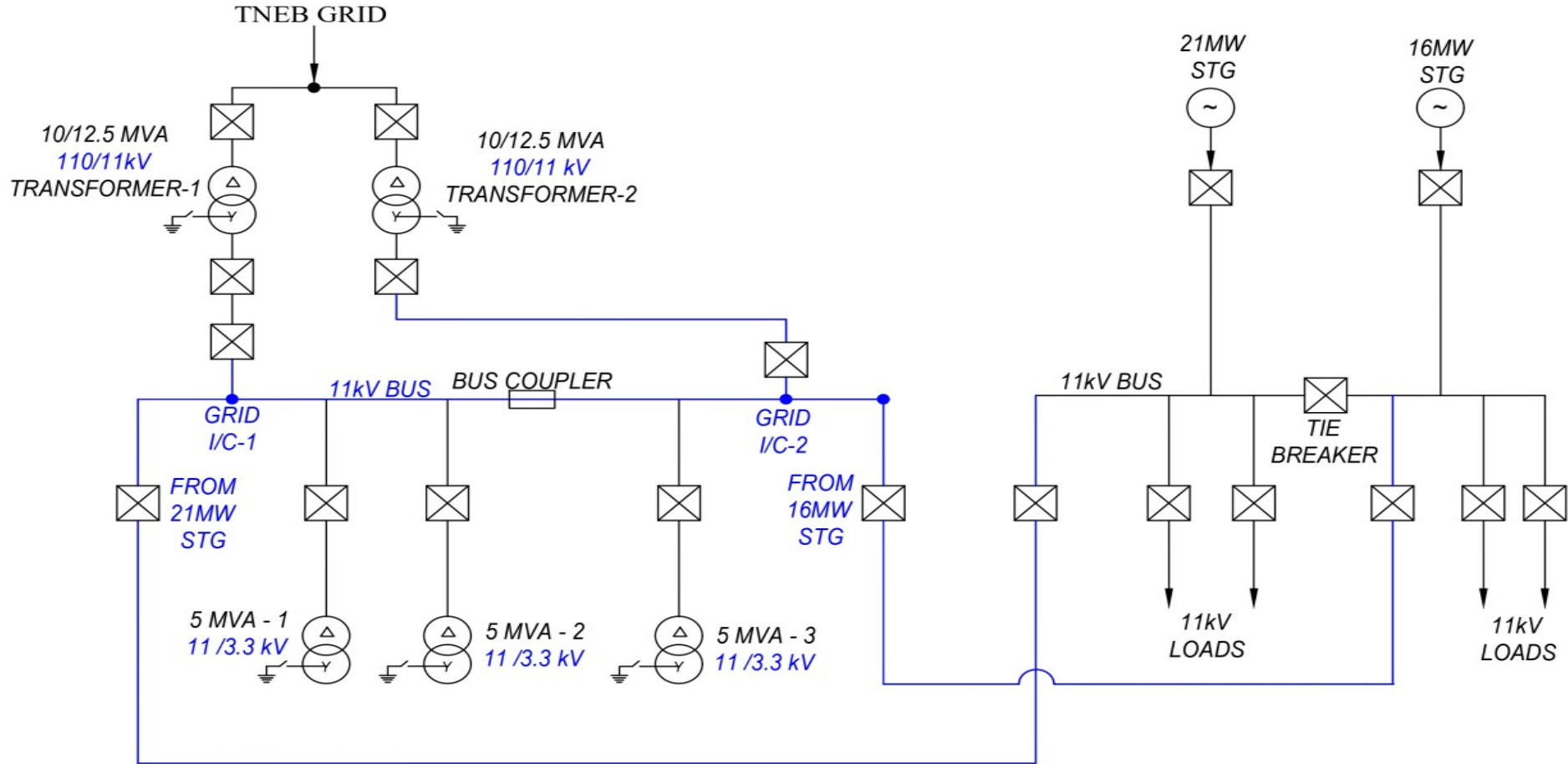
Up gradation of SPB's Power System








Earlier SLD - 110/22kV/11kV



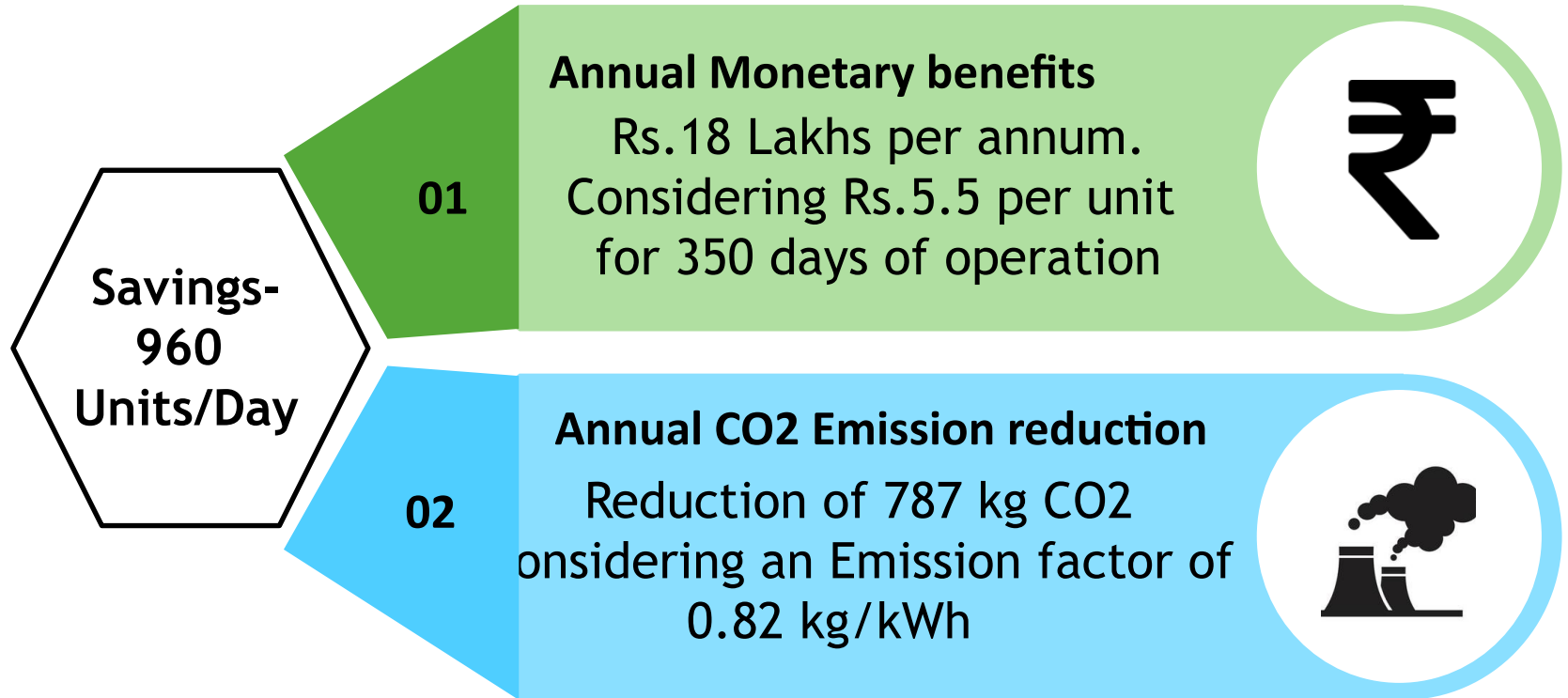
SLD - Present - 110/11kV



Benefits of elimination of 22kV System at SPB

-  Mitigates business risk with alternate routes for start ups during Black-outs
-  Avoiding the total dependence on 15 MVA coupling transformer
-  Provisions of spare 11kV feeders for future projects
-  Eliminating the no-load losses of the 15 MVA Coupling transformer - 960 units/day
-  Retains the scope for Grid Islanding

Benefits of elimination of the 22kV System



SPB's Power Sources



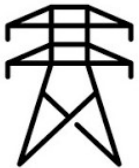
21 MW STG

Average generation of 15.5 MW



16 MW STG

Average generation of 13.5 MW



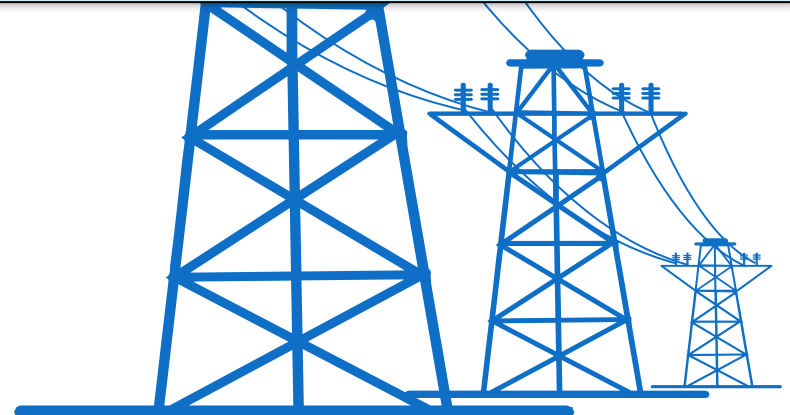
TNEB Grid (110 kV)

Maximum Demand of 15850 kVA

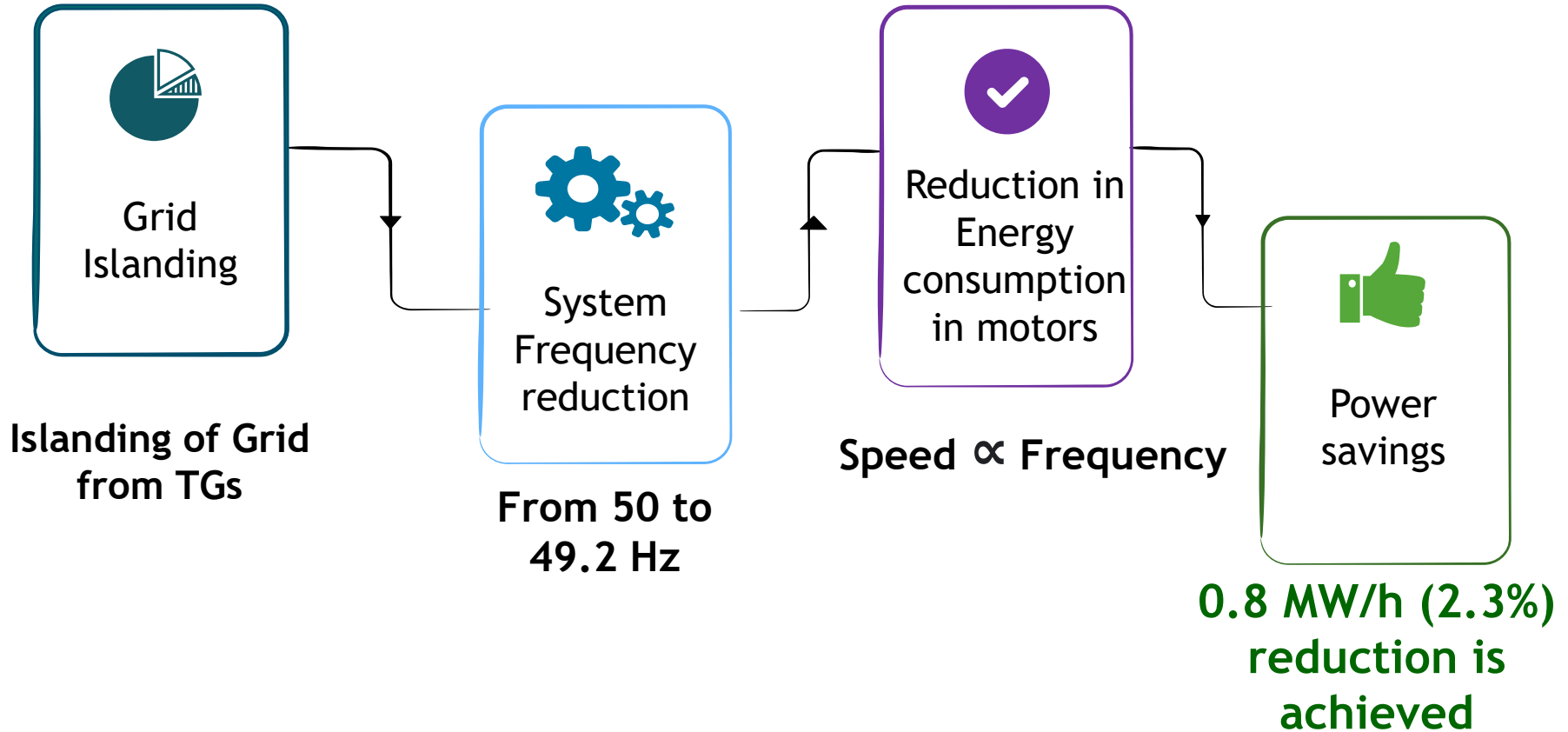
SPB is self-sufficient to



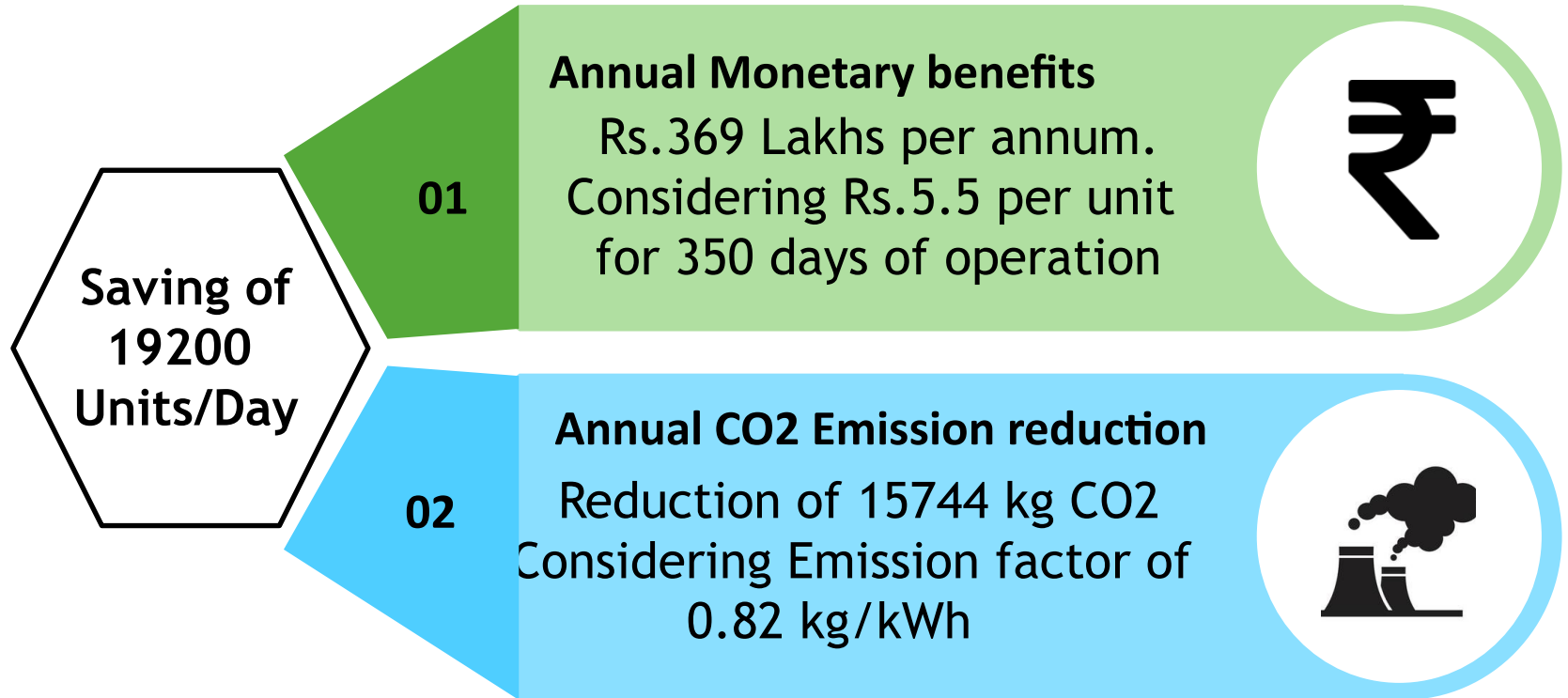
isolate from the Grid,
as the plant total power requirement
is **29 MW**



Grid Islanding



Benefits of Grid islanding



Learning & Horizontal application

- 1. Frequency of operation can be reduced from 50 Hz to an optimum level, without affecting the Process requirements.**
- 2. Effective utilization of Online Energy Monitoring System will yield better Process Optimization**



Thank
you