# IAQ QUALITY SUSTAINABILITY AWARD - ONE-PAGE SUMMARY

The One-Page Summary should be in English and submitted as Appendix 1 to your Application. It will also be published on the IAQ Quality Sustainability Award Homepage; http://iaqaward.com. The length of this document must not exceed 1 page.

| Project and contact details | | |
|---|---|---|
| The name of the quality sustainability project (max. 100 characters) | | |
| **Contact Person** | **Telephone** | **Email** |
| Anuroop Narang | +        91 9799499394 | anuroop.n@in.bosch.com |
| **Organisation(s), country, where the project-members are working, including Web-page links** | | |

| Project description |
|---|

*Explain the essence of the project, the problem statement, the analysis performed, steps taken, and methodology used. When was it started and when was it completed? What quality methods and tools have been used and why? What are the results achieved and in what way do they support the UN Sustainable Development Goals. https://sustainabledevelopment.un.org/ leading towards sustainable development. Mention which UN Sustainable Development Goals in particular, the project supports. (**You may delete this support-text in this textbox before submission.**)*
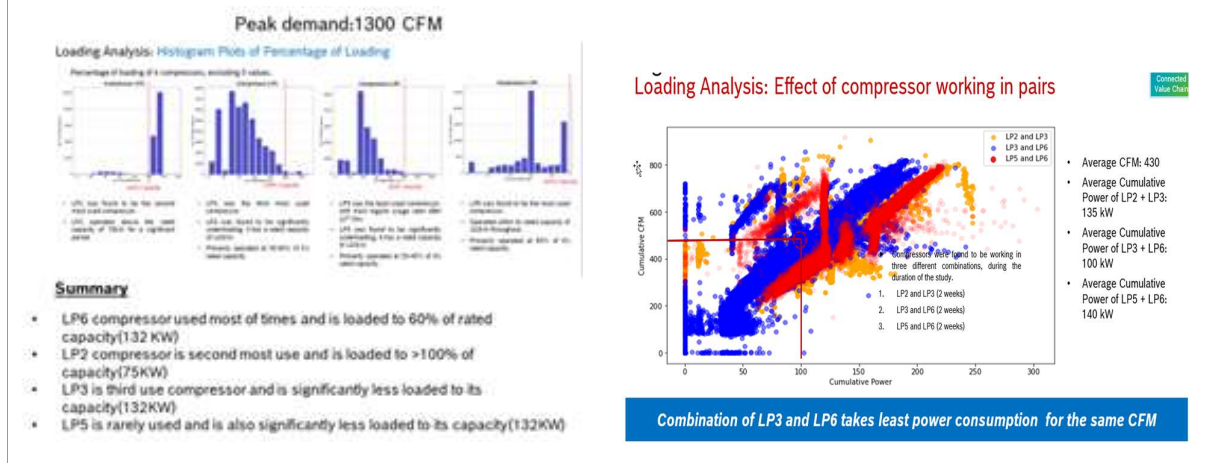
## Project:
Intends to reduce energy consumption in the compressor & cooling network by ~5% using artificial intelligence(deep learning) in controlling the compressor and cooling tower working as per real time load.
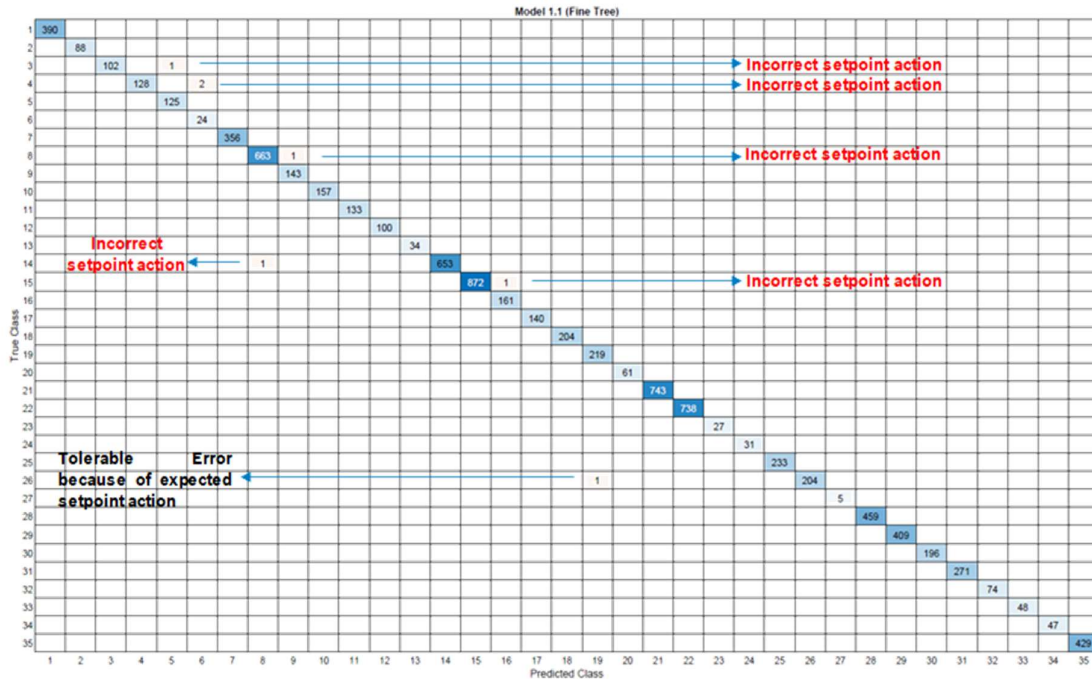
## Steps Taken

- Scope finalization and release of orders          May 2021
- Installation of hardware (CFM meters ,Modbus,          Aug 2021
  PLC, DCU   etc. for data capturing)
- Trend analysis and best combination of operating          Oct 2021
   compressor and cooling tower parameters proposed.
- Finalization of Machine learning models          Dec 2021
- Sharing of inputs and aligning proposed solutions          April 2022
   Lab test of models
- Implementation at plant and go live          May 2022
- Performance monitoring and benefits          June 2022

Initial Analysis
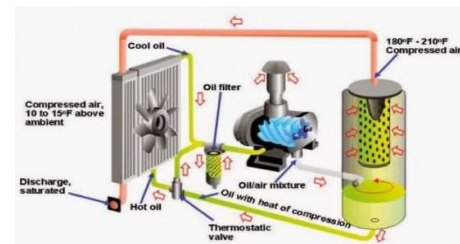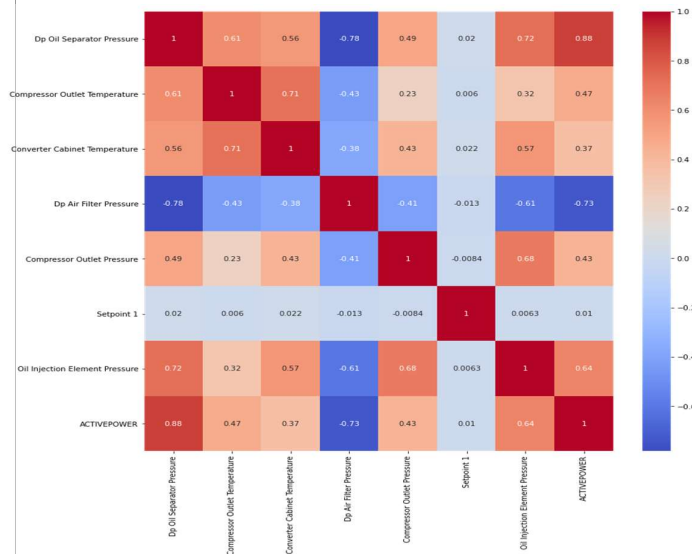


Note. More information about the award and how to apply can be found on the IAQ Quality Award homepage

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# Model Training Results

## Confusion Matrix – Decision Trees
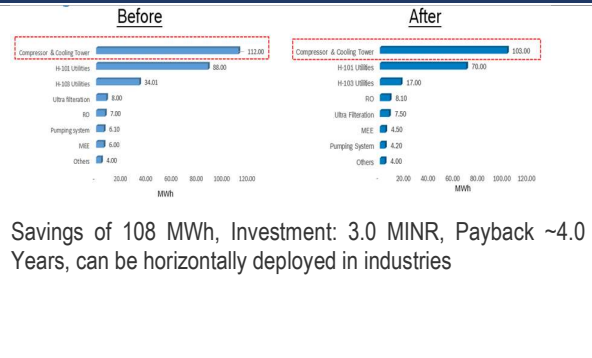


# Condition Monitoring

## Correlation Insights



### Strong

**ACTIVEPOWER vs Dp Oil Separator Pressure: 0.88**
**Dp Oil Separator Pressure vs Oil Injection Element Pressure: 0.72**
Dp Oil Separator Pressure vs Dp Air Filter Pressure: -0.78
Dp Oil Separator Pressure vs Compressor Outlet Temperature: 0.61
Compressor Outlet Temperature vs Converter Cabinet Temperature: 0.71
**Dp Air Filter Pressure vs ACTIVEPOWER: -0.73**
Compressor Outlet Pressure vs Oil Injection Element Pressure: 0.68
ACTIVEPOWER vs Oil Injection Element Pressure: 0.64

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| Project leverage potential | Picture/Image describing the project |
|---|---|
|  Savings of 108 MWh, Investment: 3.0 MINR, Payback ~4.0 Years, can be horizontally deployed in industries |  |

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