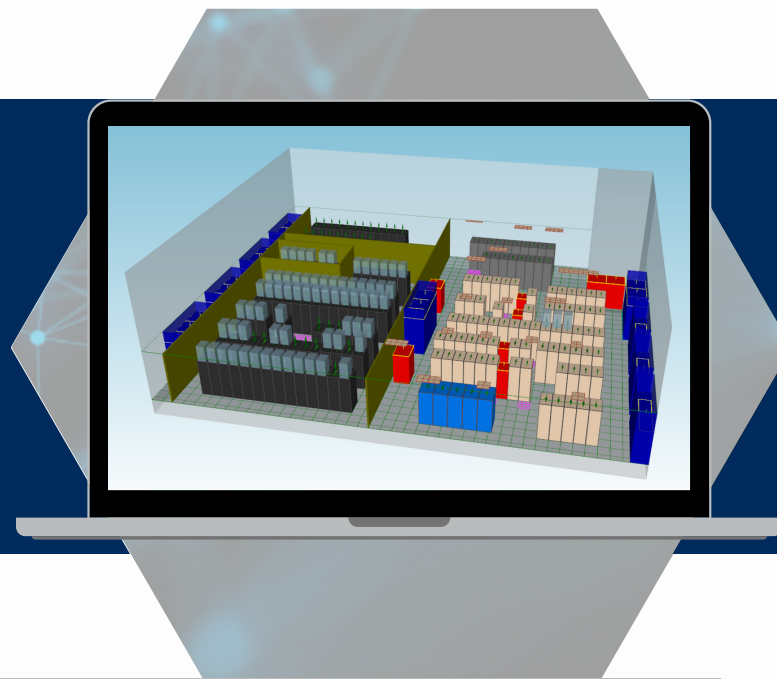


CASE STUDY

COOLING OPTIMIZATION PROGRAM



SITE OVERVIEW

A colocation data center, approximately 6,000 sq. ft with an IT load of 393 kW. Cooling is supplied by 9 CRAC units of different vintages

CLIENT PAIN POINTS

- High energy costs
- Over cooling of space
- Hotspots and temperature differential across the room

EXECUTION

- CRAC networking & sequencing
- Hot aisle containment
- Airflow optimization
- Floating head retrofit on 3 units

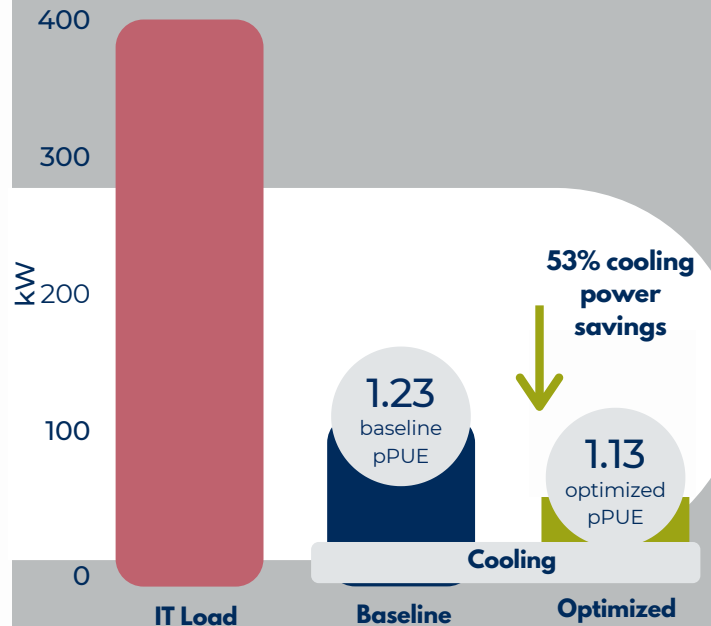
BUSINESS CASE

Annual Cooling Energy - kWh	803,457
Annual Energy Savings - kWh	428,549

Annual Savings	\$59,997
Project Cost	\$269,221
Incentive	-\$42,855
Net Project Cost	\$226,366

Energy Savings	53%
Payback (Years)	3.6

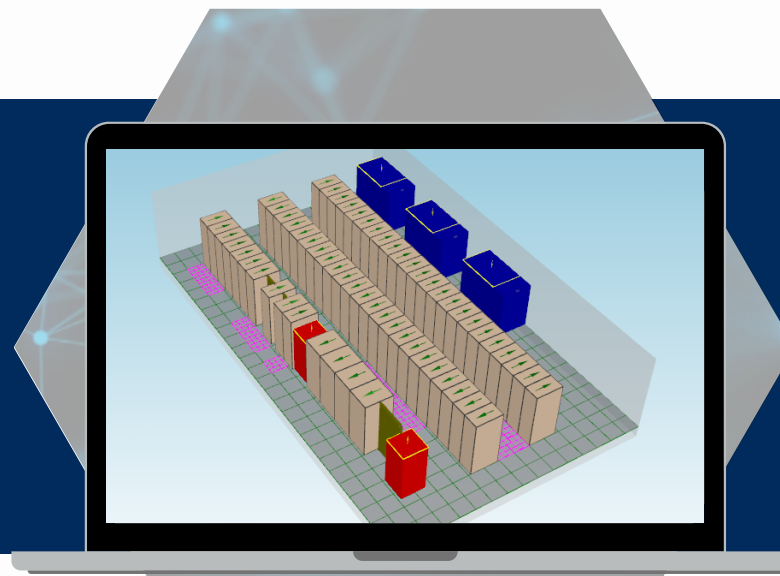
OPEX PERFORMANCE POWER USE



END USER BENEFITS

- 562 kW of stranded cooling capacity released for future use
- Additional 423 kW of IT load capacity
- Increase CRAC Cooling Capacity and Efficiency
- Energy Incentive covers 16% of project cost
- Carbon footprint reduction of 205 kg of refrigerant, equating to 364 tonnes of CO2

CASE STUDY COOLING OPTIMIZATION PROGRAM



SITE OVERVIEW

A telco data center, approximately 2,000 sq. ft with an IT load of 141kW. Cooling is supplied by 3 Liebert CRAC units.

CLIENT PAIN POINTS

- Inefficient operation of CRACs
- High operational costs
- Hotspots and airflow issues

EXECUTION

- Floating head retrofit on 3 units
- CRAC sequencing
- Airflow Optimization
- Rear-rack airflow diverters

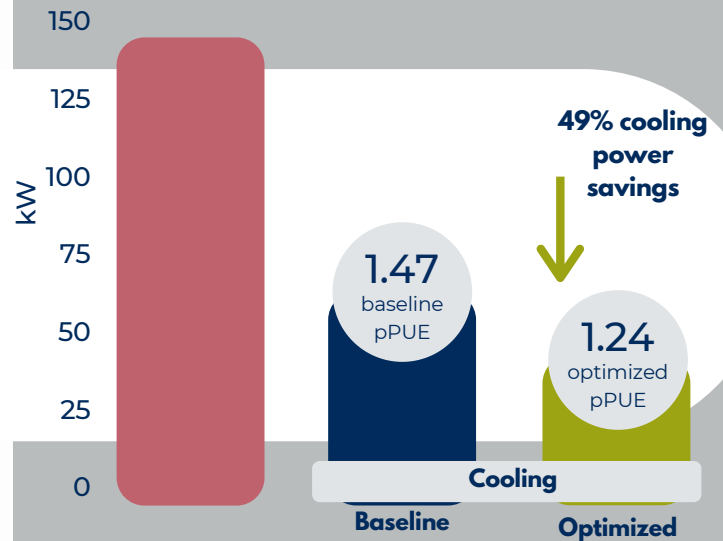
BUSINESS CASE

Annual Cooling Energy - kWh	585,415
Annual Energy Savings - kWh	286,214

Annual Savings	\$40,070
Project Cost	\$145,470
Incentive	-\$25,315
Net Project Cost	\$120,155

Energy Savings	49%
Payback (Years)	3.0

PROJECT PERFORMANCE POWER USE



END USER BENEFITS

- 42 kW of stranded cooling capacity released for future use
- Additional 51 kW of IT load capacity
- Energy incentive covered 17% of project costs
- Increase CRAC Cooling Capacity and Efficiency
- Introduced N+1 redundancy
- Carbon footprint reduction of 353 kg of refrigerant equating to 626 tonnes of CO2

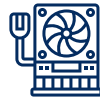
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COOLING OPTIMIZATION

means using the least amount of cooling capacity and the least amount of energy to drive cooling to create optimal thermal conditions for the IT equipment.

- AIRFLOW OPTIMIZATION
- REDUCE HOTSPOTS
- RIGHT SIZING COOLING
- INCREASE COOLING CAPACITY
- REDUCE OPEX, DEFER CAPEX
- VERIFIABLE ENERGY REDUCTION



data center cooling optimization



cooling energy efficiency audit



energy conservation measures



critical facility airflow modelling

SERVICES
with measurable results!



critical facility design consultation



best practice training



incentive program management



OPEX efficiency program

7,843,801 kWh

reduction in clients' cooling energy use



\$1,098,132

reduction in clients' cooling energy costs



\$795,968

energy incentive payments received by clients



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