



## Case Study - RED

Romonet® Software Suite generates financial and engineering analysis of Data Centre designs for RED

**RED**

RED Engineering Design partnered with Romonet, a leading provider of data centre predictive modelling tools, to use Romonet's innovative software products for full life-cycle design optimisation and financial modelling in its data centre design practice. This case study looks at how the software was used to model the data centre of a leading European bank and enable them to both reduce energy consumption and improve energy efficiency.

#### Profile:

RED is an international multi-award winning building services consultancy delivering MEP services for infrastructure, new buildings and upgrade projects. RED is a recognised authority in producing innovative, low energy, sustainable M&E designs which are commercially feasible, robust and highly attractive. RED design for data centres, high rise, hotels, mixed use, offices, residential and retail projects and are known throughout the industry for challenging conventional design approaches and creating alternative design strategies that reduce initial and operational costs and lower carbon emissions.



#### Challenge

RED is a recognised leader in mission critical facilities and data centre design and has designed many complex and award winning data centre facilities. Over the years RED has developed a series of in-house data centre analysis tools. RED utilise different design tools, whether undertaking a new facility design, designing bespoke data centre infrastructure systems or analysing existing facilities. Adapting these tools was initially required on a project by project basis, to the level and type of analysis required for each client. This was a time consuming task, with the refined tools having to be subsequently shared globally around the different design offices, where tracking the functionality of each tool became difficult.

#### Solution

With the introduction of Romonet Software Suite, RED have been able to consolidate all the individual data centre analysis and design tools into a single software platform. It is a single tool that can be used for the analysis of a new data centre design, investigate the merits of different infrastructure solutions and can be used when investigating the performance of an existing facility. Furthermore, the software follows a methodical structured process that can be fully interrogated and audited.

#### Benefits

Romonet Software Suite has enabled RED to increase its productivity in data centre analysis. They can now carry out many more assessments of different design alternatives. Models built during design can be used to verify performance during commissioning and operations (via Romonet Portal), thus ensuring a lower risk of a design being compromised because of budget constraints. Now much of the value engineering that traditionally takes place towards the end of the design cycle can take place much earlier.

#### Outcome

As an accredited Romonet partner, RED and Romonet collaborate on data centre design projects to ensure that clients gain the maximum benefits of Romonet's powerful predictive modelling capabilities and RED's award winning data centre design expertise. This ensures that the highest quality designs are produced and tested across the full spectrum of operational conditions.

#### Understanding true TCO, project ROI and reducing energy consumption

RED and Romonet collaborated on a project for a leading European Bank, establishing greater financial control and operational efficiencies within their primary UK data centre.



*“The Romonet Software Suite has increased our productivity and helps us better serve our customers in developing fully costed data centre designs and troubleshooting the financial and operational performance of their existing facilities”*

**Nick Vaney, Director, RED Engineering Design.**

A cost and energy model of the facility based on site drawings, controls and loads was created and calibrated to the actual BMS data and recorded energy consumption data from the previous 12 months.

Using Romonet Software Suite, the Bank was able to accurately establish the total service delivery cost of the overall site and IT loads, identify and implement operational improvements and establish a strong baseline of financial performance. The Bank is now able to continually optimise the financial performance of the site and test and validate TCO and ROI of projects before making any engineering or financial decisions. Most importantly, the Bank can now isolate the financial and operational impact of any changes in the data center allowing them to prove the true return of project investments.

#### **Financial control**

Romonet Software Suite was also used to predict the cost and ROI associated with CRAC unit fan upgrade and chiller replacement projects. By utilising Romonet Software Suite multiple implementation and control scenarios were tested and compared to demonstrate the financial and operational impact before final decisions were made. The ability of Romonet Software Suite to isolate the full and true cost impact of individual changes was then used to verify that the projects were indeed

delivering their predicted ROI.

This unique capability of Romonet Software Suite enables the Bank to prioritise and implement capital investment and change projects safe in the knowledge that actual ROI and TCO can be very accurately and easily modelled and tested.

#### **Operational improvement**

During the modelling of the site a series of significant overhead loads were discovered in the office sectors of the facility with a greater than expected level of energy use. In addition, the control of the chilled water system was resulting in larger pump loads and chillers being online too often.

All of these findings had a noticeable and measurable impact on the cost, utility consumption and PUE of the facility. The model also illustrated that the remediation of these findings could help avoid the possibility of transformer overload under a failure condition.

#### **Design optimisation**

The Romonet Software Suite platform is a highly effective design and financial modelling tool. The software has allowed RED to quickly and intelligently undertake a series of analyses for different electrical and mechanical infrastructure topologies and controls.

This is especially useful on projects where

the relatively short design phase would otherwise limit the depth of analysis. By using Romonet Software Suite RED is able to provide full lifecycle performance and cost analysis for a variety of options enabling the design to be fully tailored and optimised to the client's needs, be it with a focus on capital cost, operational cost, energy efficiency (PUE & DCiE) or CO2 emissions, complete with a series of concise and easily comprehensible performance outputs.

Using Romonet Software Suite as a design aid and updating it throughout the design process means that the final calculated performance can then be used as a commissioning tool on site to ensure that the controls have been set up correctly. The client can use the model for monitoring financial and operational performance over time to ensure the facility is operating optimally throughout its life.

RED uses Romonet Software Suite for full lifecycle data centre performance; from design through to commissioning and operation, making the transition of operational knowledge from the designer to financial knowledge for the client as seamless as possible.



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