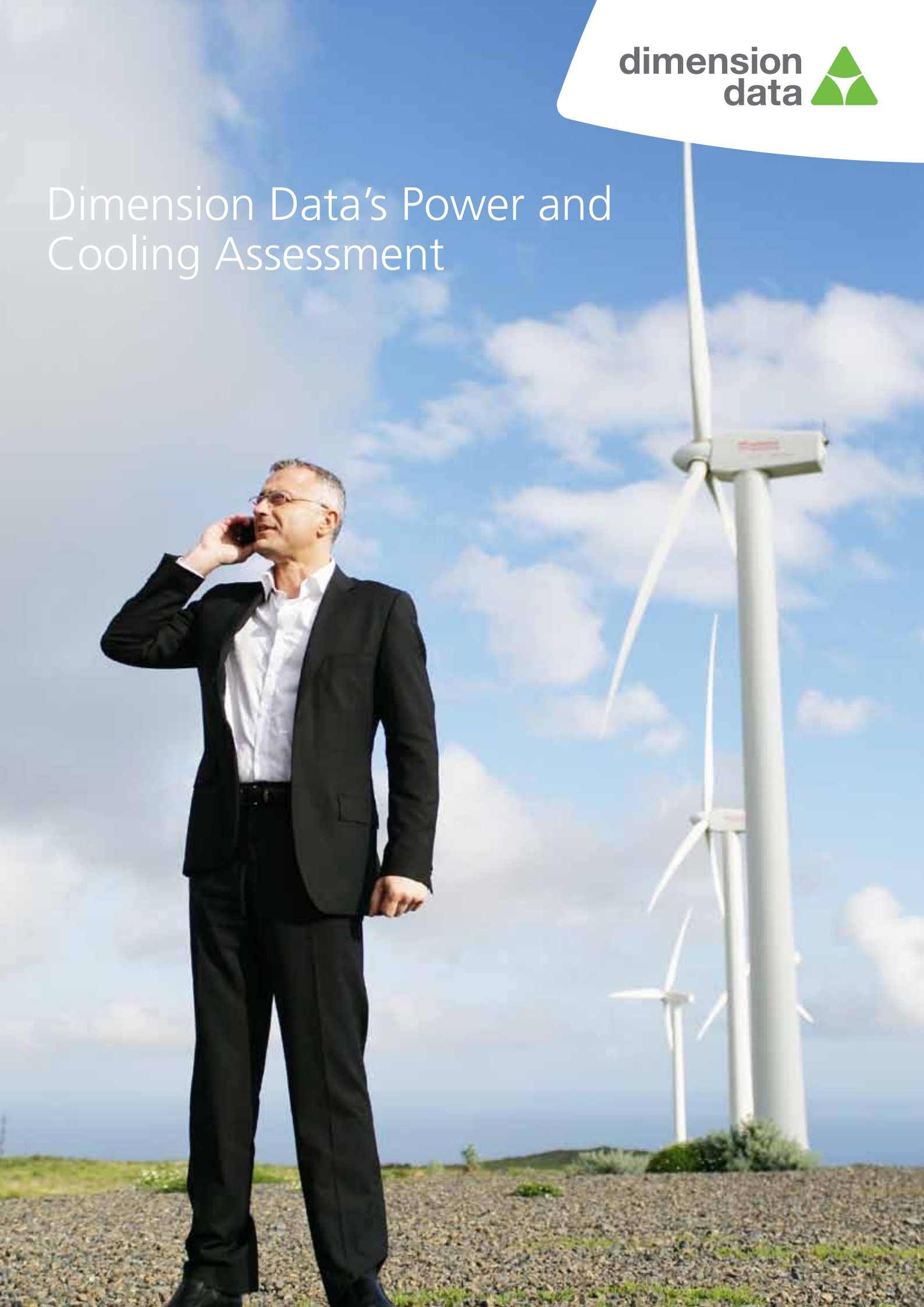
dimension data

Dimension Data's Power and Cooling Assessment



The challenges you face

Today, organisations are facing a multitude of challenges, including increasing IT workloads, evolving technologies, aging data centres, rising energy prices, and heighted pressure around environmental issues. In many data centres, the power and cooling infrastructure has not kept pace with the dramatic changes in the IT environment.

Wasted energy is **wasted money**.

IDC estimates that the amount of digital information created will grow ten-fold over the next five years. This will have a significant impact on storage requirements and the need for data centre support infrastructure, a demand that is often not addressed proactively, or even met in time.

In many parts of the world, increasing IT requirements are also limiting an organisation's ability to grow once they have reached the limit of power that is available from the grid. In other regions, power utilities regulate demand by 'load-shedding' – selectively removing users from the grid – a practice that can prove catastrophic for the unprepared data centre.

Some organisations have implemented blade servers to increase their computing capacity in limited spaces. While very space-efficient, blades have taken the average power draw per rack from 2 - 4 KW to as much as 30 KW. Many organisations have not made the necessary changes to their cooling infrastructure to support the new technology, and are experiencing 'hot spots' that impact equipment reliability and uptime. According to an IDC survey of 1,000 IT sites, 21% ranked power and cooling as the number one data centre challenge.

Carbon friendly infrastructure initiatives are quickly becoming corporate best practice. While all the legal regulations around this issue are not yet clear, more and more organisations are proactively working towards an EPA Energy Star rating for their data centres. What is clear is that reducing power consumption will reduce carbon footprint. The challenge is to ensure that the environmental measures taken have the maximum impact both on carbon footprint and the financial bottom line. It is possible to be both an environmental advocate and an economic champion – wasted energy is wasted money.

Consider the following questions:

- Will your data centre be able to accommodate the expected growth in IT infrastructure and services needed to support your business?
- Should you move to liquid cooling?
- Can your generator and UPS provide reliable backup power to the business, and for how long? Is it sized for expected growth?
- Does your data centre capacity planning model take power and cooling into account?
- Is your data centre under increased scrutiny as a contributor to power costs in your organisation?
- Is your data centre hotter than it should be?
- Have blade servers created 'hot spots' in your data centre?
- Are you under pressure to reduce energy consumption and carbon emissions?
- Have you considered moving or building additional data centre capacity due to power limitations in your existing environment?

Dimension Data's Power and Cooling Assessment helps organisations identify, pre-empt and solve power and heat-related problems in their data centres through a three step process based on industry best practice.

Discover, Analyse, Recommend

Dimension Data's Power and Cooling Assessment comprises a three-tiered approach: discovery, analysis and recommendation.

The first stage, discovery, consists of close inspection and detailed documentation, using digital photography, thermal imaging and actual field measurements. We examine the primary and backup electrical systems, power distribution and transfer systems, cooling infrastructure, rack and aisles, and under-floor and overhead airflow plenums. Electrical loads, air flow, and temperature are recorded and Computer Room Air Conditioning (CRAC), and chiller and related systems are examined and their capacity measured.

Once the necessary data has been collected, we perform a detailed analysis of:

- Environmental conditions and risks
- Infrastructure capacity and utilisation
- Cooling effectiveness and distribution
- Power and cooling equipment condition

The Green Grid recommends that data centre operators use Power Usage Effectiveness (PUE) to estimate the energy efficiency of data centres, compare their results against other data centres, and determine if any energy efficiency improvements need to be made.

In the third and final stage of the assessment we present a report that includes recommendations to correct any deficiencies and reduce power consumption and carbon emissions and optimise rack, aisle and plenum usage. We'll offer advice regarding

discover	analyse	analyse
Power Systems	Site, Age, Efficiency	Upgrade, Replace
Cooling Infrastructure	Power Systems	Power Systems
Rack, Floor, Aisle	Airflow, Heat, Configuration	Hot-Cold Aisle, Blanking
Server, Storage, Network	Consolidation, Reduction, Efficiency	Virtualise, Consolidate, Standards
Capacity, Utilisation	Current + Future Requirements	Size For Growth

optimum design and layout and provide recommendations for increasing the capability of your infrastructure through virtualisation and consolidation. Our focus is on technology optimisation, and maximising your computing per kilowatt.

Saving the environment can **save you money**.

Benefits

For your business

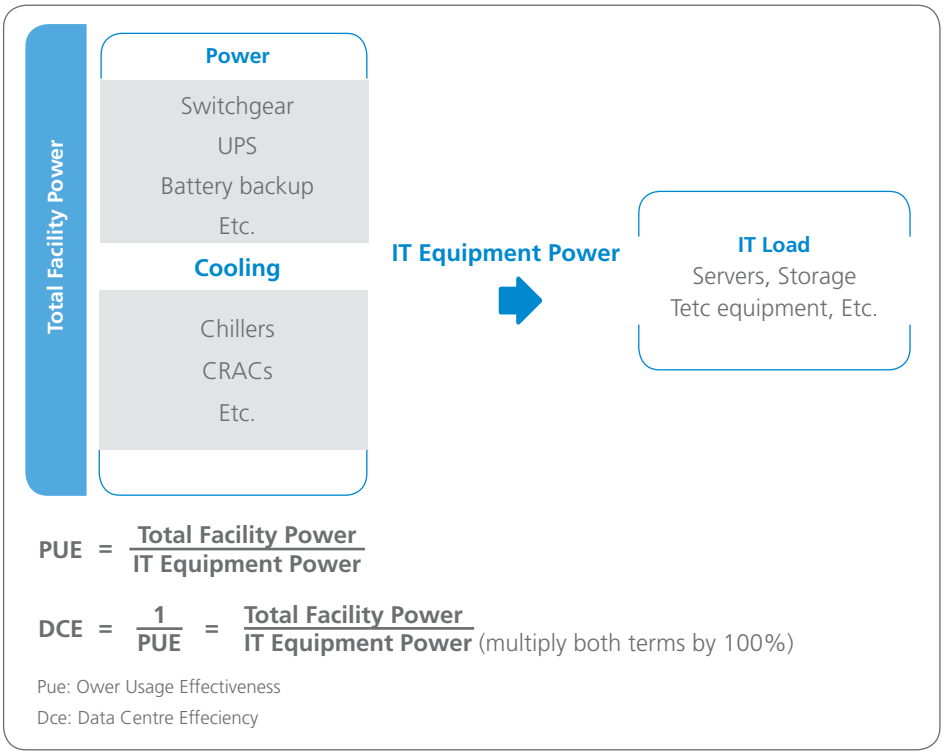
Lower power consumption means a reduction in energy costs, without compromising functionality. Reducing heat improves equipment reliability, which reduces downtime. An optimised design with improved airflow, efficient power, cooling, and space extends the useful life of the data centre. Consolidation, virtualisation and capacity planning improve agility, making IT more responsive to the needs of the business and minimising the risk of experiencing a power and cooling crisis.

For the environment

By undertaking a Power and Cooling Assessment you are taking an important step on the journey towards carbon friendly infrastructure. By reducing your energy consumption and carbon dioxide emissions, you're making a positive contribution to an increasingly fragile environment. Each server you remove translates into a saving of around 3.35 tonnes on carbon dioxide emissions per annum.

Being environmentally-conscious can save also you money; the environmental measures employed will have both a positive impact on your carbon footprint and your business.

Building Load Data Centre Effeciency



$$PUE = \frac{\text{Total Facility Power}}{\text{IT Equipment Power}}$$

$$DCE = \frac{1}{PUE} = \frac{\text{Total Facility Power}}{\text{IT Equipment Power}} \text{ (multiply both terms by 100\%)}$$

Pue: Ower Usage Effectiveness

Dce: Data Centre Effeciency

REFERENCE: THE GREEN GRID

Why Dimension Data?

Dimension Data has over a decade's experience in delivering power and cooling solutions in partnership with industry leaders, including APC. We combine this expertise in power and cooling infrastructure optimisation with our extensive server, storage and virtualisation experience.

Drawing on our experience in network integration, security, converged communications, contact centre and Microsoft technologies, we deliver a full lifecycle of IT infrastructure solutions and services. We plan, build, support and manage IT infrastructure solutions that help over 6,000 clients around the globe achieve their business goals.

Your business couldn't be in safer hands.

dimension data

MIDDLE EAST & AFRICA

ALGERIA • ANGOLA
BOTSWANA • GHANA • KENYA
MOROCCO • NAMIBIA • NIGERIA
SAUDI ARABIA • SOUTH AFRICA
TANZANIA • UGANDA
UNITED ARAB EMIRATES

ASIA

CHINA • HONG KONG
INDIA • INDONESIA • JAPAN
KOREA • MALAYSIA
NEW ZEALAND • PHILIPPINES
SINGAPORE • TAIWAN
THAILAND • VIETNAM

AUSTRALIA

AUSTRALIAN CAPITAL TERRITORY
NEW SOUTH WALES • QUEENSLAND
SOUTH AUSTRALIA • VICTORIA
WESTERN AUSTRALIA

EUROPE

BELGIUM • CZECH REPUBLIC
FRANCE • GERMANY
ITALY • LUXEMBOURG
NETHERLANDS • SPAIN
SWITZERLAND • UNITED KINGDOM

AMERICAS

BRAZIL • CANADA • CHILE
MEXICO • UNITED STATES

For contact details in your region please visit **www.dimensiondata.com/globalpresence**

www.dimensiondata.com