# The EU Horizon 2020 EURECA project

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Riga, 8th November, 2017

https://www.dceureca.eu

## Outline

- Why worry about Sustainability?

- What are the challenges when it comes to public procurement?

- What is EURECA?

- Working together

# Why worry about Sustainability?

# 2%

Of world Electricity is used by data centres

**80%**

Energy Consumption Reduction by 2050 compared to 1990

# £90M

Annual UK Universities ICT Electricity bill 2012 (60% on servers)

# €2,200B

EU Public Sector Spending (19% of GDP)

## Project Overview

- Aim: Assist the public sector with the uptake of innovative energy efficient and environmentally sound data centre products and services.

- Project started on 1st March 2015 and runs for 36 months.

- Partners come from four main countries (Germany, Netherlands, UK and Ireland), with wider EU focus.

## So far

- Supported projects in UK, Ireland, and Netherlands with further outreach activities in Latvia, Sweden, Spain, France, Italy and Germany

- Identified savings of over 15GWh per year in innovative consolidation, retrofit, and new build data centre projects,

- Organised 10 events across Europe, with four more to go in France, Germany, Ireland and UK.

## So far

- Trained over 200 professionals, expecting to reach 500 by February 2018

- Impacted EU policies such as: EMAS, GPP, and Ecodesign.

- Provided input into standardisation, e.g. EN50600-99-2

Lessons Learnt over the past 30 months

## Challenges

- Cost of maintenance of facilities

- Maintaining uptime / resilience of services

- Rightsizing new builds

## Challenges

- Complexity of procurement

- Insufficient Priority

- Complexity of technical landscape

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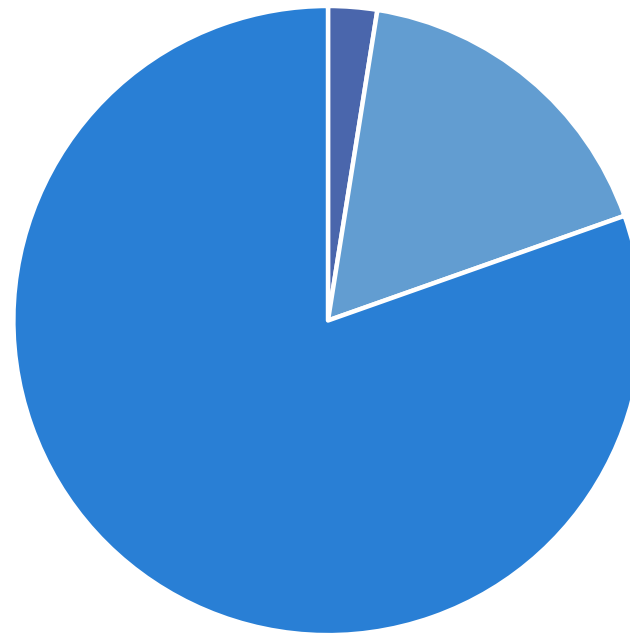
- Complexity of technical landscape
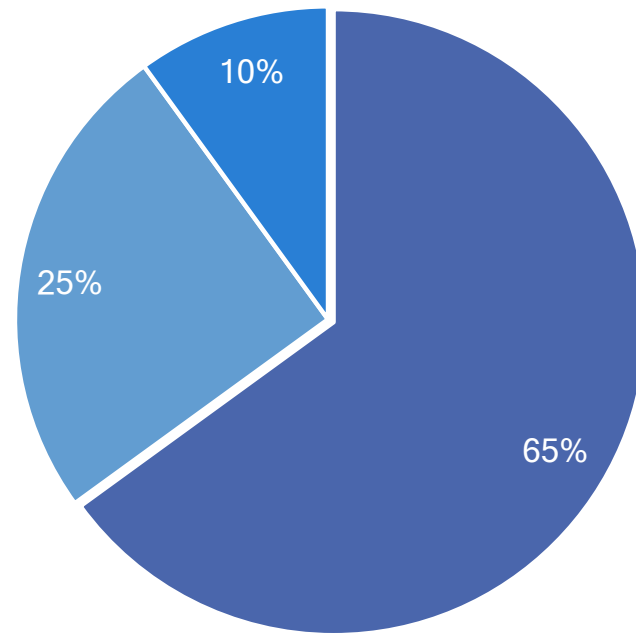
Stats

**Power Utilisation Effectiveness**

$$1.5 \quad < \quad PUE \quad < \quad 7+$$

# DC Size (in rack count)



Data Centre Count

Legend: ■ > 125   ■ 25 to 125   ■ up to 25

# Energy Consumption breakdown by IT Equipment type
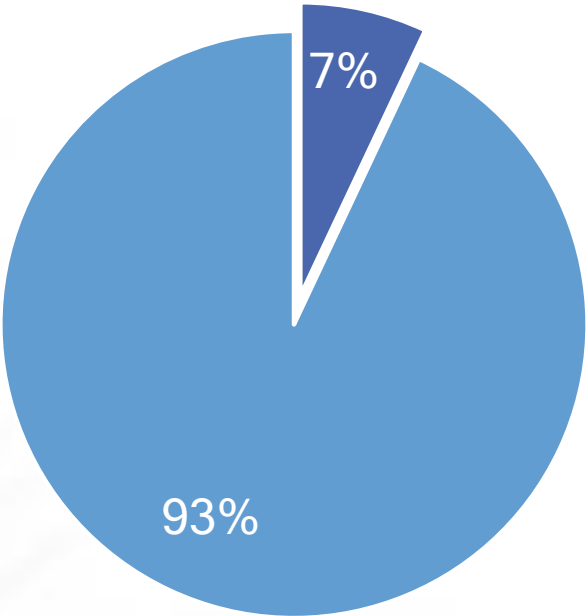
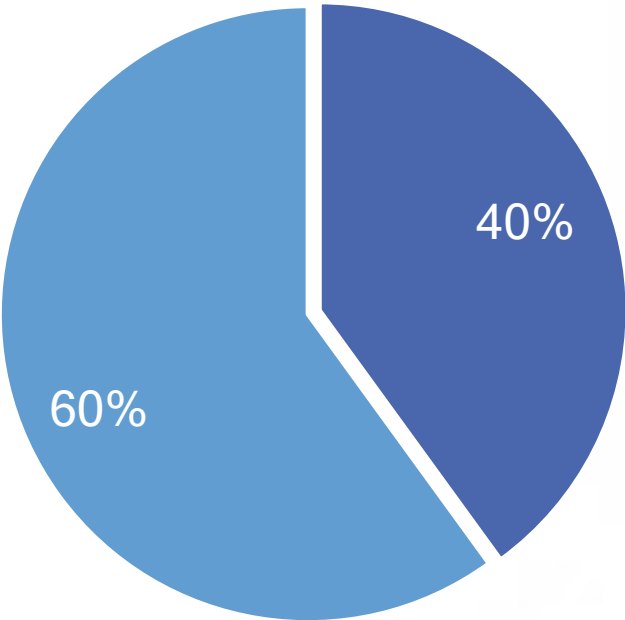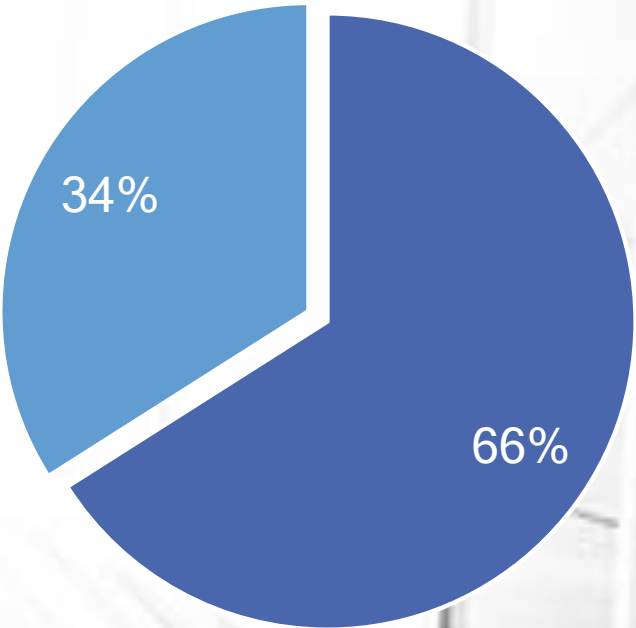**14,000 €**

**Server Utilisation**

$$15\% \quad < \quad avg \quad < \quad 25\%$$

## Points affecting server utilisation

- Active – Active / clustering deployments

- Peak utilisation vs performance degradation

- Ensuring there is enough capacity in the system to cater for workload peaks

- Having the right server configuration for the workload

| | Scenario | PUE | $\beta$ | Annual Use Phase Energy in KWh (for running workload $\omega$) | | | | | |
| | | | | Hardware 1 (7.5Y old) | Hardware 2 (6Y old) | Hardware 3 (4.5Y old) | Hardware 4 (3Y old) | Hardware 5 (1.5Y old) | Hardware 6 (Current)* |
|---|---|---|---|---|---|---|---|---|---|
| On-Premise (non-virtualised) | Worst | 3 | 5% | 51,372,685 | 15,414,061 | 12,840,312 | 6,257,229 | 2,453,698 | 2,093,779 |
| | Average | 2 | 10% | 17,708,754 | 5,533,001 | 4,617,433 | 2,356,780 | 952,302 | 820,422 |
| | Best | 1.5 | 25% | 5,838,699 | 2,015,383 | 1,688,826 | 950,967 | 406,652 | 356,373 |
| Colocation (non-virtualised) | Worst | 2.5 | 5% | 42,810,571 | 12,845,052 | 10,700,260 | 5,214,358 | 2,044,749 | 1,744,816 |
| | Average | 1.8 | 10% | 15,937,879 | 4,979,702 | 4,155,690 | 2,121,102 | 857,072 | 738,380 |
| | Best | 1.3 | 25% | 5,060,206 | 1,746,666 | 1,463,650 | 824,172 | 352,433 | 308,857 |
| On-Premise (virtualised) | Worst | 3 | 6% | 43,102,834 | 13,042,542 | 10,868,925 | 5,349,876 | 2,111,950 | 1,806,064 |
| | Average | 2 | 30% | 6,682,286 | 2,370,976 | 1,988,917 | 1,146,976 | 496,637 | 436,802 |
| | Best | 1.5 | 60% | 2,944,252 | 1,185,352 | 998,841 | 633,394 | 287,041 | 255,673 |
| Private Cloud | Worst | 2.5 | 7% | 30,996,498 | 9,457,166 | 7,883,993 | 3,918,139 | 1,556,537 | 1,333,795 |
| | Average | 1.8 | 30% | 6,014,058 | 2,133,878 | 1,790,026 | 1,032,279 | 446,974 | 393,122 |
| | Best | 1.3 | 60% | 2,551,685 | 1,027,305 | 865,662 | 548,941 | 248,769 | 221,583 |
| Public Cloud | Worst | 2 | 7% | 24,797,198 | 7,565,733 | 6,307,194 | 3,134,511 | 1,245,229 | 1,067,036 |
| | Average | 1.5 | 40% | 3,977,983 | 1,481,792 | 1,245,265 | 746,813 | 329,759 | 291,637 |
| | Best | 1.1 | 70% | 1,942,527 | 807,147 | 680,852 | 440,725 | 201,546 | 179,958 |

* As of 2016

# Points affecting hardware refresh

- Budget availability and accounting practices
- Misconception about environmental impact
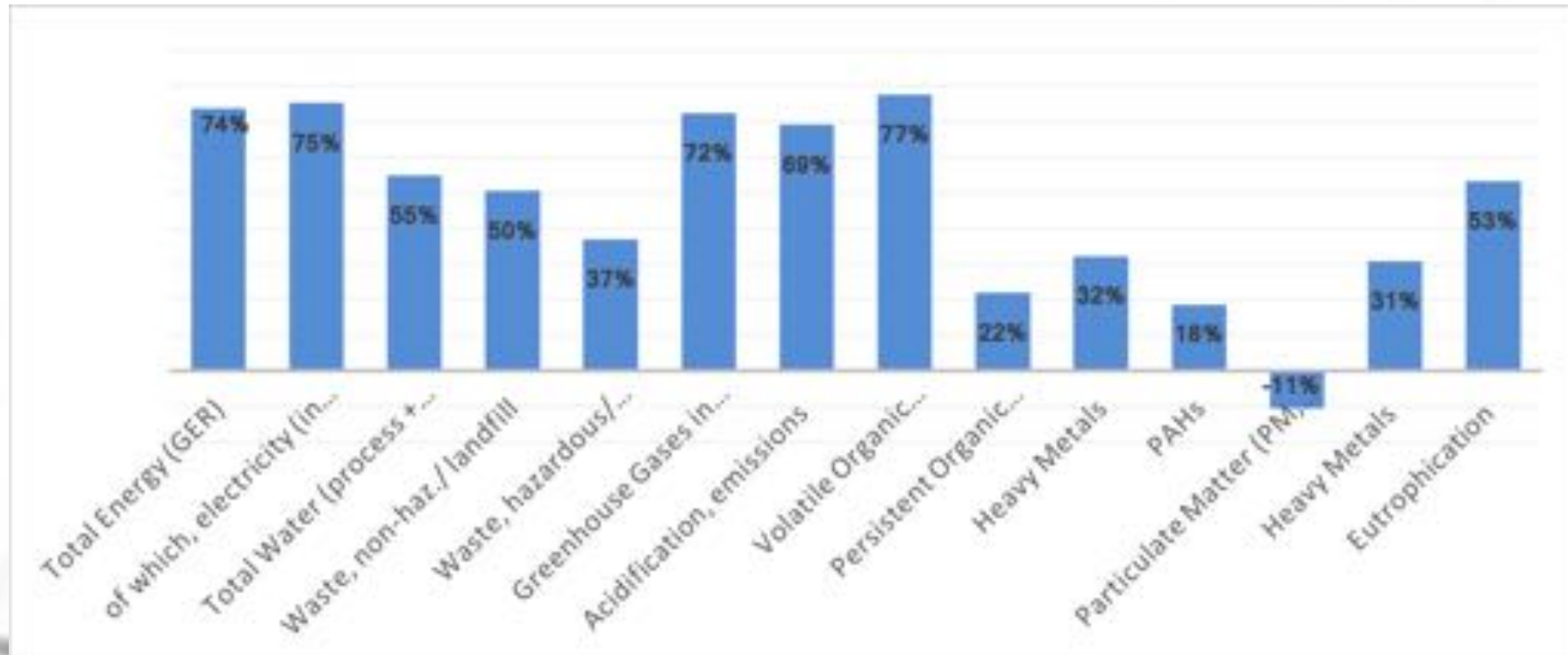
## Working together

- Market place

- Share success stories

- Benefit from the EURECA Services available (tools, knowhow, etc.)

- Contribute to shaping the project

- Further details on: https://www.dceureca.eu

# Training Certificates

1) Register/login: https://www.dceureca.eu
2) Scan code below and request certificate
PS: Ensure you've signed the attendance sheet



https://www.dceureca.eu/?page_id=3055