Topic: Energy-related investment decisions for Data Centers.

Focus Group Questionnaire

First name: _Joe_

1. Which of the following do you do in your position?

    a. Participate in decisions about purchasing equipment for your data center (e.g., servers, software, racks, lighting, cooling equipment)?   ☑ Yes   ☐ No

    b. Participate in decisions about servicing or maintaining equipment for your data center?

    ☑ Yes   ☐ No

2. How many How many data centers, server rooms, and server closets does your company own or operate?   _20_

Enter number here _____20_____

3. **[If more than one data center]** For how many data centers are you involved in major equipment purchase and maintenance decisions?

Enter number here _____20_____

4. The majority of the data centers you help manage are:
    a. Server closets or rooms (less than 500 square feet)
    b. Localized data centers (500 – 5,000 square feet)
    c. Enterprise data centers (> 5,000 square feet)
    d. (Mega or utility-scale data centers (>10,000 square feet)

5. What is the average number of racks in your typical data center?

Enter number here _____250 – 1000_____ or ☐ if > 2000

6. How many servers are there in your organization as a whole?
    ☐ < 2000
    ☐ 2000 – 10,000
    ☐ 10,000 – 50,000
    ☑ > 50,000

This project is approved by U.S. Office of Management and Budget. The clearance # is 2090-0028.

7. What type of data centers does your company operate?
   - ☑ Server rooms or closets
   - ☑ Enterprise/corporate data centers
   - ☐ Cloud/hyperscale computing
   - ☐ High-performance/scientific computing
   - ☐ Multi-tenant/colocation data centers

8. Which sectors does your data center support? (Name top three)
   a. IT services
   b. Energy and utilities
   c. Media and telecommunications
   (d.) Banking and financial services
   e. Health care
   f. Education
   g. Co-location/shared
   h. Other: _____

9. What state(s) are your data centers located in?

   Enter states here: __NJ Tx Va_____

10. When did you last pursue a major equipment purchase/upgrade for your data center?
   (a.) Within the last 3 years
   b. 3-5 years ago
   c. More than 5 years ago

11. How often do you replace servers in your data centers?
   ___3-4 yrs_____

12. How often do you make major infrastructure upgrades to your data centers? __10-15 yrs__

13. Do you actively participate in the EnergySTAR Buildings, Green Grid, or another third-party energy-efficiency program?

   ☑ Yes   ☐ No

14. Have you had an energy audit performed by a third party within the last three years?

☑ Yes   ☐ No

15. Do you track energy use on a regular basis? ___*Yes*___

    a. What is the typical annual electricity consumption (kwh) of one of your data centers?

    _____

16. Do you track power usage effectiveness (PUE) or any other energy efficiency measures? *Yes*

    a. If so, what is the average PUE of your data centers? ___1.6_____

17. Do you track server utilization? *Yes*

  a. Is so, what is the average server utilization rate of your data centers? ___60%___

18. Do you rent data center space ***from another company***?   ☑ Yes   ☐ No

If yes, what percentage of your data center needs are met by renting space from others?
___80___%

19. Do you lease or outsource ***from another company*** any of the following elements of your data centers?

	Yes	No	Sometimes
b. Servers	☐	☑	☐
c. Facility management	☑	☐	☐
d. Maintenance & repairs	☑	☐	☐
e. Other, specify:_____	☐	☐	☐

20. Do you lease space in your data center(s) ***to other companies***?   ☐ Yes   ☑ No

If yes, what percentage of your racks are leased to other companies? _____%

21. If you lease DC space to or from another company, does the tenant or facility owner typically pay for electricity costs? _____

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22. Has your company considered or used any of the following technologies and energy saving strategies: **(check all that apply)**

	Has used		Never used		Don't know
	would use again	would not use again	would consider in the future	would not consider	
Facility Management					
Isolating hot/cold aisles	☑	☐	☐	☐	☐
Blanking panels	☑	☐	☐	☐	☐
Enclose server racks (e.g., strip curtains)	☑	☐	☐	☐	☐
Data center infrastructure management (DCIM) software	☑	☐	☐	☐	☐
Raising temperature set points	☑	☐	☐	☐	☐
List typical facility temperature: _____					
Variable speed fan drives	☑	☐	☐	☐	☐
Energy-efficient air handling units	☑	☐	☐	☐	☐
Modular facility design for data center expansion	☑	☐	☐	☐	☐
Air-side economizer	☑	☐	☐	☐	☐
Water-side economizer	☑	☐	☐	☐	☐
Energy-efficiency lighting	☑	☐	☐	☐	☐
Predictive modeling of future IT deployments	☑	☐	☐	☐	☐
Other, specify: _____	☐	☐	☐	☐	☐
Servers					
Energy-efficient server hardware (e.g., power supply, fans, etc.)	☑	☐	☐	☐	☐
Underclocking	☐	☐	☐	☐	☑
Virtualization	☑	☐	☐	☐	☐
Decommission idle servers	☑	☐	☐	☐	☐
Consolidate lightly used servers	☑	☐	☐	☐	☐
Improve data storage efficiency	☑	☐	☐	☐	☐
IT power management software	☐	☐	☐	☐	☑
Other, specify: _____	☐	☐	☐	☐	☐
[Multi-tenant DCs] Adjust pricing models to incentivize energy efficiency					
Space-based pricing	☐	☐	☐	☐	☐
Space and power block pricing (differentiate power and energy)	☐	☐	☐	☐	☐
Space and actual power pricing (differentiate power and energy)	☐	☐	☐	☐	☐
Other, specify: _____TCO_____	☐	☐	☐	☐	☐