MHPCC Data Center Energy Efficiency Measures

Impact of Higher Air Intake Temperatures

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5,000 sf
500 kW IT
8GWh

Tropical climate
Air-cooled Chillers
CRAHs

Federal Data centers Case studies
Case studies

Seal all floor leaks and those between and within the racks
Case studies

Replaced Perf tiles

Redirect cold air from the CRAHs
Case studies

Ceiling space as a plenum
Before trials begin

RAT increased from 74degF to 84degF
Case studies

Individual racks intake top temperature change during trials (60-72)

Average rack exhaust temperature change during trials (75-87)
Case studies

CRAHs Return Avg. Temperatures 64 to 83

CRAHs Supply Avg. Temperatures 53 to 62
Case studies

Chillers Efficiency Improvement

<table>
<thead>
<tr>
<th>CHWST sp degF</th>
<th>45</th>
<th>49</th>
<th>54</th>
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<tr>
<td>CH3 kW</td>
<td>75</td>
<td>50</td>
<td>75</td>
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</tr>
</tbody>
</table>
Case studies

Saved annually:

800MWh
$240,000 utility cost
780 metric tons of GHG emission