Cloud computing is now a disruptive force within IT infrastructure by changing the way IT professionals build out enterprise infrastructure. The cloud provides numerous benefits for enterprise customers including lower costs, opportunities to create new services, significantly faster computing, infinite storage, and best of breed artificial intelligence. Above all, it allows an outdated, heavily inefficient process to shed its skin and become a highly sustainable, resource-conscious platform. As technology advances, technology companies are discovering new ways to use the cloud to benefit the earth by introducing new sustainability practices.

The cloud’s sustainability characteristics are made accessible to enterprise customers through leading cloud service providers including Amazon Web Services (AWS), Google, and Microsoft. As I mentioned in my last article, “Building a Smarter Business: Working in the Cloud,” the cloud is scalable technology that allows everyone from the local dairy farmers to the largest conglomerates to deploy the latest technology—and now, make a positive impact on the environment. Cloud data centers have become tremendously more efficient than on-premise, corporate-run data centers thanks to economies of scale (i.e. HVAC), virtualization software, and the use of highly customized equipment that runs more efficiently, unlike off-the-shelf IT equipment typically used in on-premise data centers. Through the use of machine learning, cloud data centers are also leveraging data to drill down to the most sustainable ways to run these massive data centers. These aspects alone put cloud service providers on the forefront of sustainability, but the sugar on top is that the major cloud providers are also some of the largest users of renewable energy.

Large cloud service providers are advocates for greater use of renewable energy (Exhibit 1) and have publicly stated renewable energy corporate targets. While the majority of providers have the stated goal of 100% renewable energy, Google is the only provider who achieved this in April of last year. AWS has not set a target date to use 100% renewable energy, and Microsoft is making progress to achieve their goal of 60% by 2020. In order to realize these goals, many of these cloud service providers have signed large multi-year renewable energy Power Purchase Agreements, plus they purchase considerable Renewable Energy Certificates (RECs) to offset energy usage that’s not carbon neutral. We tend to favor certain cloud service providers and believe not only that there are potentially attractive investment opportunities, but also a way for investors to add sustainability to their portfolio.

Exhibit 1: Top global corporate buyers of renewable energy (megawatts)

<table>
<thead>
<tr>
<th>Company</th>
<th>Solar</th>
<th>Wind</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google</td>
<td></td>
<td></td>
<td>3,039</td>
</tr>
<tr>
<td>Amazon</td>
<td></td>
<td></td>
<td>1,219</td>
</tr>
<tr>
<td>Microsoft</td>
<td></td>
<td></td>
<td>1,074</td>
</tr>
<tr>
<td>Apple</td>
<td></td>
<td></td>
<td>749</td>
</tr>
</tbody>
</table>

CLOUD IT INFRASTRUCTURE: SPEED, SCALE AND SUSTAINABILITY

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