The Future of Utilities: Powered by Connectivity

Communications providers are investing an estimated $2 trillion in 5G and other connectivity technologies over the next five years\(^1\). What are you doing to take advantage of these new technologies and stay ahead of the pack?

How does 5G impact the power & utilities sector?

Organizations and their customers want accountable information delivered anytime, anywhere, and flowing through any number of platforms or devices. To accommodate this exponential growth in demand, communications providers are rolling out next-generation connectivity technology including wireless and wireline densification, edge computing, and software defined networks. For power and utilities providers these investments can enable greater speeds, faster reaction times, and more flexibility in network architecture.

Utility Poles can host radios to enable next generation communication and IoT capabilities:

- **5G network slicing capabilities** can enable multiple use cases with varying needs, while also condensing multiple monitoring and management networks into one layer.
- **URLLC (Ultra-Reliable Low Latency Communication)** systems to respond to disruptions within just a few milliseconds.
- **Utility infrastructure can be leveraged and monetized** to enable Smart City use cases.

Electric Utility Value Chain

<table>
<thead>
<tr>
<th>Today</th>
<th>Tomorrow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation</td>
<td>Transmission &amp; Distribution</td>
</tr>
<tr>
<td>Customer Management</td>
<td>Corporate Services</td>
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</tbody>
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Connectivity and network intelligence provide the ability to centrally monitor, self-regulate, and respond to demand. Remote camera and sensors will reduce manpower needed for on-site maintenance.

Sensors will allow near-real time diagnosis of anticipated and unexpected disturbances, enabling faults to be located with more accuracy and speed.

A dense network of sensors possible with 5G will enable real-time customer analytics, access to usage and pricing information, and new energy management solutions.

Let's talk

Deloitte has helped numerous companies across various sectors prepare for the Future of Connectivity. We understand the implications of new technologies, new entrants, and new business models. Let's talk about what that means for you and your business.

1. Combined capital and operating expenditures; Deloitte Analysis

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The future is coming—fast

New capabilities, changing needs, and increased competitive interest in connectivity are driving radical change in the industry. This creates opportunities for power & utility companies to improve their own operations, while also monetizing assets:

### Anticipated 5G Capabilities

- **Lower Latency**—enables the tactile internet and use cases such as connected fleets, remote robotics, and drones.
- **Faster Peak Speeds**—Performance levels similar to or better than fiber in the office or on the go, enabling streaming of larger bandwidth applications (e.g., high definition AR/VR).
- **Massive Device Density**—1,000x increase in number of devices on the network, paving the way for dense IoT deployments and machine to machine communications.
- **Heterogenous Networks**—Siloed networks will be transformed into seamless interaction between machines and people regardless of network technology or provider.
- **Differentiated Experience**—Speed, latency, and capacity are all available on demand for customer and business to allow for lower costs of connectivity.

### Utility and Connectivity

- 1. Utility Pole
- 2. Wireless radio (5G, CBRS, LPWA)
- 3. Solar Panel
- 4. EV Charging Station

### Power & Utility Needs

- **Increased Speeds**
- **X-Y-Z Axis Location**
- **Mesh Networks**
- **Reduced Latency**

**Illustrative Opportunities**

1. New connected sensors and other devices
2. Leased to Telcos or other Connectivity providers
3. Leased to Solar Companies or PE firms focused on energy
4. Leased to EV companies (e.g., Tesla), EV Charging Companies (e.g., Chargepoint, Envision Solar etc.)

**Design To Build**

- **Connectivity**
  - Access Network Planning/Deployment: Designing and deploying future networks including 5G, small cells, fiber, and copper

**Build To Operate**

- **IoT Network And Platform Enablement**
  - Creating platforms to enable clients to leverage exponential growth in connected devices and data

**Operate To Maintain**

- **Network Performance**
  - Analyzing network KPI and conducting audits to enhance network performance

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Deloitte can help

We have deep experience at the intersection of connectivity and power & utilities.

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