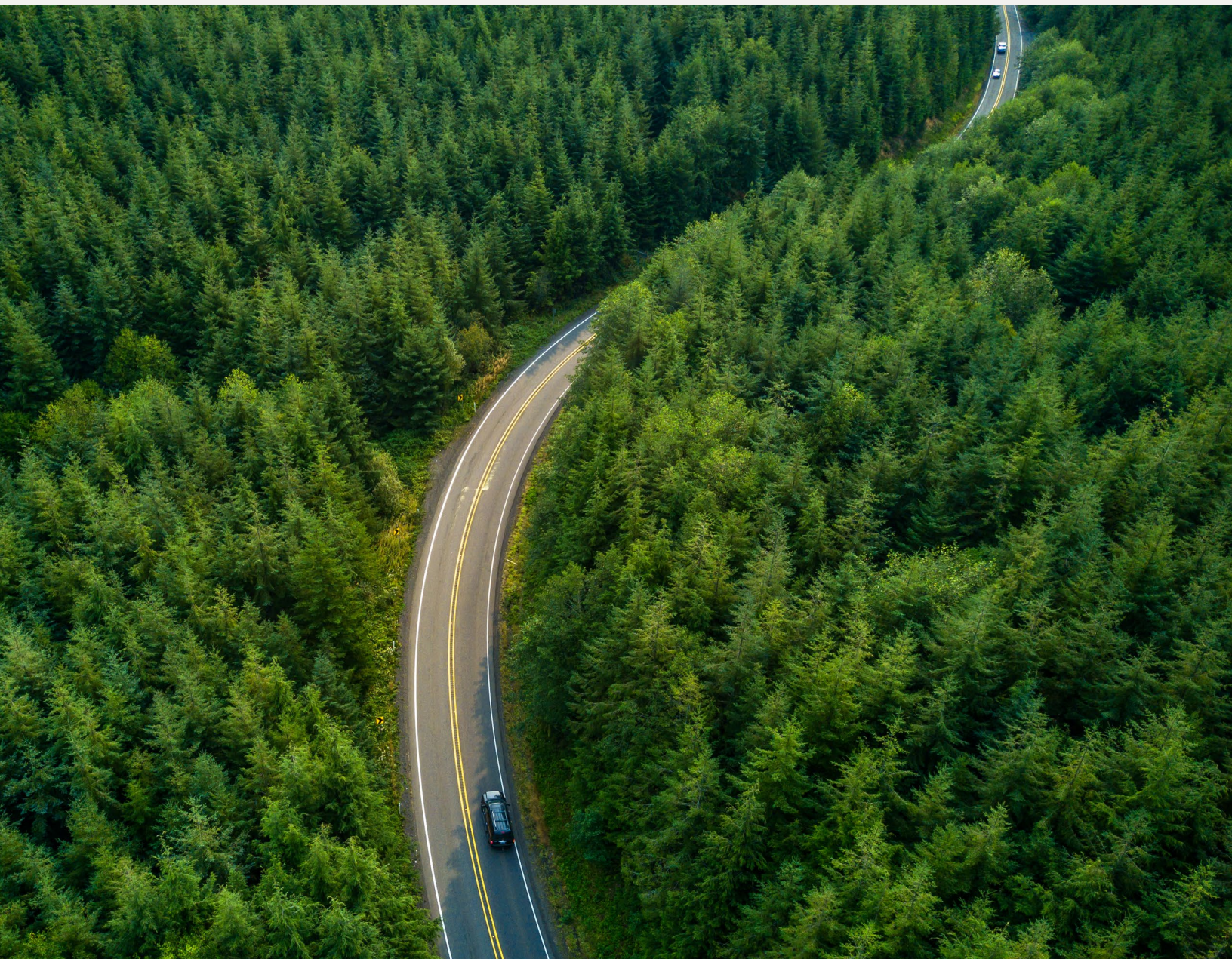


# Net Zero Energy Transition is Driving Digital Transformation

An executive summary about how net zero  
is shaping the Energy & Utilities landscape



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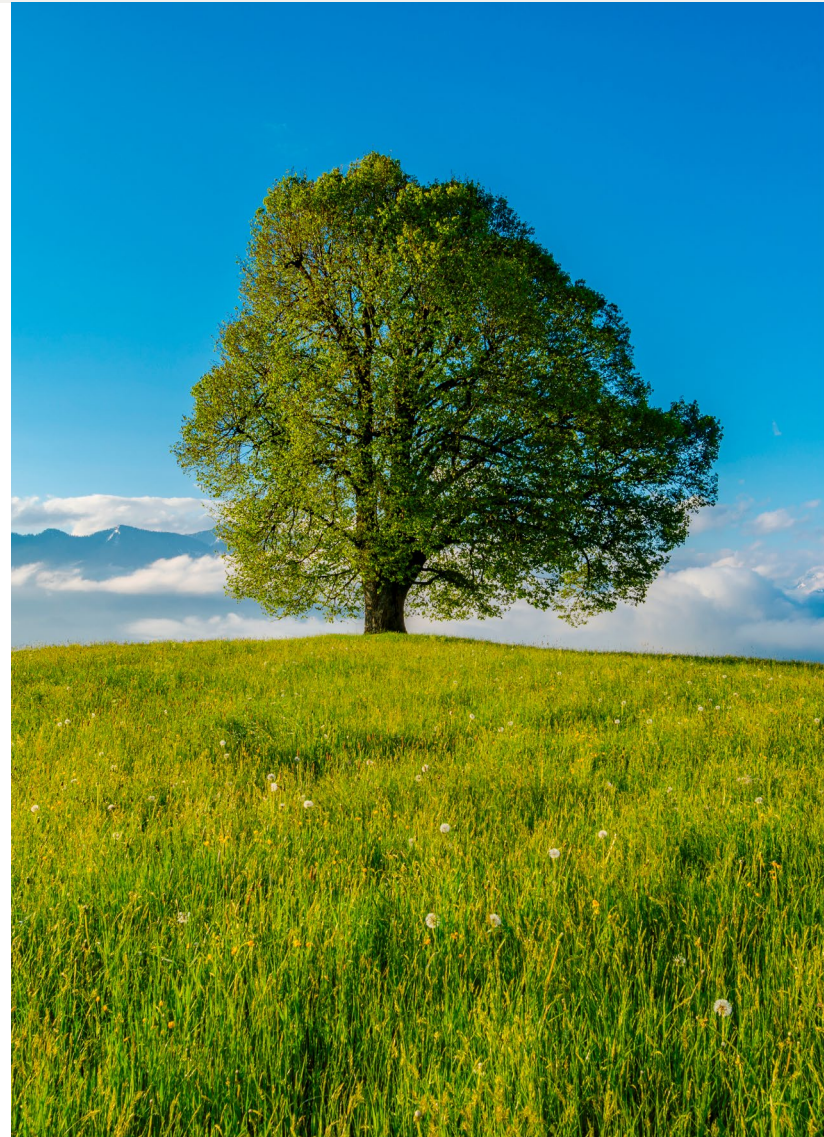
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## What is net zero and how does it impact the Energy & Utilities industry?

The Paris agreement of 2015 resulted in 200 nations submitting plans to reduce greenhouse gas emissions. Three years later, the United Nations' Intergovernmental Panel on Climate Change (IPCC) published a [report](#)<sup>1</sup> stating that in order to limit global warming to 1.5 °C, global emissions need to be cut 45 percent by 2030 (compared to 2010 levels) and bring them to net zero by 2050. The IPCC indicated just another .5 degree rise to 2.0°C could have significant consequences.

Net zero refers to reduction of emissions and removal of greenhouse gases as close to zero as possible, to achieve a net-neutral state. In response to the rising level of greenhouse gases and its impact on the planet, many industries have committed resources to achieve net zero goals. For the energy industry that means huge reductions in the use of fossil fuels and capturing carbon emitted during industrial processes. The term carbon-neutral is often mentioned in that context.





## What investments are the industry likely to make to achieve net zero goals?

Visit any Energy & Utilities company website and you will see a common theme: a commitment to sustainability which includes clean, efficient, affordable energy. To reach net zero emissions by 2050, the IEA estimates [global] annual clean-energy investment will need to more than triple by 2030 to around USD 4 trillion. Most major utilities in the United States have committed to net zero goals.

According to an S&P Global Market Intelligence report<sup>2</sup>, as of December 2020, “70% of the 30 largest U.S. electric and gas utilities had net-zero equivalent targets or were moving to comply with a similarly aggressive state mandate”. That figure has since grown to 86.7%, while the remaining 13% have established targets to reduce emissions but not yet committed to net zero goals. It is notable that the top 30 Utilities in the US had a combined market capitalization of USD 826 billion in 2020. In the intervening period, COP26, a global summit on climate change widely attended by global Energy & Utilities companies was hosted in the UK in November of 2021. For many utilities in the United States, it was a highly significant event that will no doubt drive additional commitments to net zero. Investments by utilities are partly driven by their own net zero goals and partly by societal goals which utilities must support.

## Trending in net zero for Energy & Utilities



**Clean sustainable energy** requires more investment in renewable energy sources such as wind and solar, which will drive investments in grid integration and capacity.



**Renewable energy sources** are being adopted by consumers and sold back to utilities, requiring more investment in grid technologies that enable two-way energy management and monitoring.



**Increased investment in battery energy storage (BES)** technologies are being driven by electric transportation, renewable energy storage, and the principal need for alternative power sources.



**Efficiency and affordability goals** are driving the need to extend energy consumption management and monitoring into the customers' homes and businesses.



**The reduction in fossil fuels** is driving the electrification of energy needs and is driving investments in other alternative energy sources such as hydrogen.



**Electrification** extends to society at large and is driving innovations in electric transportation at a frenetic pace, which requires investment in additional electric capacity to support charging stations.



## How Kyndryl can help Energy and Utilities companies on the net zero emissions journey

Here are three examples of how smart grid investments are driving key initiatives where Kyndryl can play a **major role**:

### 1.

As defined in a [United States Department of Energy analysis](#)<sup>3</sup>, advanced metering infrastructure (AMI) is an integrated system of smart meters, communications networks, and data management systems that enables two-way communication between utilities and customers. Regulators are helping to drive the demand for investment in AMI because of the significant benefits for both customers and utilities.

### 2.

IEC 61850 is the international standard for defining devices within electrical power substation automation systems and how they interact with one another. Utilities are using this standard to retrofit substations and drive designs of future substations with digital networks for monitoring, protection and control functions, removing many miles of copper wire and analog devices in the process.

### 3.

The electrification of consumer heating needs and transportation combined with the connection of renewable sources of energy will simultaneously increase supply and demand. This will drive the need to increase capacity and efficiency in transmission and distribution and further drive the need for management and monitoring extending to charging stations.

These **three areas** have digital networks and data in common which will drive the need for more intelligent and resilient communication networks, artificial intelligence, machine learning, and edge computing. These are key Kyndryl strengths that offer significant opportunity to become industry smart grid experts amid unprecedented investment.



## What are some key opportunities for Kyndryl to consider?

The list of initiatives driven by the investment factors stated earlier is a lengthy one. Clearly, electric transmission and distribution networks must enable two-way flow of power and data with enabling digital communications technology to detect, and proactively respond to changes in usage and demand. These networks must be self-healing and enable consumers to become partners in a clean affordable energy future. This is the very definition of a smart grid. At the heart of a smart grid are digital communications and data.

## Why Kyndryl?

Kyndryl has deep expertise in designing, running, and managing the most modern, efficient, and reliable technology infrastructure that the world depends on every day. We are deeply committed to advancing the critical infrastructure that powers human progress. We're building on our foundation of excellence by creating systems in new ways: bringing in the right partners, investing in our business, and working side-by-side with our customers to unlock potential.

## For more information

Visit us at [kyndryl.com](https://www.kyndryl.com)



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- 1 *"Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments,"* United Nations' Intergovernmental Panel on Climate Change, October 2018
- 2 Used by permission of S&P Global
- 3 *"Advanced Metering Infrastructure and Customer Systems: Results from the Smart Grid Investment,"* United States Department of Energy, September 2016