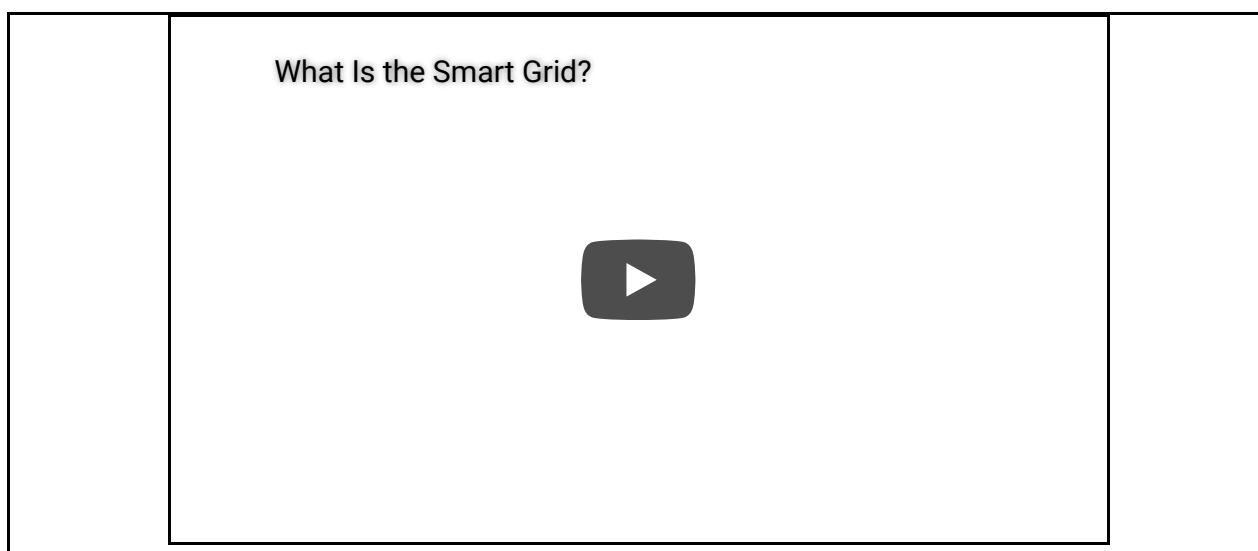


# Understanding the power grid

Understanding the basics of the power grid is a good first step. Deployment of smart grids, already advanced in some countries, is fundamental to establishing a laterally connected, resilient energy system. Moreover, smart grids are already being leveraged by diverse communities and regions in ways that testify to how decentralized, diversified, and democratically owned energy can deliver multiple benefits to people and planet. Visualizing how the smart grid facilitates this is fundamental to understanding the architecture of transition.

## 6.1 Watch: “What is the Smart Grid?” (5:30)



**U.S. Department of Energy.** “What is the Smart Grid?” video, 5:18, posted by the creator to YouTube, June 4, 2013.

<https://www.youtube.com/watch?v=JwRTpWZReJk> <https://www.youtube.com/watch?v=JwRTpWZReJk>

The number of distributed renewable energy generators worldwide is growing rapidly. The ability of the existing electricity grid to accommodate larger quantities of variable solar and wind energy is also developing, contrary to naysayers and criticism. See Supplemental Reading: REN 2018 for an update on the global growth in all renewables.

Transmission lines to move this new generation, however, do not extend everywhere. You have likely heard of off-grid living or complete independence from the centralized grid. This next video introduces you to distributed renewable energy access and micro-grids. These are not connected to the big-grid, but are grids nonetheless—smaller, independent, localized distribution systems that are often community or co-operatively owned.

## 6.2 Watch: “Micro Grids using renewable energy storage in remote locations.” (7:43)

## Micro Grids using renewable energy storage in remote loca...



**Green Ox Energy Solutions & Solar Technology.** "Micro Grids Using Renewable Energy Storage in Remote Locations," video, 7:43, posted by the creator to YouTube, June 6, 2011.

<https://www.youtube.com/watch?v=Qm79X8zfPCE> (<https://www.youtube.com/watch?v=Qm79X8zfPCE>)

**6.3 Watch "What is a MicroGrid?" (2 minutes)**

## What is a microgrid?



**ABB.** "What is a MicroGrid?" video, 2:09, posted by the creator to Youtube, November 7, 2017.

<https://www.youtube.com/watch?v=cIBKlmtQom8> (<https://www.youtube.com/watch?v=cIBKlmtQom8>)

For more on how micro-grids are being applied in a diverse range of communities, institutions and businesses go to supplemental resources.