# Reframing Curtailment: Why Too Much of a Good Thing Is Still a Good Thing (Text Version)

This is the text version of the video Reframing Curtailment: Why Too Much of a Good Thing is Still a Good Thing.

This video explains energy curtailment—what happens when we can't use all the renewable energy that's available on the grid—and how curtailed electricity can make the grid more flexible and reliable.

[Insert video: <https://www.youtube.com/embed/gIrm4uQHjUM>]

[Music plays, narrator speaks]

[Caption: Kerrin Jeromin, NREL Correspondent]

Hey there, energy community.

Let's talk about curtailment—what happens when we can't use all the renewable energy that's available.

These days, lots of cities, states, and even entire countries are setting goals to decarbonize their power systems.

And that will mean building a lot of wind turbines and solar panels.

But it also means figuring out what to do with all the energy those solar panels generate in the middle of the day, when the sun’s at its peak, and the wind energy that's generated in the middle of the night when electricity demand is low.

You see, when wind and solar represent a small percent of overall electricity generation, it’s easy for the grid to use all that renewable power—at any time of day, on all days of the year.

But, at higher levels of wind and solar, there are times when these resources produce more energy than the grid can serve to customers.

That’s where curtailment comes in: not all the energy that is generated gets used.

And this can happen not just in cases of oversupply, but also when there's a lack of system flexibility, which could mean congested transmission lines, other power plants being unable to reduce their output safely or economically, or other constraints.

So, curtailment has gotten a bit of a bad reputation for wasting abundant renewable energy.

But we don’t need to think of curtailment that way.

Think about it like buying a cable package for your TV—or a subscription to any of the streaming services out there.

Buying that package knowing you can’t possibly watch all of the thousands of programs available to you isn't all that different from building more renewable power plants, knowing we won't always be able to use all the energy they produce.

The point is, you have it for the shows you can't miss, and the package gets you the best value in the end.

We're going to need a lot of wind and solar in a super-high-renewable future.

And the best strategy might be to max out our renewable energy "package,” so we have enough power when we really need it, and get comfortable with curtailing some of it sometimes, to maximize its value at other moments.

This is nothing new: the grid has always had more power plants than are used most days of the year—because we can't afford not to have that backup power to keep the lights on when we need it.

One reason why renewable curtailment has gotten a bad rap is that it reflects a lost opportunity to sell clean, free electricity.

But as the cost of wind and solar continues to decrease, so does the impact of this lost opportunity.

And here's the clincher: curtailed electricity can actually be used to help make the grid more flexible and reliable—making these solar and wind systems more valuable in the end.

It's happening today: Xcel Energy can actively curtail wind generation to support reliability in its U.S. power systems.

And First Solar's large-scale PV plant in Chile uses curtailment as a tool to help the grid respond to changing system needs, letting grid operators turn the system's output up and down as needed.

So, if we have regulations that discourage curtailment, we'll miss out on all the added benefits renewable power plants can offer.

Just like how if you didn’t buy that TV package, you’d miss out on the season premiere of that show everyone’s talking about.

So, the bottom line: when it comes to wind and solar, too much of a good thing is still a good thing.

Learn more about our research at nrel.gov.

[Web address appears on screen: nrel.gov/analysis]