

# Natural Gas & Renewables: Working Together



## REDUCED EMISSIONS AND ABUNDANT, DOMESTIC ENERGY

Over the last few years, production of natural gas and renewable energy resources have reached record levels in the United States.

More efficient and cost-effective technology has led to a sharp increase in natural gas production, contributing to a decline in prices which in turn has made natural gas the most economical and widely used source of domestic energy.

Simultaneously, wind and solar generation have increased rapidly, and the U.S. Energy Information Administration predicts that renewable energy resources will be the fastest-growing source of U.S. electricity generation for the foreseeable future.

It is no coincidence that renewables and natural gas are experiencing tremendous growth. The numerous economic and environmental benefits of natural gas make it the ideal foundation for the further use of renewables. Together, they will help deliver clean, secure and low-cost energy to power America.

“*Low natural gas price benefits renewables by reducing the overall levelized costs of energy, thus deepening further complementarity opportunities between utility-scale PV (photovoltaics) and natural gas.*”

– Foundation for Renewable Energy and Environment

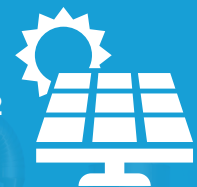
*Without natural gas, the widespread adoption of renewables would be slower, more complex and more expensive.*

## Natural Gas is the Foundation for Renewables

- ✓ Natural gas generators can ramp up quickly when intermittent renewable resources are unavailable.
- ✓ An abundant supply of natural gas has given the United States a global energy advantage, with wholesale natural gas prices of about one-third those of other industrial countries.
- ✓ Lower natural gas prices help make renewables more affordable for consumers. When natural gas is used as a “backstop” for renewables, the overall costs of electric power decrease.
- ✓ A study published by the National Bureau of Economic Research found a correlation between the adoption of natural gas and renewables for electric generating capacity. For every 1-percent increase in fast reacting generation, renewable power generation increases by 0.88 percent.
- ✓ A study conducted by the Foundation for Renewable Energy and Environment found that natural gas has a broadly positive effect on solar power development and that “low gas prices could benefit solar energy growth.”

## Did you Know?

With a gross capacity of **392 megawatts**, the Ivanpah Solar Electric Generating System in the Mojave Desert is the **world's largest solar plant**. Natural gas is a critical part of the plant's functions, because it is used every day to jump start operations.

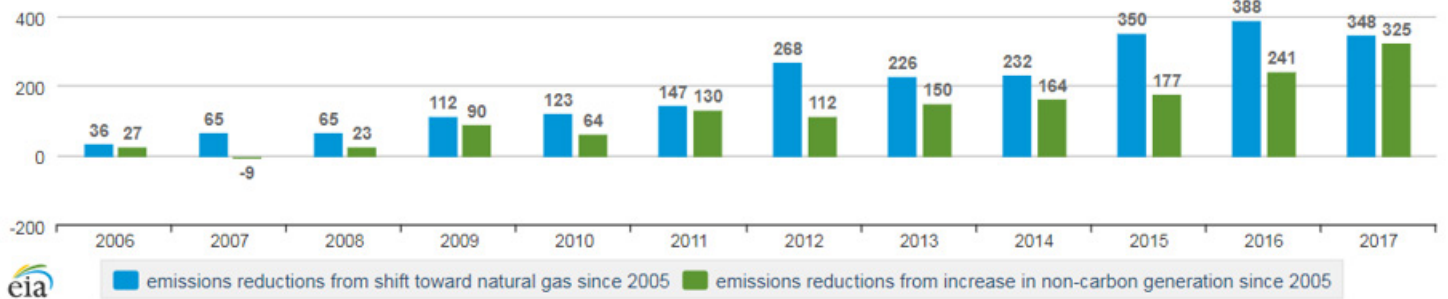


## The increased use of natural gas and renewables together are driving significant environmental benefits in the United States.

- ✓ The Martin Next Generation Solar Energy Center is the second-largest solar facility in the world and the first hybrid solar facility to combine a solar thermal array with an existing combined cycle natural gas power plant. The plant is projected to produce 155,000 MWh per year – enough to serve nearly 11,000 homes or 26,000 people.

### CO2 savings from changes in the electric generation fuel mix since 2005

million metric tons of CO2



“Renewables and fast-reacting fossil technologies [like natural gas] appear as highly complementary and that they should be jointly installed to meet the goals of cutting emissions and ensuring a stable supply.”

– National Bureau of Economic Research

“Cheap natural gas can also make it easier for solar and wind energy to further penetrate electricity markets by providing the rapid backup that those intermittent sources require.”

– Professor of Physics Richard Muller, University of California, Berkeley

“Natural gas has an important role to play in complementing low-carbon energy solutions by providing the flexibility needed to support a growing renewables component in power generation.”

– International Energy Agency

“...As more and more variable resources are brought into the electricity system, the more you are going to need natural gas for the balancing of that system.”

– Former Energy Secretary Ernest Moniz

