

RENEWABLE ENERGY SOLUTIONS

# Renewable energy capabilities overview



SOLUTIONS OVERVIEW

WIND

SOLAR

BIOFUELS/BIOMASS

GEO THERMAL

LANDFILL GAS

DIGESTER GAS



### Solutions:

The global demand for onsite renewable energy is increasing as fossil fuels increase in price and concern grows about the economic and environmental impact. Johnson Controls is responding by combining renewable technologies such as biomass, geothermal, solar and wind power with innovative energy efficiency strategies. The result is more environmentally friendly and economical energy supply options for our customers.

- Wind
- Solar
- Biofuels/Biomass
- Geothermal
- Landfill Gas
- Digester Gas

### A complete solution with guaranteed performance.

Johnson Controls can take responsibility for the design, engineering, installation, commissioning, operation and maintenance of these sustainable renewable energy solutions. We can also guarantee the energy production, increasing your energy security and improving the environmental impact of your operations.

### Technology with no boundaries.

Johnson Controls is a \$32 billion leader in energy and environmental solutions. We are well positioned to implement innovative technologies in concert with our established performance contracting solutions. Our contracts often include a performance guarantee, reducing your risk. Our global experience in energy supply- and demand-side businesses, along with 120 years of building expertise, make us well suited for these applications. With 500 offices around the world, we have the ability to deliver solutions anywhere you need them.

### Johnson Controls is implementing many renewable projects, including:

#### WIND

##### **Erie Community Unit School District**

A 1.2 megawatt wind turbine and tubular wind tower, along with an electrical distribution system, is designed to reduce purchased electrical energy consumption by 87%.

The installation is expected to deliver \$9.1 million in total energy savings over 30 years.

#### SOLAR

##### **29 Palms Marine Base**

We installed a 1.1 MW photovoltaic plant at the Marine Air Ground Task Force Training Command in 29 Palms, CA. This is one of the highest-capacity non-utility solar power plants in the world

#### BIOMASS BOILERS

##### **University of South Carolina**

A biomass gasification plant burns waste wood for fuel, providing an added 60 Mlb/hr steam capacity to the central utility plant, and nearly 2 megawatts of electric generation. The plant will cover approximately 85% of the University's annual consumption. The self-funding performance contract guarantees long-term reductions in energy and operational costs.

#### GEOTHERMAL

##### **Utah Department of Corrections**

An onsite geothermal well provides heat for multiple buildings and hot water for showers, kitchen and laundry systems.

#### LANDFILL GAS TO ENERGY

##### **City of Little Rock**

A methane gas recovery system for the city's landfill is expected to collect 90,000 MMBTUs of usable energy from landfill gas annually, which will be purchased by an area manufacturer.

#### DIGESTER GAS COGENERATION

##### **Back River Wastewater Treatment Plant**

A 3 megawatt combined heat and power plant will generate more than 2.4 megawatt hours of electricity per year, generate steam to offset process heating requirements and produce hot water for boiler use.