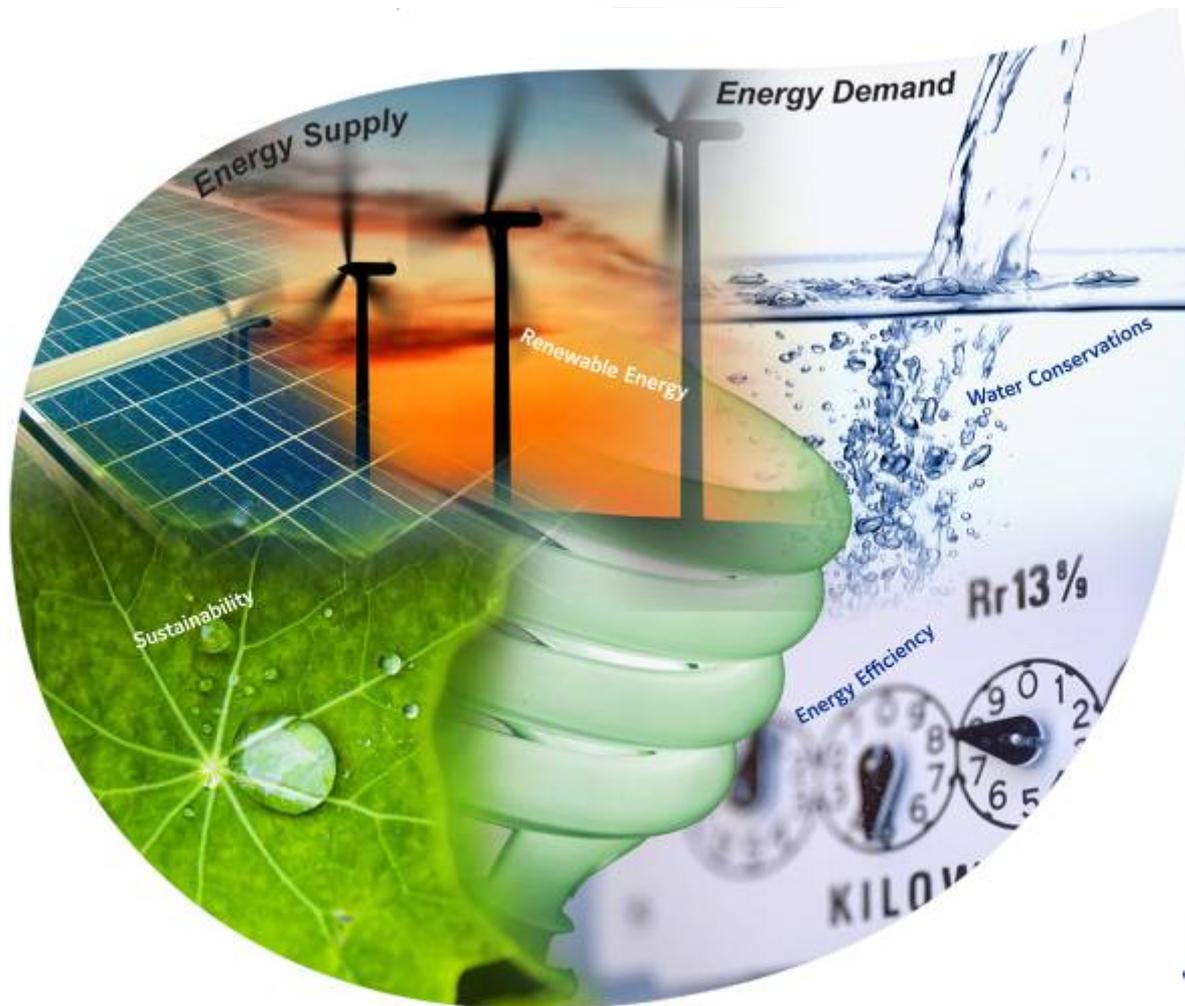


Be a leader. Use less energy. Use smart energy.

# Introduction to Johnson Controls

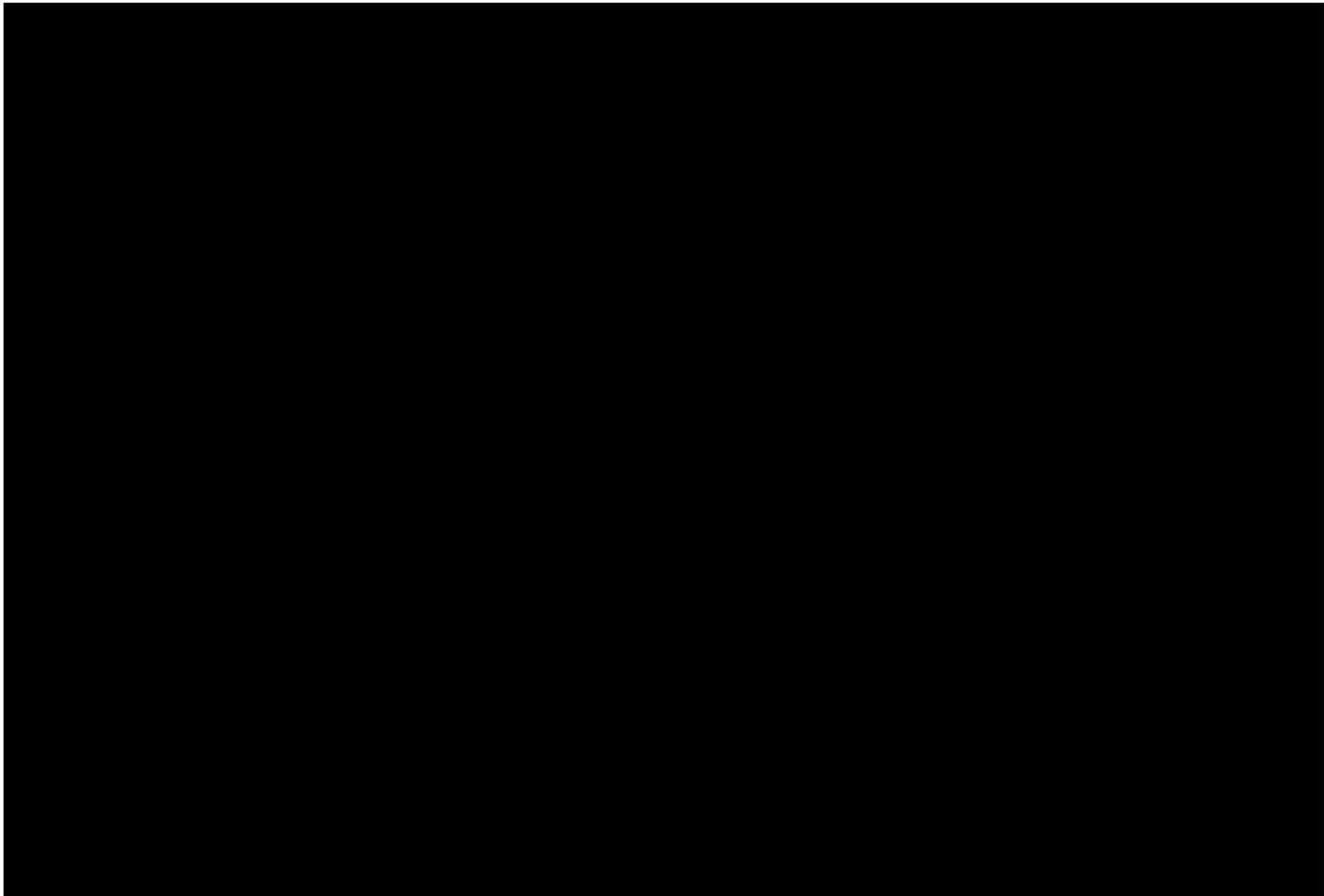


Frank Nicosia

Solutions Project Development Manager



INGENUITY WELCOME





# Our Vision:

A more comfortable,

safe,

and sustainable world.



# We've been creating smart environments for over 120 years

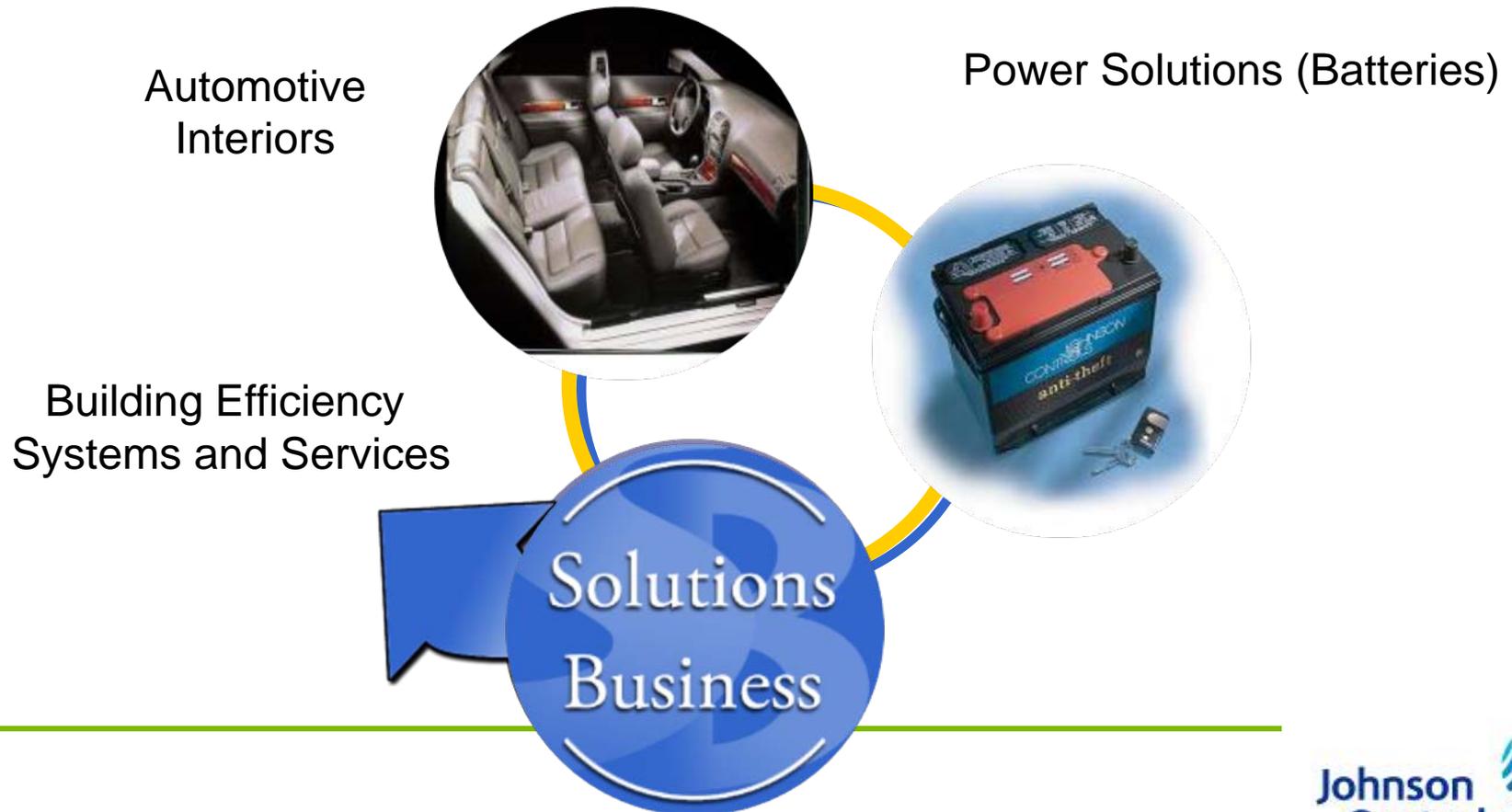
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- ❑ We are a **\$35 billion** company
- ❑ Ranked **67th** in Fortune 500
- ❑ Increasing **sales** for 61 consecutive years
- ❑ 136,000 **dedicated employees** to serve you
- ❑ **Global focus** with customers in 125 countries
- ❑ **Serving you locally** with more than 1,000 locations worldwide



# Johnson Controls has business diversity internally...

- ❑ Automotive Experience (Seating and Interior Systems)
- ❑ Power Solutions (Batteries)
- ❑ Building Efficiency (Systems, Services and Solutions)



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**Innovation** means a new way of doing something. It may refer to incremental, radical, and revolutionary changes in thinking, products, processes, or organizations.

discipline ♦ leadership ♦ innovation

# Building Efficiency – Markets

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1. Education K-12

2. Education – Higher Ed

3. Health Care

4. Government

5. Private Sector

6. Public Housing

7. Industrial



wireless  
infrastructure  
to cut  
operational  
costs



advanced metering  
infrastructure, leak  
detection, water  
conservation

use renewable  
energy to cut  
energy costs



educate  
community

energy  
efficient  
buildings

cut energy costs  
with LED traffic and  
street lights



# New Initiative on Renewables

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## Use of a naturally occurring source of energy to supply electricity or heat

- wind
- solar thermal
- photovoltaic
- landfill gas to energy (LGTE)
- biomass/biofuels
- geothermal
- digester gas to energy (DGTE)

Johnson Controls has expertise in all of these technologies  
And projects installed!!!



# Turn-key renewable solutions

- design
- engineer
- install
- operate
- maintain
- commission
- guarantee performance

Biomass plant at  
University of  
South Carolina



DESIGN



INSTALL



COMMISSION

# Case Study: Biomass (Wood Chips)

**Customer:** University of South Carolina –  
Columbia, SC Campus – 27,000 students

## Challenges

- High energy costs and decreasing State budgets
- Aging inefficient steam generating equipment in need of replacement

## Project Improvements

- Biomass gasification plant burns waste wood
- **85% reduction** in purchased electricity
- Burning wood chips from local sources
- Renewable Energy Curricula for Engineering Students

**Project Results:**  
**\$2 million** annual  
guaranteed savings



# Twenty-nine Palms Marine Air Ground Task Force Training Command

## Awarded in 2001 – 2002

7 megawatt dual fuel cogeneration plant

Eight-acre photovoltaic farm (solar PV)

\$67 million in private sector investment, including \$4.5M utility rebate

Base realizing energy savings and lower utility maintenance

Energy independence from grid

- up to 6 days for critical loads
- increased power quality



# Case Study: Solar PV for electricity generation

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**Customer:** Wyandotte Municipal Services and Wyandotte Public Schools, Wyandotte, MI

**Project:** 10-kilowatt photovoltaic roof system

## Solutions:

- ❑ Hybrid energy conservation system and learning tool
- ❑ 8<sup>th</sup> grade physical science curriculum from Johnson Controls Academy curricula program
- ❑ Funded in part by a \$50K State of Michigan Energy Office Grant
- ❑ Demonstrates leadership in energy efficiency and educational opportunities

## Expected Results:

- ❑ Expected energy savings of over \$180,000 over 30 years\*
  - ❑ Build awareness with school children and citizens of Wyandotte to learn about benefits of alternative energy
- 



# Case Study: Wastewater Treatment Plant Methane Gas

**Customer: City of Baltimore**

## Challenges:

- Some untreated gas being used in process, remainder flared off
- End of life process equipment due to using untreated Biogas

## Project Improvements

- Captured former waste stream (methane gas) and converted it to a useful application
- New facility cost funded by savings
- Reduction in emissions of 13 million pounds of CO and 7.7 grams of nitrogen oxide
- **25%** of the project work done by local MBE/WBE contractors

**Project Results:**  
**\$1.8 million** annual guaranteed savings



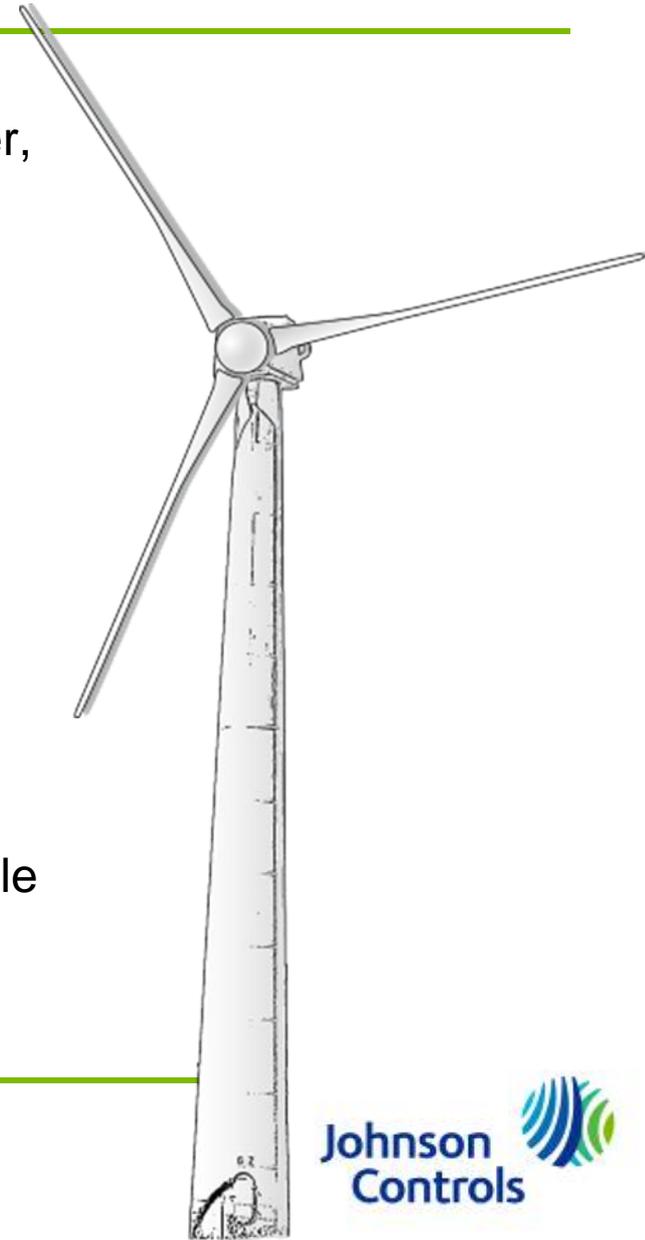
# Case Study: Wind Energy

**Customer:** Erie Community School District, IL

**Project:** 1.2 megawatt wind turbine, tubular wind tower, electrical distribution system

## Results:

- ❑ **Provide** energy to the elementary, middle and high schools – first in the nation.
- ❑ **Decrease** the school district's purchased electrical energy consumption by 87 percent
- ❑ **Save** approximately \$5.5 million in total energy savings over 30 years –
- ❑ **Secured** a \$720k grant from Illinois Clean Energy Foundation
- ❑ **\$3 million or more** in net **revenue** over the life cycle of the unit by selling any excess energy to the local energy provider for placement on the Commonwealth Edison's distribution grid



# Building Efficiency – Career Opportunity

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- **Project Development Engineering**
  - Identifies energy savings opportunities at client facilities
- **Construction Management**
  - Installation of energy savings projects
- **Performance Assurance Engineers**
  - Measure and verify energy savings annually
- **Sales**

# Building Efficiency – Sign me up!!

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Our website is the best place to start

[www.jci.com](http://www.jci.com)

## Contact

Frank Nicosia

Regional Project Development Manager

Mid-Atlantic Region

[frank.p.nicosia@jci.com](mailto:frank.p.nicosia@jci.com)