



Excel in safety, operational performance and environmental stewardship

## 2014 Highlights

- Decreased both our Total Incident Case Rate (TICR), which we use to compare our safety performance to that of other large utilities, and OSHA recordable injuries in comparison to 2013
- The nuclear fleet's capacity factor exceeded 90 percent for the 16th straight year

## Challenges

- Develop and implement detailed plans for closing ash basins that meet stakeholder expectations while also complying with state and federal requirements
- Ensure safe operations in all aspects of our business to prevent additional fatalities; ensure all our employees and contractors make it home safely every night and ensure public safety

## Opportunities

- Increase our focus on operational excellence to reduce environmental impacts and increase efficiency

## Safety: When Numbers Don't Tell The Whole Story

Numbers don't always tell the whole story. When you look at our injury rate, 2014 was our best year on record for decreasing our TICR, which we use to compare our safety performance to that of other large utilities. We also decreased OSHA recordable injuries by 11 percent from 2013.

However, Chris Dasher, Mike Davis, Keith Jester and David Pate – all Duke Energy colleagues – lost their lives on the job last year. We will continue to investigate and understand why accidents occur, and learn from these experiences to prevent situations that might result in serious injuries or fatalities, near-miss events and operational errors in the future.

2014 was one of the worst years we've experienced in fatalities. We must do better.

Every day, many of our teammates work to address hazardous situations by managing risks to provide essential services to our customers and communities. In 2015, every member of our team will work harder to make sure every teammate, whether employee or contractor, returns home to his or her family every day. This will take resolve, tenacity and courage.

We must remember every day why we are here – to deliver an energy experience our customers value and trust. People count on us to be safe, and nothing will take precedence over that.

We must be proactive in identifying risks and taking action before injuries occur to our employees and contractors, using the tools and processes in place to do so.

We can't turn back the clock, but as a company, we will work together to make 2015 truly the best ever for safety. See page 30 for our 2014 safety statistics.

## Climate Change

Duke Energy supports climate change policies that will result in reductions in greenhouse gas (GHG) emissions at achievable rates over time while balancing impacts to our customers' rates, the economies of our service territories and the reliability that our customers count on.

We have taken a number of significant actions that have reduced our CO<sub>2</sub> emissions. Clean, innovative, natural gas plants are being built and many older, less efficient generating units have been retired (with plans to close more in the future). The company also offers its customers a variety of energy efficiency and conservation programs to help them reduce their electricity consumption in a cost-effective manner. In addition, Duke Energy continues to add wind and solar power to its generation portfolio.

The U.S. Environmental Protection Agency (EPA) has proposed regulating CO<sub>2</sub> from new, existing and modified or reconstructed fossil fuel plants



**Ben Carter** | Welding and High Energy Pipe Engineer

under section 111 of the Clean Air Act (referred to as the Clean Power Plan). Duke Energy thinks that creating a national energy policy would best be accomplished through comprehensive federal legislation, rather than a regulatory approach like the one proposed in the EPA's Clean Power Plan.

Duke Energy established voluntary carbon reduction goals in 2010. The goals – which were updated in the company's 2012 Sustainability Report after the merger between Duke Energy and Progress Energy – reflect Duke Energy's aspiration to reduce or offset the company's generation fleet CO<sub>2</sub> emissions by 17 percent below its 2005 level by 2020. Duke Energy achieved this level of emission reduction earlier than anticipated. However, the company's current forecasts suggest it will experience a gradual increase in CO<sub>2</sub> emissions in the years ahead as the economy continues to recover and the demand for electricity increases. Fluctuations in fuel prices could also contribute to increased emissions.

Duke Energy will continue to be actively engaged in the development of the EPA's CO<sub>2</sub> regulations with the focus on outcomes that are in the best interest of customers and shareholders. The company will also continue to modernize its generation fleet and implement technologies to improve efficiency, which will help continue to lower CO<sub>2</sub> emissions.

## \ Connected \

### Insulation Gets More Sustainable

Every five to seven years, the Mayo Plant in North Carolina inspects welds on the plant's high-temperature piping.

That means taking off the calcium silicate insulation that covers 1,100 feet of piping to inspect welds – making sure the piping will continue to operate safely.

Ben Carter, high-energy piping engineer, noticed a problem over subsequent outages. The traditional calcium silicate insulation crumbled when removed, preventing it from being used again. So after seeing dozens of industrial dumpsters haul away old insulation, he started thinking.

"There had to be a better way," he said. "We were sending too much to the landfill."

Carter's idea was to use a new blanket-type material for the piping insulation. Piping located inside the plant used a similar product, but it was necessary to modify the installation for piping that was located outdoors. The selected product worked just as well as the old material – was 15 percent less expensive and could be reused after removal. No waste ... no dumpsters heading to the landfill.

So far, the concept is working well. The coal-fired plant will continue to test the material for the next two years. If successful, the Mayo Plant will share the technique with other Duke Energy plants.

The end result could be a less expensive and more sustainable way to install insulation at power plants.



**Dhiaa Jamil** | Executive Vice President and President, Regulated Generation



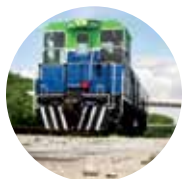
## Nuclear: Present And Future

Throughout 2014, Duke Energy's nuclear fleet consistently delivered clean, safe, reliable energy to customers – whether during record heat or arctic cold. The nuclear fleet set a net generation record in 2014 with its 11 operating units producing 87,031,325 megawatt-hours (MWh) of electricity, compared to the previous record in 2009 of 86,128,459 MWh.

Operating at six sites in the Carolinas, our 11 reactors set a combined capacity factor of 93.18 percent in 2014. This marked the 16th straight year the fleet achieved a capacity factor greater than 90 percent. This high rate of availability keeps a steady supply of power flowing to serve customers.

The three units at Oconee Nuclear Station collectively set an all-time capacity factor record during the year at 94.73 percent. Catawba Nuclear Station Unit 1 and McGuire Nuclear Station Unit 2 completed continuous-day operating runs of 493 and 474 days, respectively.

To meet future electricity demands, Duke Energy continues to pursue combined construction and operating licenses (COLs) from the U.S. Nuclear Regulatory Commission for the Lee Nuclear Station in Cherokee County, South Carolina and a plant in Levy County, Florida.



**Marshall's New Train**  
Higher efficiency,  
reduced emissions –  
the future of coal-  
carrying locomotives

## Duke Energy Reduces Emissions, Fuel Use With New Coal-Carrying Locomotives

After 50 years of using locomotives to haul coal by rail, Duke Energy has retired three of its older locomotives, replacing them with high-efficiency units that are expected to cut emissions at some of the company's largest power plants.

The new locomotives are now operating at three facilities in North Carolina: Marshall Steam Station, Asheville Plant and Mayo Steam Plant.

The new locomotives meet 2015 EPA air quality standards. When compared with emissions from the older trains, the new ones reduce nitrogen oxide and carbon dioxide emissions by 75 percent. The machines are quieter, can work by remote control, and are safer and easier to operate. Instead of taking 20 minutes to crank up, they each take about 30 seconds.

The Marshall locomotive was purchased with the help of a \$200,000 grant from the Clean Fuel Advanced Technology project at North Carolina Solar Center, a project focused on reducing transportation-related emissions in North Carolina counties that have air quality concerns. The others were acquired without assistance.

By mid-2015, four more locomotives will be purchased for other facilities – two for Belews Creek, one for Plant Allen and another for Marshall Steam Station. All meet 2015 EPA Standards.

## \ Connected \

### A Challenging Year

"The past year challenged Duke Energy. Tragically, three Duke Energy employees and a contractor died on the job. Beginning with the ash spill at Dan River in North Carolina, the year continued with additional challenges at our facilities – environmental, operational and safety-related. As regrettable as these events were, they became a trigger for our company – driving us to take unprecedented actions to sharpen our focus on how we operate our business."

### More Power; No Emissions Increase

Wouldn't it be great if Duke Energy could increase the output from its natural gas plants with no increase in emissions?

That's what happened last year when a system upgrade at the Buck Combined Cycle Station in North Carolina improved mass air flow through the machine – resulting in an almost 8 percent output increase.

Overall, 26 MW of new power capacity were generated. That's enough power to serve close to 25,000 homes.

The upgrade also extended the time between maintenance intervals – meaning the plant can be on line for longer periods. Buck is one of the most cost-effective plants on the system. It operates more than 80 percent of the time. The more it is available to be on line, the better it is for customers.

Another positive part of the upgrade is that carbon dioxide emissions from the plant have stayed basically the same from its pre-upgrade levels.

So is Duke Energy expecting to do this again? Yes. The Dan River Combined Cycle Station in North Carolina, built in 2012, is slated to have the same upgrade in 2015. In fact, this type of design may be a permanent part of new gas-fired stations built in the future.

More power with no extra emissions. That's a winner for everyone involved.

## COAL PLANT RETIREMENTS

### Retired Coal Units<sup>1</sup>

	Location	Units	Total capacity (megawatts)	Actual retirement date
Cliffside Steam Station	N.C.	1, 2, 3, 4	198	2011
Buck Steam Station	N.C.	3, 4	113	2011
Edwardsport Generating Station	Ind.	6, 7, 8	160	2011
W.H. Weatherspoon Plant	N.C.	1, 2, 3	177	2011
Gallagher Generating Station	Ind.	1, 3 <sup>2</sup>	280	2012
Cape Fear Plant	N.C.	5, 6	316	2012
Beckjord Station	Ohio	1	94	2012
Dan River Steam Station	N.C.	1, 2, 3	276	2012
H.F. Lee Plant	N.C.	1, 2, 3	382	2012
Robinson Plant	S.C.	1	177	2012
Buck Steam Station	N.C.	5, 6	256	2013
Riverbend Steam Station	N.C.	4, 5, 6, 7	454	2013
Sutton Plant	N.C.	1, 2, 3	575	2013
Beckjord Station	Ohio	2, 3	222	2013
Beckjord Station	Ohio	4, 5, 6	543	2014
W.S. Lee Steam Station	S.C.	1, 2	200	2014
<b>Total</b>			<b>4,423</b>	

### Potential Coal Unit Retirements

	Location	Units	Total capacity (megawatts)	Potential retirement date
Wabash River Generating Station	Ind.	2, 3, 4, 5, 6	668	Retire 2-5 by 2016; suspend 6 by 2016
W.S. Lee Steam Station	S.C.	3	170	Convert to natural gas or retire by 2015
Miami Fort Station	Ohio	6	163	2015
Crystal River Energy Center	Fla.	1, 2	873	2018
<b>Total</b>			<b>1,874</b>	

### TOTAL ACTUAL/POTENTIAL RETIREMENTS 6,297

<sup>1</sup> In addition to the coal unit retirements, a number of older oil/natural gas generation units have been or will be retired.

<sup>2</sup> Per 2009 settlement agreement with EPA.



## Safety At Duke Energy

	2011	2012	2013	2014
<b>Employee and contractor work-related fatalities</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Employee Total Incident Case Rate (TICR)</b> <sup>1, 2</sup>	<b>0.70</b>	<b>0.69</b>	<b>0.62</b>	<b>0.58</b>
<b>Employee Lost Workday Case Rate (LWCR)</b> <sup>1, 3</sup>	<b>0.22</b>	<b>0.20</b>	<b>0.20</b>	<b>0.17</b>
<b>Contractor Total Incident Case Rate (TICR)</b> <sup>2</sup>	<b>1.37<sup>4</sup></b>	<b>1.60<sup>4</sup></b>	<b>1.27<sup>5</sup></b>	<b>1.05<sup>5</sup></b>
<b>Contractor Lost Workday Case Rate (LWCR)</b> <sup>3</sup>	<b>0.32<sup>4</sup></b>	<b>0.38<sup>4</sup></b>	<b>0.28<sup>5</sup></b>	<b>0.28<sup>5</sup></b>

1 Includes both employees and workforce augmentation contractors.

2 Number of recordable incidents per 100 workers (based on OSHA criteria). Top decile in 2013 for employee TICR was 0.62 (based on the latest data available from the Edison Electric Institute).

3 Number of lost workday cases per 100 workers.

4 Data represent turnkey contractors for pre-merger Duke Energy.

5 Systems to gather turnkey contractor safety data are being implemented. Data represent approximately 75% and 80% of turnkey contractors in 2013 and 2014, respectively.

## Preserving And Protecting Water Resources

Duke Energy relies on water for energy production. In 2014, the company's water consumption was about 357 gallons per net MWh of electricity produced. In the states Duke Energy serves, the average household uses from 10.74 to 13.56 MWh per year<sup>(1)</sup>, which equates to about 3,834 to 4,841 gallons of water per year.

While water consumption for energy production is significant, it is only part of a family's water use. The average family of four uses about 400 gallons of water a day, or 146,000 gallons a year, for household purposes<sup>(2)</sup>. Much of this household water returns to the source, but typically, approximately 23 percent is consumed<sup>(3)</sup>.

Duke Energy is fortunate to operate its U.S. power plants in areas with sufficient water resources. This may not always be the case, so the company is protecting and preserving water resources through power plant modernization, energy efficiency efforts and other innovative strategies.

In North Carolina and South Carolina, Duke Energy worked with stakeholders to establish the Catawba-Wateree Water Management Group, a nonprofit corporation composed of 18 regional public water suppliers and Duke Energy, which developed a basin-wide Water Supply Master Plan. Through implementation of conservation measures and improved drought management, the plan will extend water supplies for decades

beyond current projections. As of March 2015, 15 of the 18 members have adopted nonbinding resolutions in support of the plan.

This collaborative and forward-thinking approach to managing the region's water supply ensures the sustainability of water resources for a growing region while meeting energy production needs.

1 U.S. Energy Information Administration

2 U.S. EPA Watersense

3 U.S. EPA Water Use Information

## Permanent Solutions Being Crafted For Ash Management

After the Dan River coal ash spill in February 2014, Duke Energy has been busy accelerating plans to close basins across the system and working aggressively to improve the company's coal ash management practices.

The company performed a comprehensive engineering review of its ash basins to ensure the system continues to operate safely and to inform initial closure strategy recommendations.

Duke Energy is also working rapidly to close all 32 ash basins at its 14 North Carolina facilities in time to meet aggressive state deadlines of five to 15 years. The EPA also finalized a federal coal ash rule, which directs additional work in North Carolina and across the rest of the company's service area.

## RELIABLE POWER

Already, the company has filed specific plans to excavate ash from Asheville Steam Plant, Dan River Steam Station, Riverbend Steam Station and Sutton Steam Plant – all in North Carolina – and the W.S. Lee Steam Station in South Carolina. Duke Energy will safely recycle the ash or relocate it to a lined facility.

Site-specific engineering continues at other plants to transform initial closure strategies to the detailed engineering closure plans required by the new federal rule.

The company produced about 3.5 million tons of ash in 2014 across its coal fleet and manages about 280 million tons in ash basins, landfills and other storage units. About 48 percent of the ash produced was recycled in concrete products or used as fill material.

The company also formed a National Ash Management Advisory Board – an independent panel of experts – to help guide Duke Energy's strategy around permanent coal ash disposal solutions.

### Ash: Proposed settlement reached with U.S. government

In February 2015, Duke Energy announced it had reached a proposed agreement with the U.S. government that, if approved, would close the federal investigation into the company's Dan River coal ash spill and ash basin operations at other North Carolina coal plants.

The agreement identified nine misdemeanor violations of the Clean Water Act in connection with the spill and unauthorized discharges at various Duke Energy plants. The company is addressing each of the issues through facility improvements or new permitting.

### Among the major provisions of the settlement:

- It requires Duke Energy Carolinas and Duke Energy Progress to pay a total of \$68.2 million in fines and restitution and \$34 million for community service and mitigation. These payments will be borne by shareholders, not customers.
- It also includes a five-year probationary period with a court-appointed monitor to ensure compliance with all provisions.

Reliable power is one of the highest priorities for Duke Energy and its customers. Despite some wild weather, including harsh arctic cold that pushed customer demand for power to historic levels in Duke Energy's Midwest and Carolinas service territories, power reliability remained high and continued its improving performance trend over the past three years.

## Outage Statistics

	2011	2012	2013	2014	2014 Target
<b>Average number of outages<sup>1,2</sup> (occurrences)</b>	1.30	1.19	1.14	<b>1.13</b>	1.15
<b>Average time without power<sup>1,2</sup> (minutes)</b>	142	126	121	<b>123</b>	126

1 Outages with a duration greater than 5 minutes; statistics are reported per customer.

2 Lower numbers indicate better performance.

## Generation

Duke Energy's diverse generation fleet capably met our customers' demand in 2014, but did not meet aggressive internal reliability improvement targets.

Nuclear fleet capacity factor, a measure of generation reliability, improved from 92.8 percent in 2013 to 93.2 percent in 2014, and exceeded 90 percent for the 16th consecutive year. The regulated fossil fleet also improved commercial availability performance slightly, from 85.7 percent in 2013 to 85.9 percent in 2014.

The combined, nonregulated fossil and renewables fleets' commercial availability and renewables yield slipped from 91.9 percent in 2013 to 88.9 percent in 2014. Duke Energy Renewables availability metric, Energy Yield, improved to 96.0 percent in 2014 from 93.9 percent in the prior year.

## Generation Reliability

	2011	2012	2013	2014	2014 Target
<b>Nuclear capacity factor<sup>3</sup></b>	93.7%	90.4%	92.8%	<b>93.2%</b>	93.3%
<b>Regulated fossil commercial availability<sup>4</sup></b>	87.8% <sup>5</sup>	86.5% <sup>5</sup>	85.7%	<b>85.9%</b>	86.5%
<b>Nonregulated fossil commercial availability and renewables yield<sup>4</sup></b>	88.9%	92.9%	91.9%	<b>88.9%</b>	92.0%

3 Crystal River Unit 3 is not included in these statistics, because 2009 was the last year it operated.

4 Based on units operated by Duke Energy and ownership share.

5 Former Progress Energy fossil plants, all regulated, are excluded because different measures were used to track their reliability performance before 2013. A common reliability measure for the entire regulated fossil fleet was used starting in 2013.

## Diesel Fuel Released Into The Ohio River

In August 2014, almost 9,000 gallons of diesel fuel were released into the Ohio River during a routine transfer of fuel at the W.C. Beckjord Station in Ohio.

Federal and state environmental response agencies, along with the U.S. Coast Guard, were promptly notified. The Northern Kentucky Water District and Greater Cincinnati Water Works were also notified, which allowed them to take appropriate action to ensure no impacts to public drinking water.

A Unified Command Post was established at the plant and was operational for five days. The company worked closely with the U.S. Environmental Protection Agency, U.S. Coast Guard, Ohio Environmental Protection Agency, Kentucky Department for Environmental Protection and local agencies in response to the spill.

The collaboration of the different agencies during the cleanup proved to be invaluable. Three vessels deployed about 2,000 feet of oil-containment booms to contain and help collect the oil.



**Sea Turtles**  
Protecting sea turtles at Brunswick Nuclear Plant

## Cleaning The Springs

The Kings Bay spring system is a vital cultural and economic resource for the state of Florida. Located near Crystal River, Kings Bay forms one of the largest group of springs in Florida and generates the headwaters of the Crystal River.

The system is a national wildlife refuge, serving as the largest winter refuge for manatees on the Florida Gulf Coast. It is a popular ecotourism destination and has been designated an Outstanding Florida Water by the state.

Now, there will be more fresh water for the springs thanks to a unique partnership between a power plant and a wastewater treatment plant. The city of Crystal River will send up to 750,000 gallons per day of reclaimed water to Duke Energy's Crystal River Energy Complex where it will be used for industrial purposes.

Redirecting reclaimed water to Duke Energy rather than discharging it into a spray field will reduce the amount of nutrients reaching the spring area by an estimated 28 percent. Additionally, the reclaimed water will offset groundwater usage by 0.75 million gallons per day initially. In the future, that may grow to 1.5 million gallons per day. Both efforts will increase freshwater resources flowing into Kings Bay.

Protecting our springs and natural waterways is vital to preserving Florida's natural resources. Together, a Duke Energy power plant and a wastewater treatment plant are doing just that.

## Turtle Diary: Slow And Steady Winner

At the Brunswick Nuclear Plant in North Carolina, employees began working on how to prevent turtles from slipping past the plant's protective barrier on the Cape Fear River.

The plant was averaging 11 stranded turtles a season, with Brunswick's sea turtle recovery program making sure they were rescued and returned to the river.

Then employees began to attack the root of the problem – how to stop turtles from getting past the barrier in the first place.

A maintenance program that shortened the time the barrier was lifted and provided easier and more frequent inspections to identify holes turtles could slip through has shown great results.

In 2012, the plant had 23 sea turtles slip past the barrier. In 2014 ... zero. That result is a win for the company and sea turtles alike.

## East Bend Refocuses On Recycling

Nothing beats face-to-face communication when you're trying to change behavior.

Case in point: After an outage at the East Bend Generating Station in Kentucky, station management noticed a lot of recyclable materials in the trash bins. The station had a recycling program, but many contractors working the outage were not aware of it.

For the next maintenance outage, the station brought extra recycling bins on site and placed them in contractor offices and work areas. In addition, an extra dumpster was placed in the recycling storage area.

The specifics of the recycling program were rolled out during the all-hands safety meeting that kicked off the outage. The contract workforce was receptive and willing to help out.

The results were worth bragging about. After the outage was completed, nearly 11,000 pounds of recyclables were collected. That's about eight open-top (30-cubic-yard) dumpsters. That focus on recycling also saved the company more than \$1,000 in landfill fees.