



# *Entergy Project: Knowledge Transfer*



**Fordham University  
Consultancy Project**  
MS in Marketing Intelligence

August 1st 2018  
New York

It is about...

# Energy

It is also about...

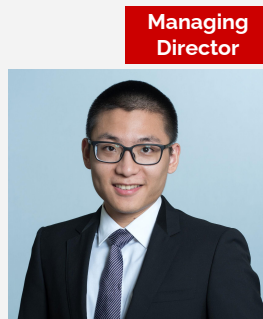
# People!



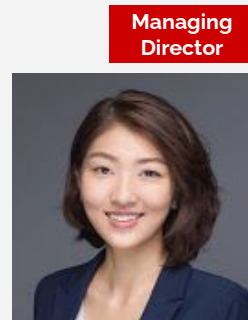
# Meet Our Team!



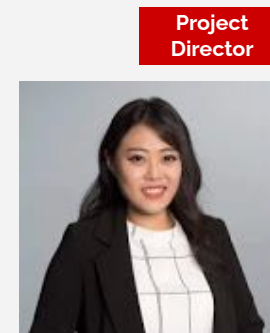
**PROFESSOR  
PETER JOHNSON**



**SICHENG (JASON)  
LI**



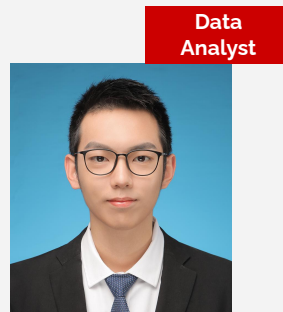
**QIANHE (APRIL)  
ZHAO**



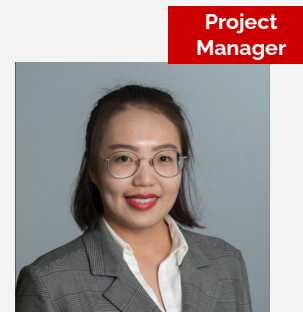
**QIAOCHU CAI**



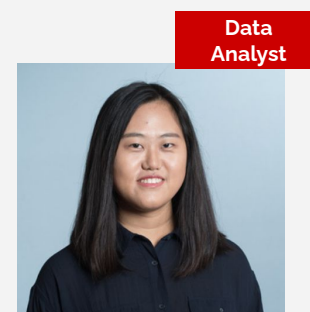
**GEZHI ZHUANG**



**HAOTIAN WU**



**JUENAN CHEN**



**FANGQING YUAN**

# CONTENTS

01

Energy Background

02

Industry Overview

03

Problem Definition

04

Future Research Directions

**01**

First

## Energy Background



# An Energetic Company



**Type :**Public

**Traded as:** NYSE: ETR / S&P 500  
Component

**Industry:** Energy industry

**Founded:** 1914

**Headquarters:** Entergy Tower

New Orleans, Louisiana, United States

**CEO:** Leo P. Denault

**Services:** Electricity and natural gas in New Orleans and Baton Rouge

**Revenue:** US\$11 billion (2017)

**Operating income:** US\$1.24 Billion (2017)

**Net income:** US\$ 425 Million (2017)

**Total assets:** US\$46.7 Billion (2017)

**Number of employees:** 13,440 (2018)

**Website:** <http://entergy.com>

**Ranking:** #263, FORTUNE 500 (June 2017)

<https://en.wikipedia.org/wiki/Entergy>

Entergy official website

Entergy 10K, 2017

Knowledge transfer Entergy's workforce generations: Creating a better plan

# SWOT Analysis: employment management

<b>Strength</b> <ul style="list-style-type: none"><li>• Workforce</li><li>• Capabilities and expertise</li><li>• Technology and abundant inventions</li><li>• Leading status in the market</li><li>• Strong customer base</li></ul>	<b>Weakness</b> <ul style="list-style-type: none"><li>• Aging employees working in the company might be weak in new technology and the latest knowledge</li></ul>
<b>Opportunities</b> <ul style="list-style-type: none"><li>• Renewable energy and the nuclear power development</li><li>• More and more electricity using products are being innovated, like the electric cars.</li></ul>	<b>Threats</b> <ul style="list-style-type: none"><li>• Government regulation and the tax policies changes.</li><li>• Rising cost and increasingly fierce competition in the market, especially in the pricing process.</li></ul>





**02**

Second

## Industry Overview



# What People Say About Energy Industry



A Word Cloud of 200+ Tweets with hashtag “energy industry” on Twitter (June, 2018)



## Method

- Python nltk package
- Stemming

## Top 5 words list

- Renewable
- Time
- Government
- New
- Job

# What Do People Feel About Energy Industry

Do people feel positive, negative or neutral towards the Energy Industry?

Property #	Review Text	posList	negList	neuList
0	1 Y'know maybe I'm straying into hot take territ...	0.000	0.274	0.726
1	2 According to Shin Bet, Gonen Segev is suspecte...	0.271	0.051	0.678
2	3 "If you keep doing a good job for 30 or 40 yea...	0.140	0.063	0.797
3	4 is doing what is best for PA. The is not. ...	0.280	0.045	0.675
4	5 We are committed to improving gender diversity...	0.307	0.000	0.693
5	6 We're exploring how companies like @PowerLedge...	0.271	0.000	0.729

## Method

- Python nltk package
- Stemming

	Property #	Review Te	posList	negList	neuList
avg			0.126	0.063	0.811

Most of the comments are neutral.  
**OPPORTUNITY!**

# Energy Industry Workforce Trends

# Energy Industry Workforce Overview (up to 2016)

- Forecasted retirement rates are **down** for all jobs
- Hiring for the industry has **increased** significantly
- However, total workforce size goes down by 2.7% due to retirement and non-retirement attrition before 2016



Retirement forecasts for Key Jobs have decreased, while forecasts for other attrition have increased

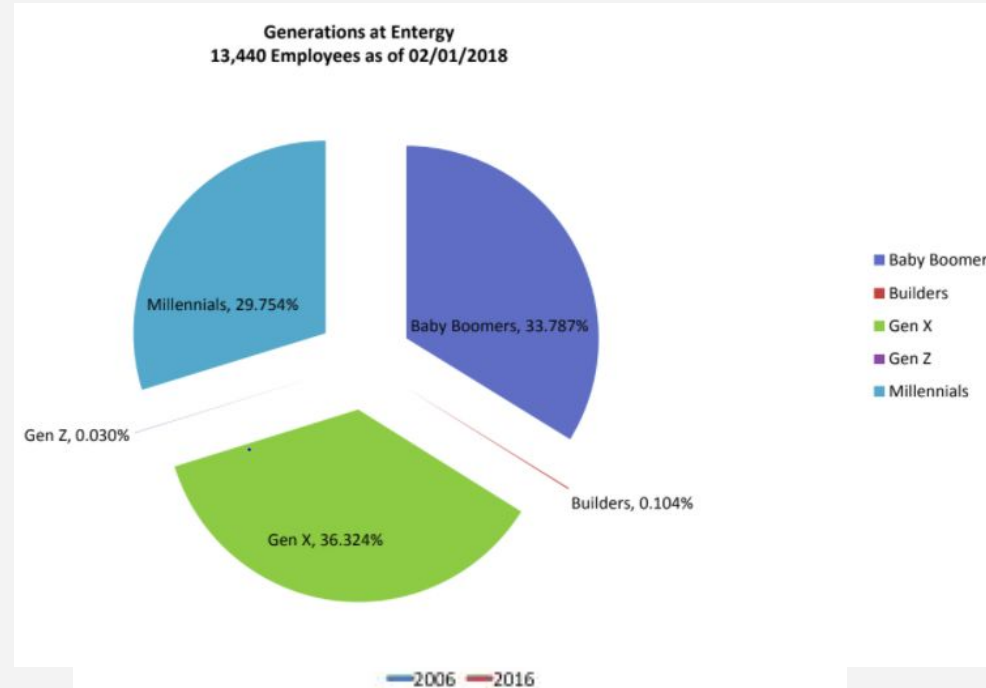


# Energy Industry Workforce Grows Younger

- The age curve for the industry has flattened.
- **Electric cooperatives** have the youngest workforce, with only 25% of their workforce over the age of 53.
- **Investor owned utilities (IOUs)** have the oldest, with 35% over age 53.
- **Public power**, on the other hand, reports only 12% of their workforce under the age of 32.



Source: <http://www.cewd.org/surveyreport/2017CEWDSurveySummary.pdf>

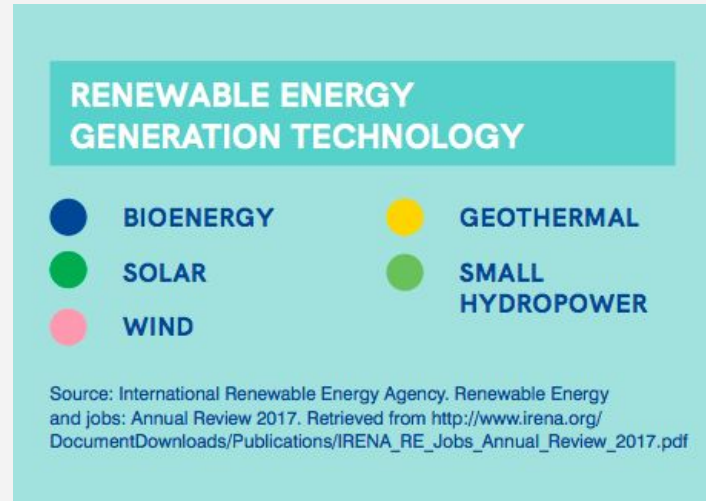
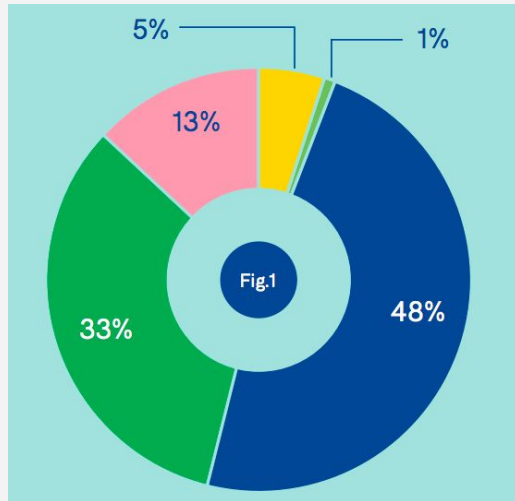




# **New American Workforce in Clean Energy**

# Highlight 1: Opportunities for Workers

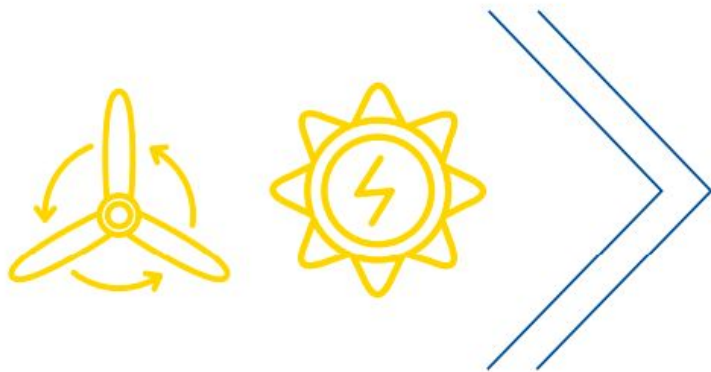
The clean energy and sustainability economy continues to be a large and growing source of jobs for **over 4 million workers** in the U.S



**Jobs Allocation among Different Energy Generation Technologies**

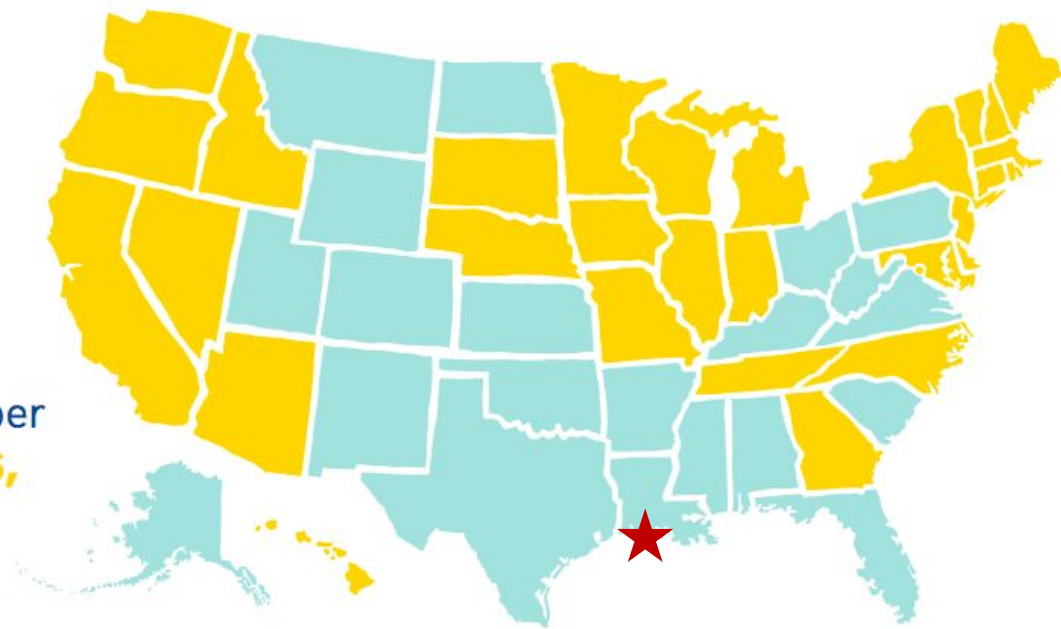


# Where are the jobs?



Wind and solar energy jobs now outnumber coal and gas industry jobs in **30 states**, with California and Texas employing the most workers in those industries.

\*30 states include D.C.



## Highlight 2: Uncertainty for Job Growth

**Changes to incentives and policies at the federal, state and local levels** continue to impact the clean energy economy, leading to an uncertain outlook for job growth.



eg: tax, tariff on imported solar modules

# Highlight 3: Key Drivers to Support Job Growth

**Businesses and local governments are key drivers** of the clean energy and sustainability economy, and can build demand to support job growth.



Renewable Energy and  
Energy Efficient Technologies



**03**

Third

## Problem Definition



# Problem Identification



- 1) Risk of **Knowledge Loss**
  - Five generations in Entergy's Workforce
- 2) **Millennial Workforce** Implications:
  - Composition, impact, opportunities
- 3) **Disruptive innovations** in energy / utility
- 4) **Challenges** with identifying specific competencies needed in future workforce

# Five Generations in the Workplace

Traditionalists

Baby Boomers



Gen X

Gen Y (Millennials)

Gen Z

# What Are the Features of Five Generations in Workforce?



# 1) 5-G WORKPLACE: TRADITIONALISTS

AGE 70-87 (1928-1945)

1% OF THE WORKFORCE



- ❖ Monetary Rewards: Money
- ❖ Non-monetary Rewards: Respect

## Motivational Factors:

- Desire to Lead
- Responsibility to the next generation
- Organizational Loyalty

## Distinguishing Factors:

- Civic Pride
- Conformist
- National Values
- Disciplined
- Dependable



# 2) 5-G WORKPLACE: BABY BOOMERS

AGE 51-69 (1946-1964)

27% OF THE WORKFORCE (ENTERGY 33.78%)



- ❖ Monetary Rewards: More Money
- ❖ Non-monetary Rewards: Goal-oriented

## Motivational Factors:

- Desire Subordinates
- Professional Development
- Loyalty to Self
- Promotion

## Distinguishing Factors:

- Ambitious
- Relationship-Driven
- Support Diversity
- Seek Personal Achievement
- Passionate about Workplace Participation

<https://www.shrm.org/hr-today/news/hr-news/conference-today/pages/2017/5-generations-7-values-endless-opportunities.aspx>

[http://go.maritzmotivation.com/Workforce\\_2020\\_Infographic1](http://go.maritzmotivation.com/Workforce_2020_Infographic1)



# 3) 5-G WORKPLACE: GEN X

AGE 36-50 (1965-1979)

35% OF THE WORKFORCE (ENTERGY 36.32%)



- ❖ Monetary Rewards: Bonuses/Stock
- ❖ Non-monetary Rewards: Flexibility

## Motivational Factors:

- Workplace Culture
- Doing Well by Doing Good
- Meeting Organizational Goals

## Distinguishing Factors:

- Change Masters
- Nonconformists
- Tech-Savvy
- Appreciate Flexibility
- Self-Reliant
- Edgy and Skeptical



# 4) 5-G WORKPLACE: GEN Y (MILLENNIALS)

AGE 20-35(1980-1995)

37% OF WORKFORCE (ENERGY 29.75%)



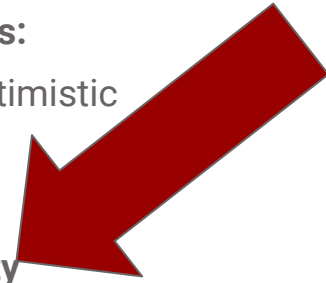
- ❖ Monetary Rewards: Stock Options
- ❖ Non-monetary Rewards: Feedback

## Motivational Factors:

- Workplace Culture
- Mentoring and Feedback
- Skills Training

## Distinguishing Factors:

- Hopeful and Optimistic
- Tech-Savvy
- Multi-Taskers
- Expect **Flexibility**
- Resistant to Traditional Categorization by Race, Religion and Orientation



# 5) 5-G WORKPLACE: GEN Z

AGE 19- (1996-)

1% OF THE WORKFORCE (ENTERGY 0.03%)



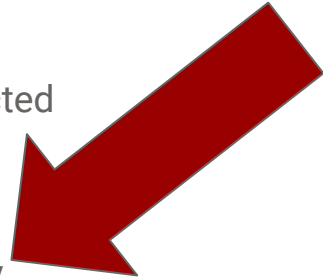
- ❖ Monetary Rewards: Less about Money
- ❖ Non-monetary Rewards: Social

## Motivational Factors:

- Personal Mentorship
- Responsibility
- Constant Feedback
- Meaningful Work

## Distinguishing factors:

- Social and Connected
- **Digital Natives**
- High-self Esteem
- **Demand Flexibility**
- Emotional Attached to Digital Habits



# How Do Others Deal with the Risk of Knowledge Loss?



## Employee Development Center:

- Training for new supervisors and managers
- Extensive library of web-based courses and videos

## Retention Program:

- Retain the **Baby Boomers** with 30 years experience
- Motivate and keep key employees

## Power Systems Institute:

- Combines classroom learning with hands-on training
- Students who complete the program earn an associate's degree

## Power Plant Technology program:

- Partnership with **Technical School Alliances**
- **Co-op/Intern Program**

# Con Edison: The Learning Center (TLC)



**Using Con Edison instructors**



**More than 450 courses in specialized fields:**

- including electric, gas, and steam operations; customer operations; information technology; leadership; and environmental, health and safety compliance



**Provides training programs and conferencing services to large corporate clients**

- Department of Environmental Protection, the Port Authority of New York and New Jersey, Columbia University, Reliant Energy, and KeySpan Energy.)





## Apprentice Plan

- Nine state-registered apprentice programs
- 100 apprentices work for Westar Energy



## Electrify Your Future Experience Plan

- Provide current high school student the opportunity to experience “ a day in the life” in the energy industry
- Participate with area high schools in Topeka, Wichita and other communities in Westar’s territory to give students “hands-on” job shadowing experience.



# National Energy Education Development (NEED)



- ① Mission: help prepare potential **new-hire** candidates for jobs in the utility industry
- ① Work with **CEWD** (Center for Energy Workforce Development)
- ① Implement **education solutions** like stackable credentials, competency-based curriculum, industry-recognized credentials, and assessments

# Results of Knowledge Transfer Programs



Reduction in annual operating costs



Reduction in design & planning errors



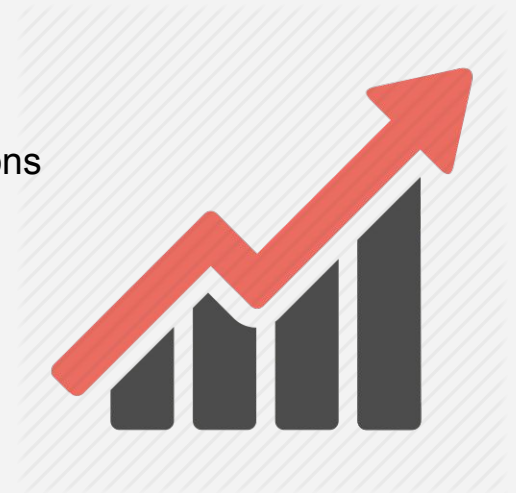
Reduction in time to resolve technical queries & update modifications



Customer satisfaction score increased



Facility uptime increased



**04**

Fourth

**Future Research Directions**

# What Are Future Research Directions For Your ERG Advisory Group

- 1) **Knowledge Transfer Strategies: Systems, technology, narratives**
- 2) **Millennial Workforce: key factors in job seeking and job satisfaction**
- 3) **Data-Driven Employee Segmentation Analysis**
- 4) **Digital Marketing Engagement with Your Employees**

# 1. Knowledge Transfer Strategies

- **Focus:** Use technology to design an easy-to-use knowledge transfer system across generations
- Capture and store the tacit knowledge of senior employees and pass this unofficial knowledge to younger generations
- Preserve stories and legends
- **Data Needed:** employee demographics



## The 5-G WORKPLACE




# 1.1 Training with Stories and Demonstrations

## How to Record Knowledge of Experienced Employees?

- ④ **Employee lectures** and put the videos on the website
  - teaching time for supervisory / retired professionals
- ④ **Interview with experienced staff**
  - Have senior employees tell their stories
  - Interview based on different work categories
  - Make notes and upload to the library online website
- ④ **Video actual working operations**
  - Make it easy for new employees to learn and adopt



# 1.2 Resources, Handbooks and Courses

-  **Set up employee online library**
  - Sort knowledge by category to ensure the new employees can find it
  - Have a tips separate category library
  - Collect and retrieve the work experience based tips
-  **Create new employees' VISUAL handbooks**
  - Make it easy for new employees to understand the company and the work process
-  **Trainee system – think like a University**
  - Be divided into internal courses and external courses.
  - Internal courses should only open to the employees in the Entergy company  
External courses can be available to all the people even outside the company



## 2. Millennials Workforce Implications

- **Focus:** Geographically targeted research on millennials working characteristics and learning styles in the energy industry
- **Insights** about challenges/opportunities of millennial workforce SPECIFICALLY in energy generation
- **NEW** recommendations to attract and retain millennial employees;
- **Data Needed:** employee information, questionnaire sample of internal millennial employees, sample of millennials with targeted energy and nuclear skills



# 2.1 Millennials Workforce Overview

Characteristics at Workplace	Learning Styles	Risks of ignoring the characteristics
<ol style="list-style-type: none"><li>1. Ability to multitask,</li><li>2. Achievement-focused,</li><li>3. Technologically savvy,</li><li>4. Team-oriented</li><li>5. Seeking attention and feedback.</li></ol>	<ol style="list-style-type: none"><li>1. Active engagement -team or collaborative activities</li><li>2. Immersed in technology</li></ol>	<ol style="list-style-type: none"><li>1. Lack of loyalty---&gt; lose employees</li><li>2. Knowledge loss</li></ol>

## 2.2 Millennials- Job Searching Trend



The rise of **mobile job search**: Millennials may be the most active on mobile.



Millennials are also significantly more likely to be skilled in **IT/software programming skills** like C/C++, application development, and computer design than their non-millennial counterparts. They can help build the knowledge transfer and training program.



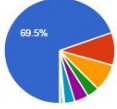
Millennials significantly care more about a **strong career path** and **strong employee development opportunities**.

# 3. Employee Segmentation Analysis

- **Focus:** Data-driven employee segmentation, analyze the characteristics of different segments and provide suggestions on how to better manage employees across generations;
- **Data Needed:** Employee information, employee surveys;
- **Methodology:** Hierarchical and K-Means Cluster Analysis;
- **Process:**
  - Understand employee segments based on variables such as age, working experiences, positions, welfare and education
  - Determine characteristics of each generation segment / sub-segment among the millennial workforce;
  - Provide suggestions on how to better manage multi-generation employees

# 4. Digital Marketing Engagement with Employees

ENTERGY CORP - MEDIA SPEND BY CATEGORY\* [VIEW QUARTERLY DATA](#)

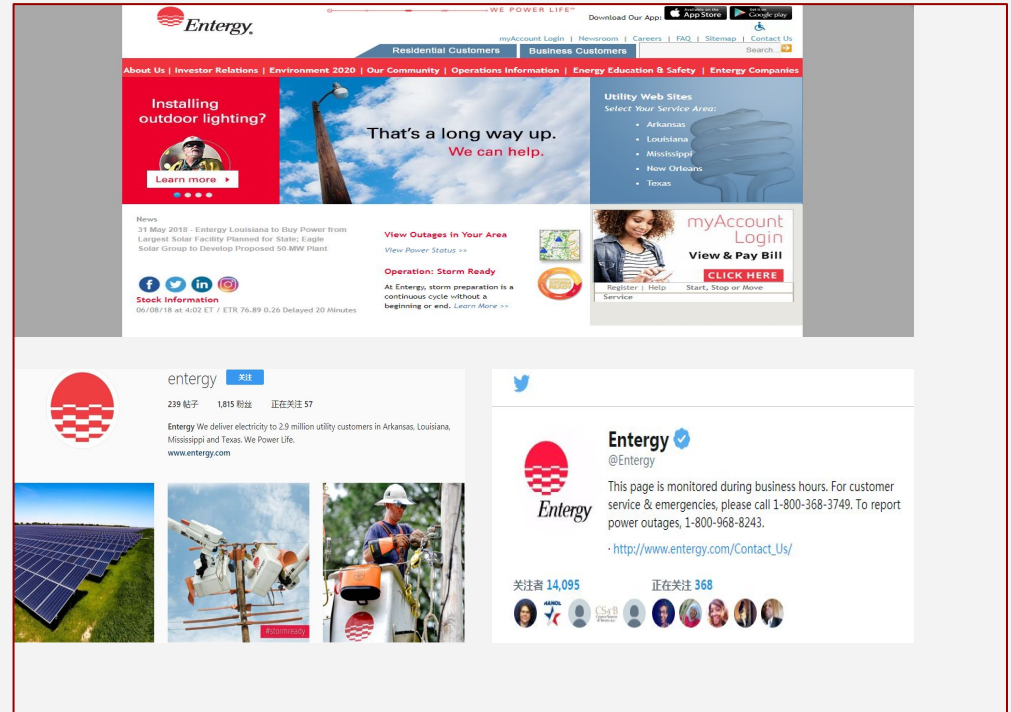
CATEGORY	Q4 2017	Q3 2017	Q2 2017	Q1 2017	CY 2017	CY 2016	CY 2015	CY 2014	Y/Y GROWTH	MEDIA SPEND BY CATEGORY - GRAPH
<a href="#">Spot TV</a>	\$249,557	\$364,371	\$87,790	\$167,914	\$869,632	\$519,400	\$887,033	\$1,062,913	67.4%	
<a href="#">Newspapers</a>	33,275	70,280	15,148	6,464	125,167	683,762	554,229	261,117	-81.6%	
<a href="#">Natl Spot Radio</a>	27,985	1,807	59,225	15,133	104,150	351,360	200,417	29,600	-70.3%	
<a href="#">Mobile Internet</a>	27,366	2,211	4,677	10,435	44,689	22,635	0	0	97.4%	
<a href="#">US Internet - Display</a>	13,583	18,154	12,696	7,141	51,574	169,396	27,352	39,583	-69.5%	
<a href="#">Outdoor</a>	6,500	7,000	12,500	12,000	38,000	21,177	117,877	1,200	79.4%	
<a href="#">B-to-B Magazines</a>	0	5,491	0	0	5,491	19,143	0	0	-71.2%	
<a href="#">Local Magazines</a>	0	0	4,225	5,100	9,325	30,600	53,600	49,100	-69.4%	

Source:  
www.redbooks.com

- **Focus:** Improve employee engagement using the internal website and social media platforms
- **Analysis** of the performance data and provide suggestions on optimization
- **Data Needed:** website traffic data; social media performance data.

# Official Website & Social Media

- Analyze website traffic to provide suggestions on optimizing the websites through Google Analytics
- Provide insights on the culture change in the energy industry from the perspective of digital marketing





Thank you !