



**EDISON ELECTRIC  
INSTITUTE**

# Power Engineers and the Electric Utility Industry

---

*National Science Foundation Workshop*

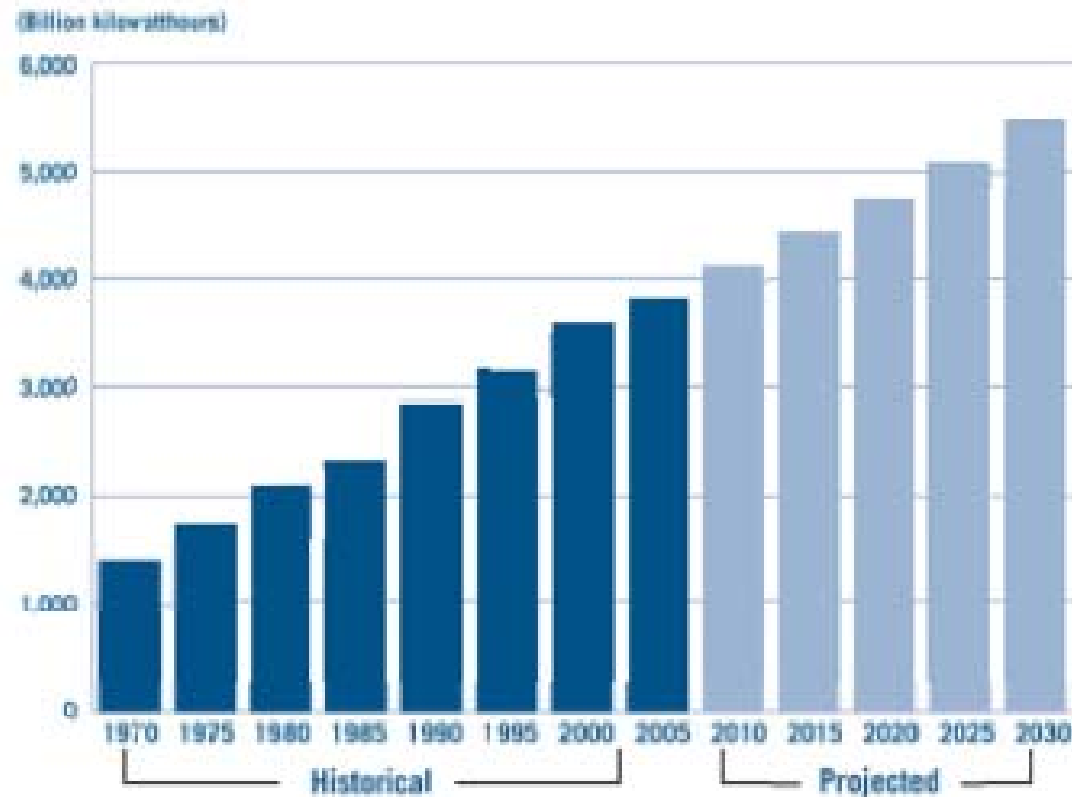
*November 29, 2007*

# Current State of the Industry

---

- Demand for power is predicted to increase 40% by 2030
- Aging Infrastructure
- Societal and governmental requirements

# Growth in Electricity Demand



Source: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 2005* and *Annual Energy Outlook 2007 Early Release*

# What does that mean?

---

- Significant need for new generation
- Investment in or repair and addition of T&D infrastructure
- Reliance on technology and innovation
- And, the need for a diverse, qualified skilled and professional workforce

# Workforce Challenge for the Industry

---

- **Increased demand** for workforce to meet increased demand for electricity coupled with an aging energy infrastructure
- **Decreased supply** of workers due to loss of academic and technical skills and fewer students choosing energy coupled with an aging workforce

# Industry Response

---

## Center for Energy Workforce Development

- Identify and facilitate the replication of 'best in class' workforce development models
- Increase the understanding and improve the perception of energy utility careers

# CEWD Initiatives

---

- Gaps in the Energy Workforce Pipeline Survey
- Get Into Energy website
- Get Into Energy national branding campaign
- Development of skills and competencies
- Partnership and Consortium development

# CEWD: Gaps in the Energy Workforce Survey

---

- 37 electric and gas companies provided data
- 40% of employees in combination companies
- All rural electric cooperatives
- Small percentage of natural gas only utilities

*Did not include: nuclear or supplemental labor*

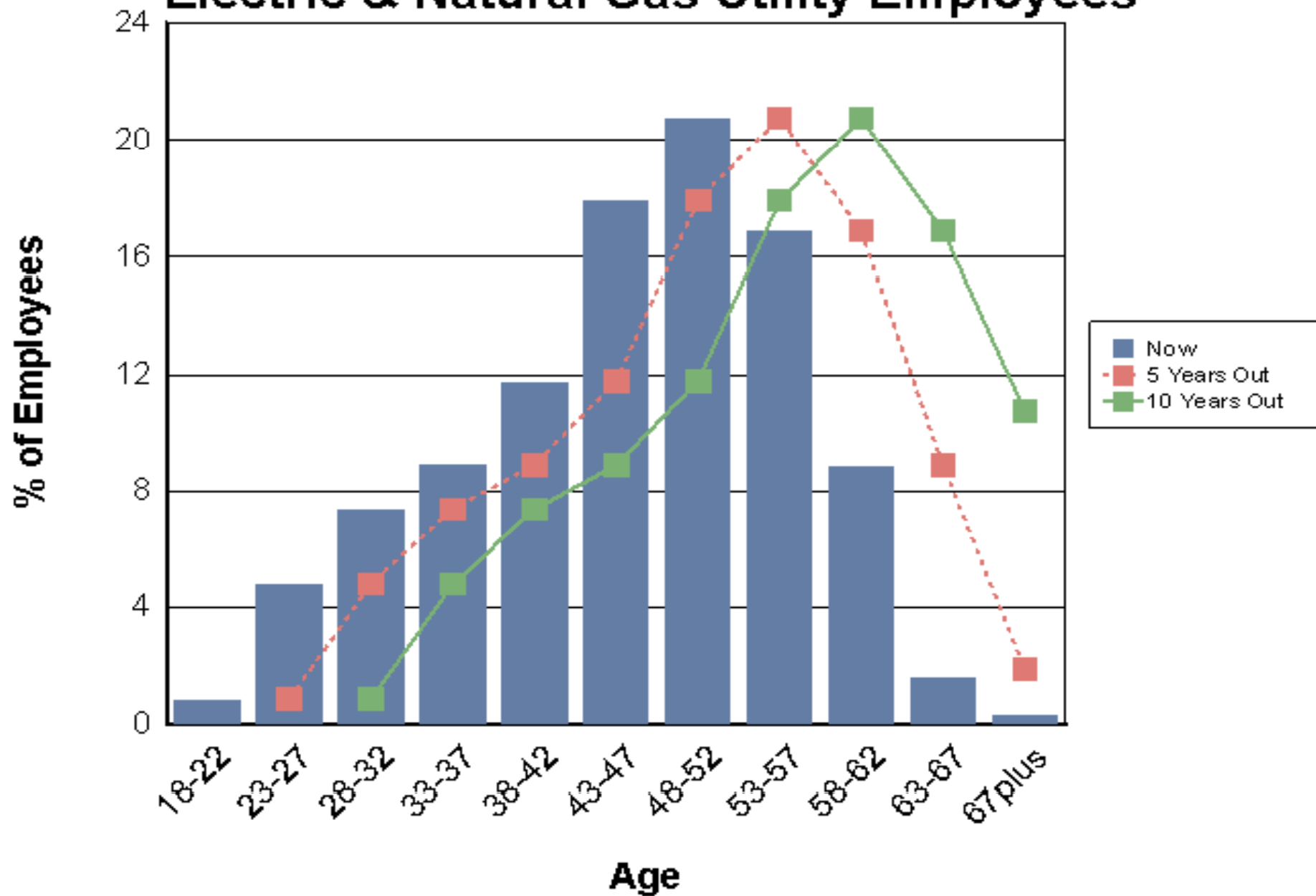
# What Did We Find?

---

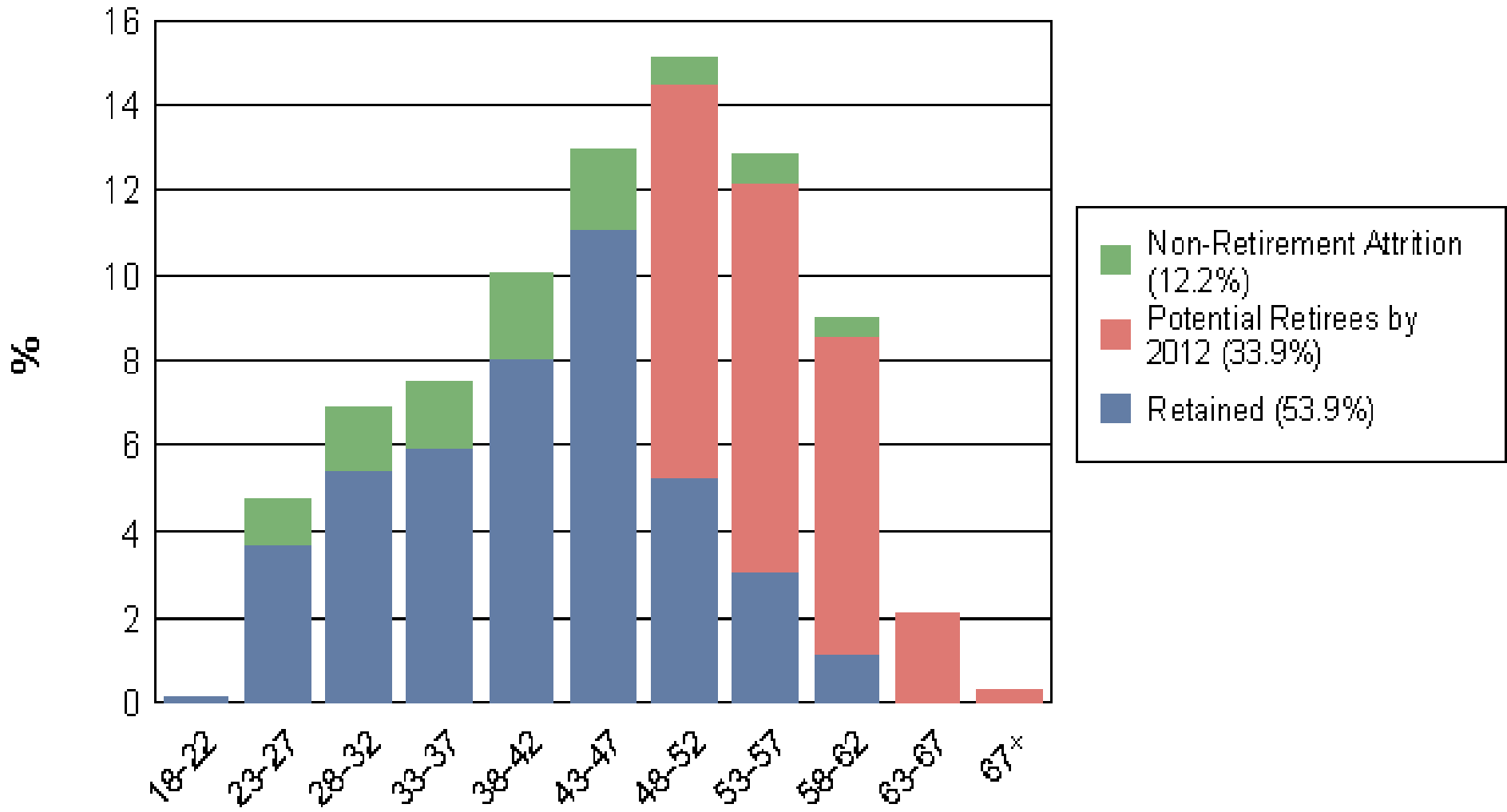
*By 2012:*

- More than half of all non-nuclear power plant operators may need to be replaced
- 52 percent of generation technicians will reach retirement eligibility
- Nearly 40 percent of line worker jobs may need to be filled
- Roughly 46 percent of all engineering jobs could become vacant

# Age Distribution Electric & Natural Gas Utility Employees



# All Engineers



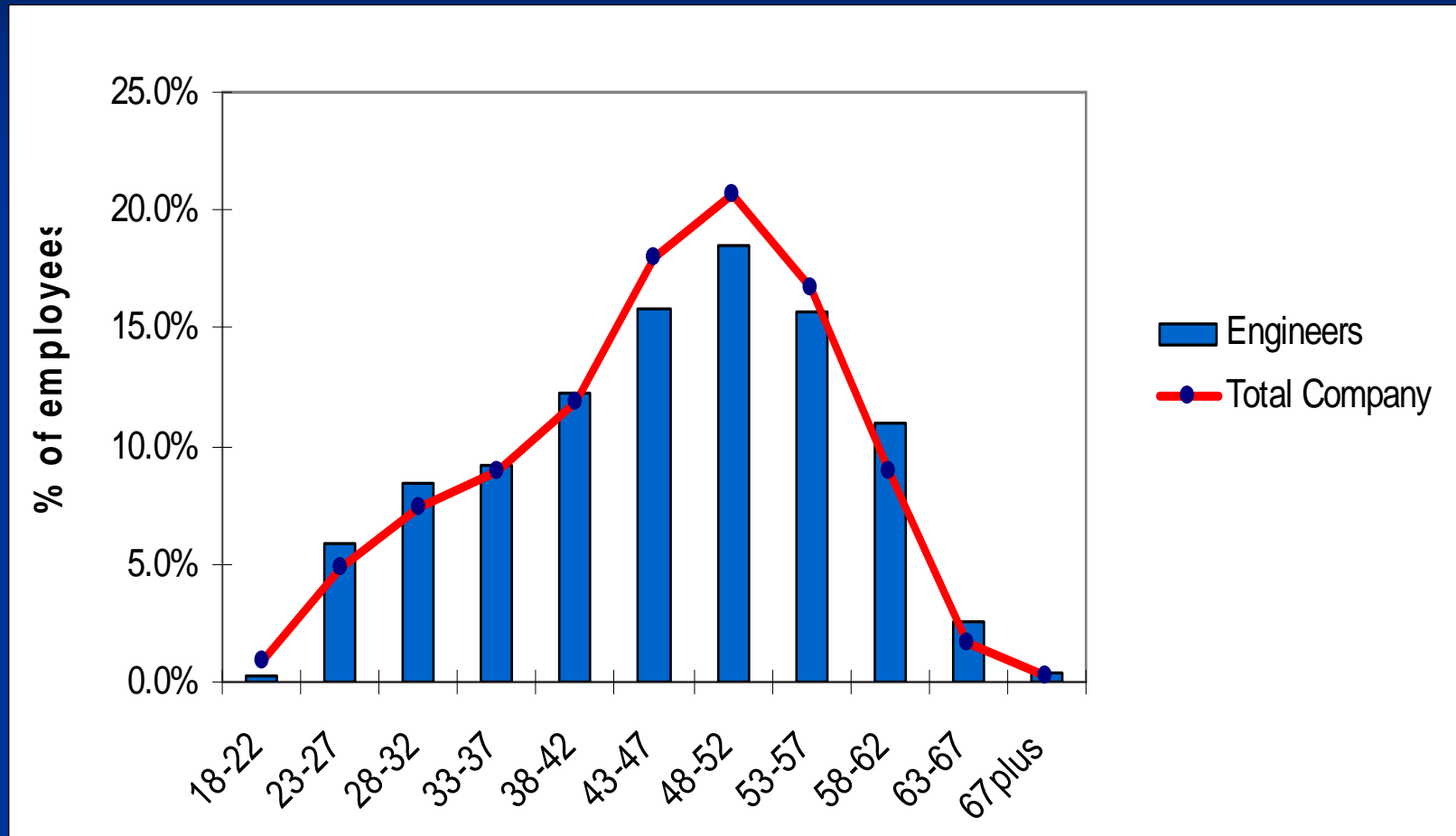
*Potential Retirees are defined as older than 53 with 25+ years of service, or older than 63 with 20 years of service, or older than 67 within the next five years*

# What does the data show about engineers?

---

- There are an estimated 32,000 engineers in T&D and Generation (excluding nuclear).
- Roughly one-third of engineers in electric and natural gas utilities will become eligible for retirement within the next five years.
- When non-retirement attrition is factored in, the industry could lose up to 46 percent of its total engineer workforce, or roughly 15,000 of its most experienced workers.
- The data on Power Engineers was inconclusive.

# How do engineers compare to the rest of employees?



# CEWD: 'Get into Energy' Web site

- Completed build out of key job categories – career assessment, skills, education
- Completed Career Profiles for Power Plant Operators, Technicians, and Welders
- Creating short film on Nuclear
- Completed Parents and Educators sections



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



# CEWD: Get Into Energy Branding Campaign

---

- Surveyed middle and high school students and young employees
- Results were used to develop content for campaign
- New Get Into Energy logo, “look and feel” created
- Initial templates include a brochure, poster and presentation to be used by energy companies for their individual recruitment efforts

# CEWD: Definition of skills and competencies

---

- Have completed work for DOL Energy Competency Model
- Defined competencies in the areas of:
  - Foundational
  - Academic
  - Workplace
  - Industry General
  - Industry Specific
  - Job Specific
- Coordinated with INPO Fundamentals to address nuclear worker requirements
- Skill definitions “translated” for use in Get Into Energy

# CEWD: Partnership and Consortium Development

---

- National Partnerships
- Regional forums
- State consortiums
  - Florida Energy Workforce Consortium
  - State of Georgia
  - Many others in progress