

AN ADVENTURE INTO NUCLEAR ENGINEERING

By: Alaina Bott and Justin Monito
NUC E 297B

Penn State University

WHAT IS NUCLEAR ENGINEERING?

- What people think they do:

Blow ourselves up!



Wear Hazmat suits to work.

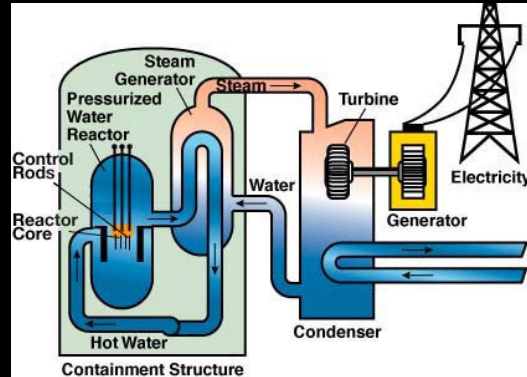


Glow green in the dark.



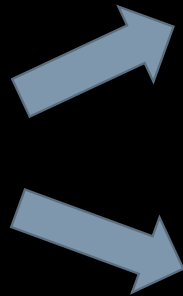
WHAT IS NUCLEAR ENGINEERING?

- What they actually do:
 - Nuclear engineers harness the power of the atom to help solve large and difficult problems facing humanity.
- Problems such as:
 - Pollution
 - Diseases
 - Medical diagnostics
 - Security for radioactive materials
 - Clean energy



HOW DO YOU GET THERE?

Prepare yourself with math and physics courses in high school



Accredited college programs



The "Nuclear" Navy



Many naval programs pay for further schooling as well



ACCREDITED UNIVERSITIES

- Most companies require at least a bachelor's degree in Nuclear Engineering from an accredited university.
- Universities that offer accredited (ABET) nuclear engineering programs:
 - Penn State University!
 - Michigan University
 - North Carolina State University
 - Oregon State University
 - Georgia Tech University
 - University of New Mexico



ENGINEERING: RESEARCH, DESIGN, AND OPERATION

- Design power plants that create a greener form of energy compared to other energy sources
- The design, production, handling, and use of nuclear fuel
- Safe disposal of waste produced by the generation of nuclear energy
- New nuclear applications and detecting radioactive materials



NON-WEAPONRY MILITARY APPLICATIONS

- The Nuclear Navy
 - A global force for good! The Navy protects our country using nuclear technology

-Nuclear Aircraft Carriers

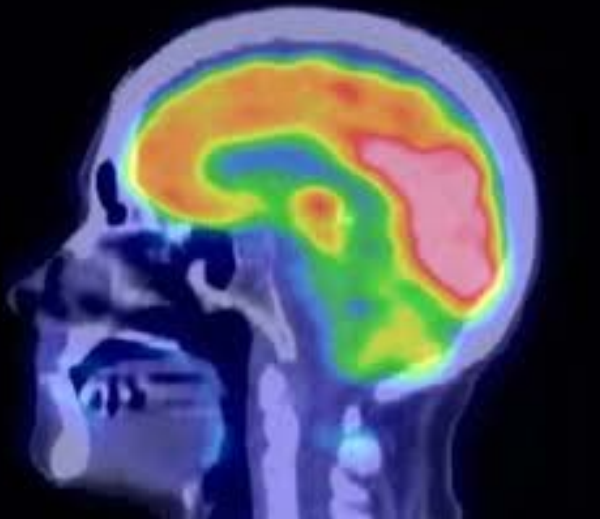


-Nuclear Submarines



MEDICINE

- Develop machines that image the human body
- Radiation therapy to treat different types of cancer
- Sterilize medical equipment such as rubber gloves, gauze, and bandages



33% of net electricity generated in PA came from Nuclear Power (Energy information Administration, July 2012).

Map of Operating Power Reactors in Pennsylvania

Three Mile Island Nuclear Station
(Middletown, PA)
EST: 1974
Type: PWR
Output: 786 MWe

Susquehanna Steam Electric Station
(Luzerne County, PA)
EST: 1982
Type: BWR
Output: 1149 MWe



Limerick Generating Station
(Limerick, PA)
EST: 1985
Type: BWR
Output: 1134 MWe




Beaver Valley Power Station
(Shippingport, PA)
EST: 1976
Type: PWR
Output: 892 MWe



Peach Bottom Atomic Power Station
(Delta, PA)
EST: 1973
Type: BWR
Output: 1112 MWe

POWER AND RESEARCH COMPANIES

The logo for Bechtel Marine Propulsion Corporation features the company name in white, bold, sans-serif font on a solid blue rectangular background.

**Bechtel Marine
Propulsion Corporation**

Government Contractor

The logo for Southern Company consists of the words "SOUTHERN" and "COMPANY" in a bold, black, sans-serif font, stacked vertically. To the right of the text is a red stylized arrow pointing upwards and to the right.

**SOUTHERN
COMPANY**

Utility Company

The logo for Areva features a large, red, stylized letter 'A' at the top. Below it, the word "AREVA" is written in a red, sans-serif font, with the 'A' being significantly larger than the other letters.

AREVA

Utility Provider and
Research Company



Utility Provider and
Research Company



Utility Provider and
Research Company



Utility Company



Utility Company



Utility Company



Utility Company

GOVERNMENT AGENCIES



National Labs



Monitor and control
safety regulations



Foreign Intelligence



Provide Military Forces

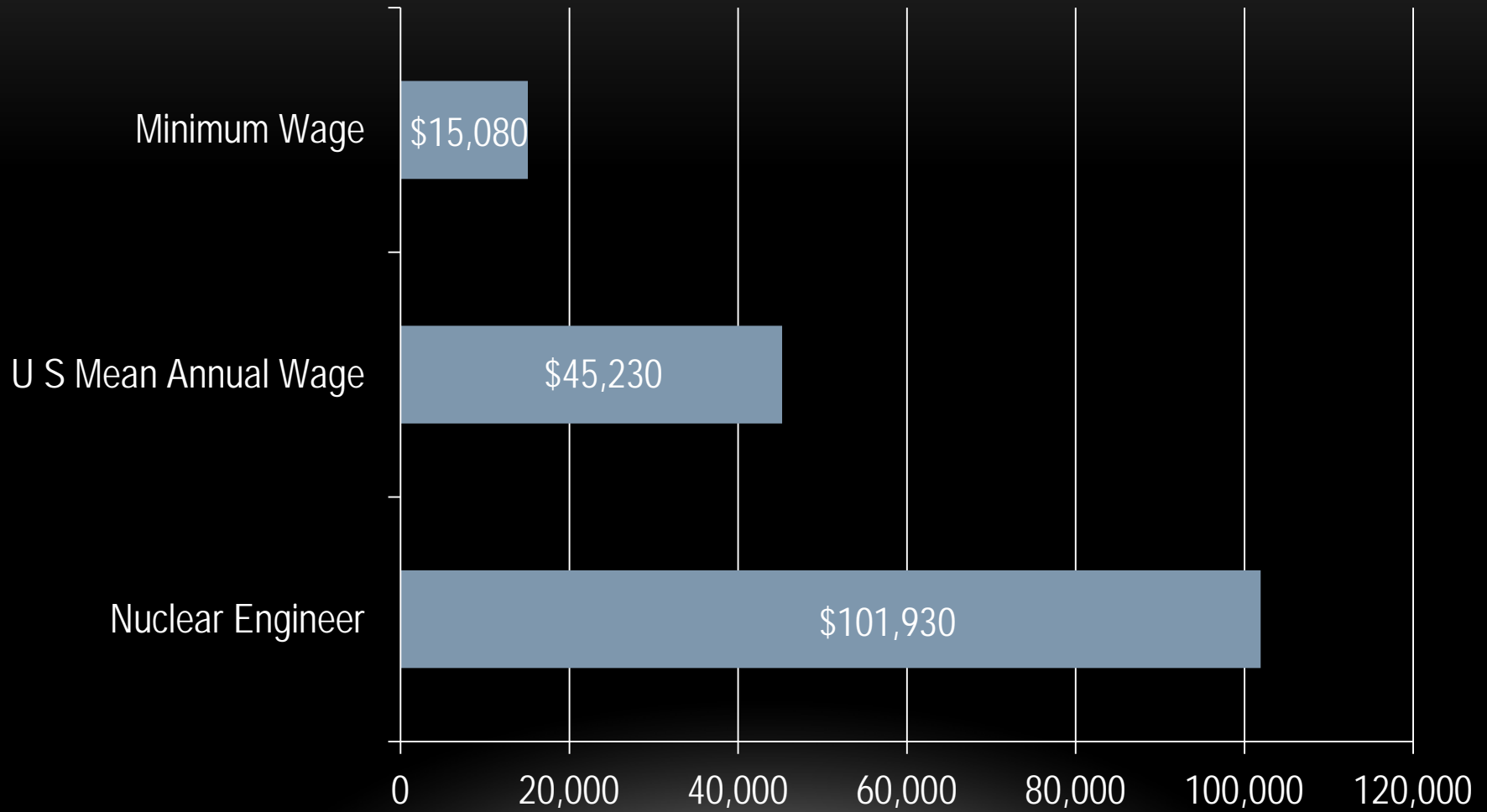


National Intelligence



Protect against terrorism
and other hazards

Median Salary as of 2010



WORKS CITED

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 - www.sciencebuddies.org
 - www.careercornerstone.org
 - www.westinghousenuclear.com
 - www.firstenergycorp.com
 - www.navy.mil
 - www.bmpc.com
 - www.cia.gov
 - www.nrc.gov
 - www.energy.gov
 - us.areva.com
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