



**American Nuclear Society**

# Improving the Conversation About Nuclear Science and Technology

Michaele (Mikey) Brady Raap, PhD

President

American Nuclear Society

Washington DC Local Section Meeting

May 12, 2015

# ANS Vital Statistics



- More than 11,000 individual members
- Nearly 100 organizational members
- International alliances, bilateral agreements with some 30 nuclear societies outside the U.S.
- Over 60 local sections  
(including 9 outside the U.S.)
- Over 30 local student sections
- 20 specialty professional divisions and technical groups



# Improving Our Messaging



***Nuclear technology enhances our quality of life***



***Radioactivity is a natural part of our world***

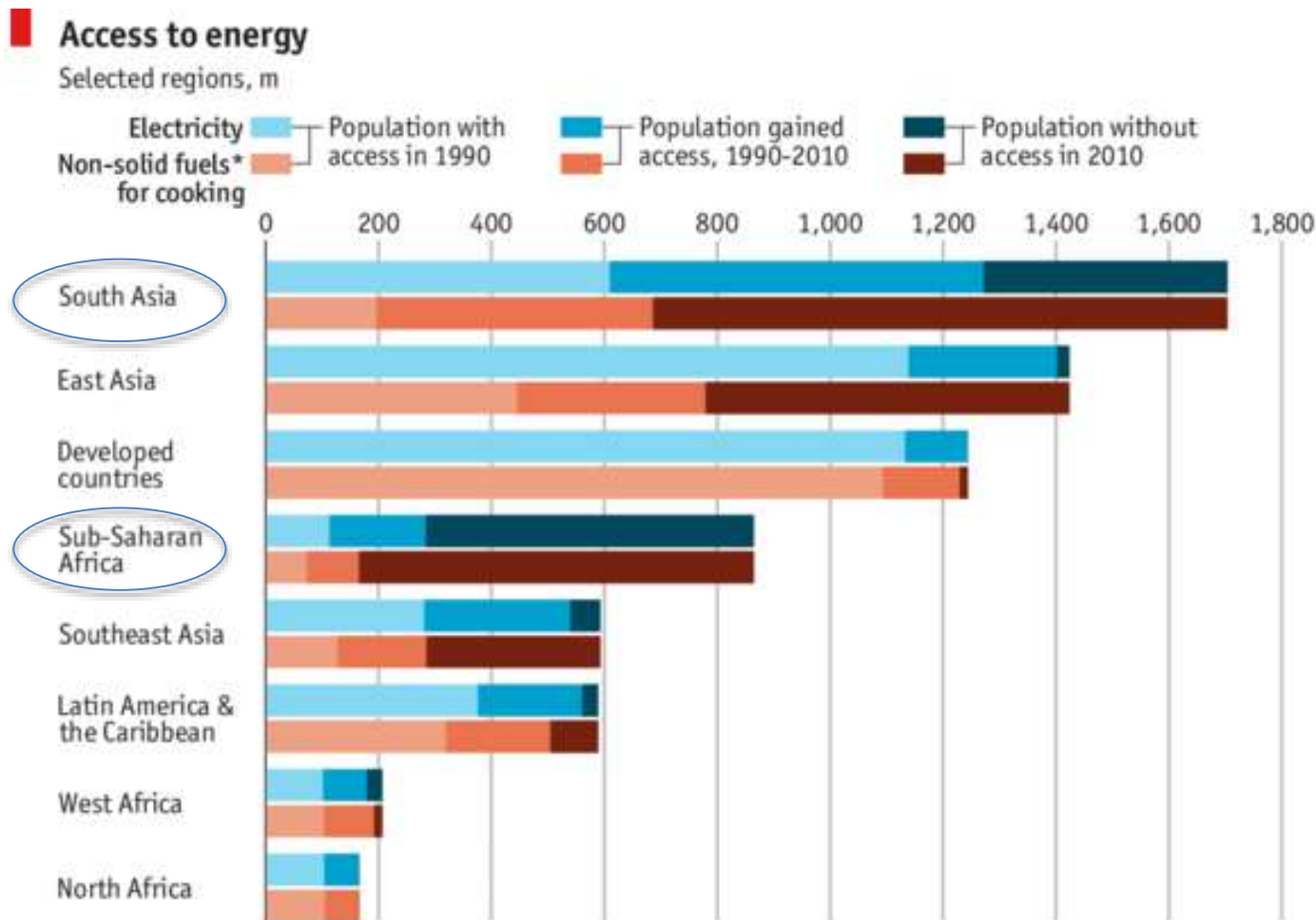


***Nuclear technology works safely***

# Access to Clean, Reliable and Secure Energy



# ANS



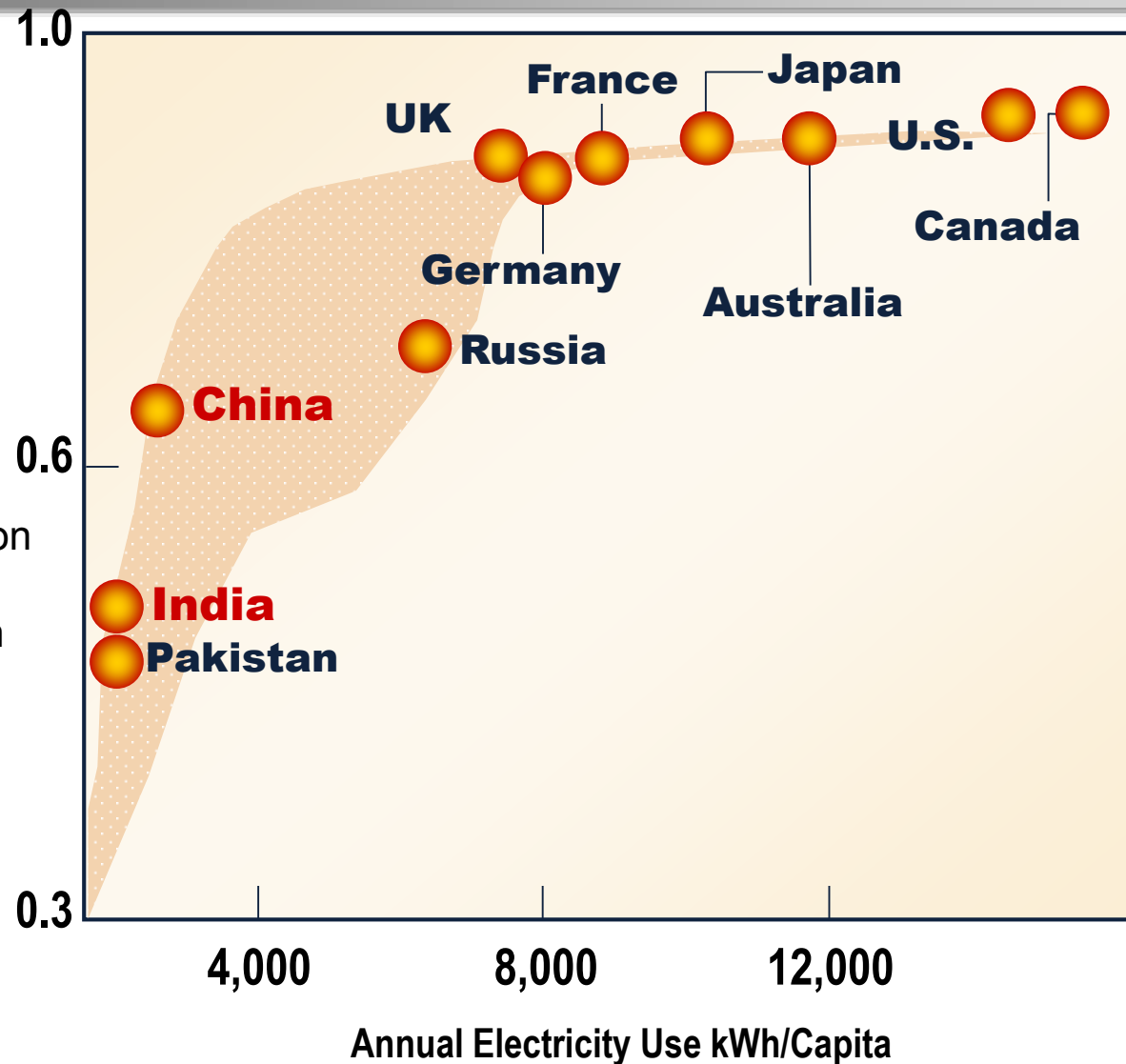
Source: SE4ALL Global Tracking Framework Report

\*Includes kerosene, ethanol, natural gas and electricity

# Access to energy = quality of life



# ANS



80% of the world's population is below 0.8 on the UN's Human Development Index (HDI)

# Improving Our Messaging



***Nuclear technology enhances our quality of life***



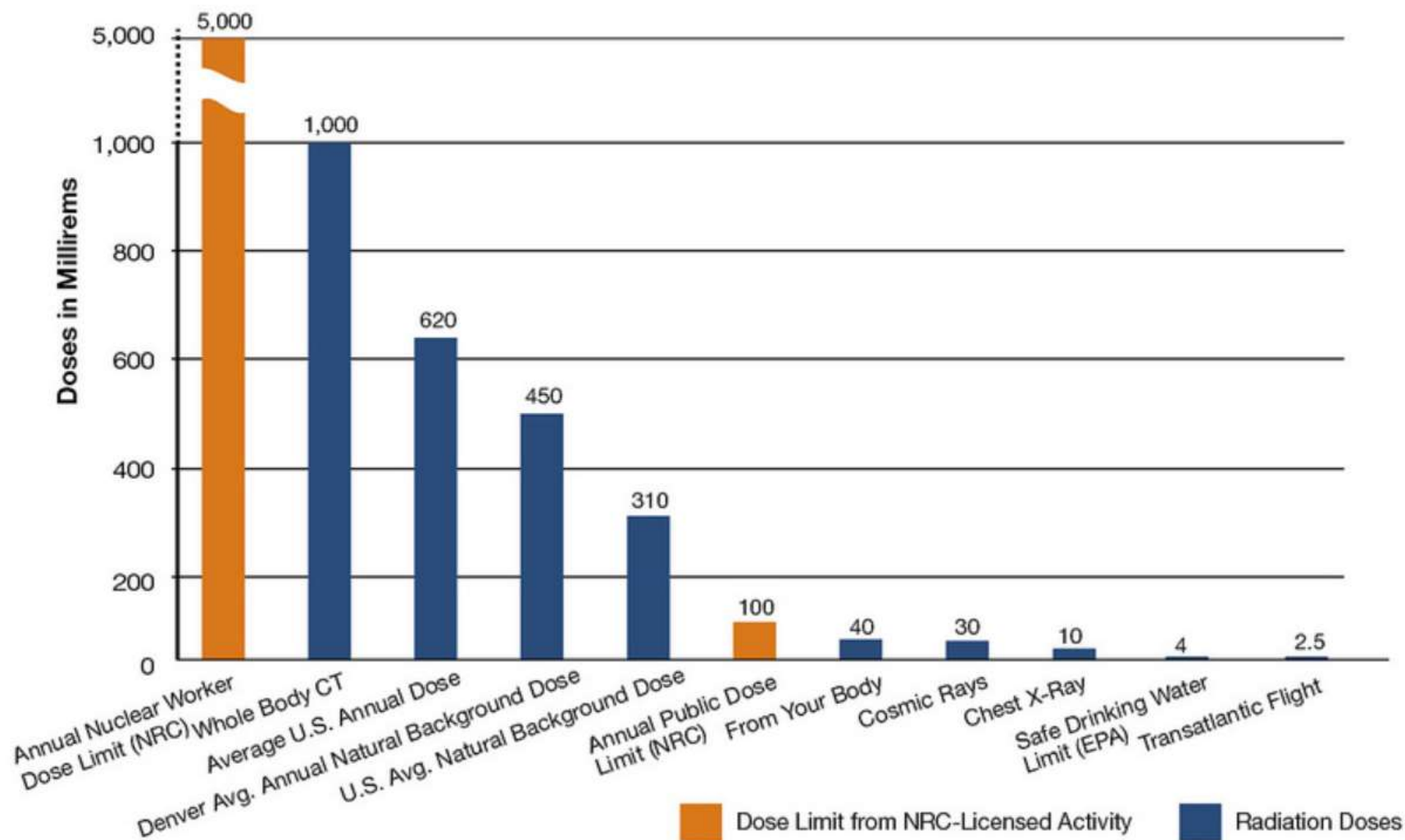
***Radioactivity is a natural part of our world***



***Nuclear technology works safely***



# Radiation Doses and Regulatory Limits





# Radiation Communications Summit



- Teamed with HPS to host a special summit on Radiation Communications
- Other organizations participating included:
  - French Nuclear Society
  - Canadian Nuclear Society
  - Institute of Nuclear Materials Management
  - American Academy of Health Physicists
  - American Association of Medical Physicists
  - Nuclear Energy Institute
  - Society of Nuclear Medicine & Molecular Imaging
- Planning President's Special Session for the Annual Meeting
- Establishing a Special Committee on Radiation Communications to work specifically towards support of low dose research, revised guidance on the biological effects of ionizing radiation and ultimately regulatory reform

# Improving Our Messaging



***Nuclear technology enhances our quality of life***



***Radioactivity is a natural part of our world***



***Nuclear technology works safely***

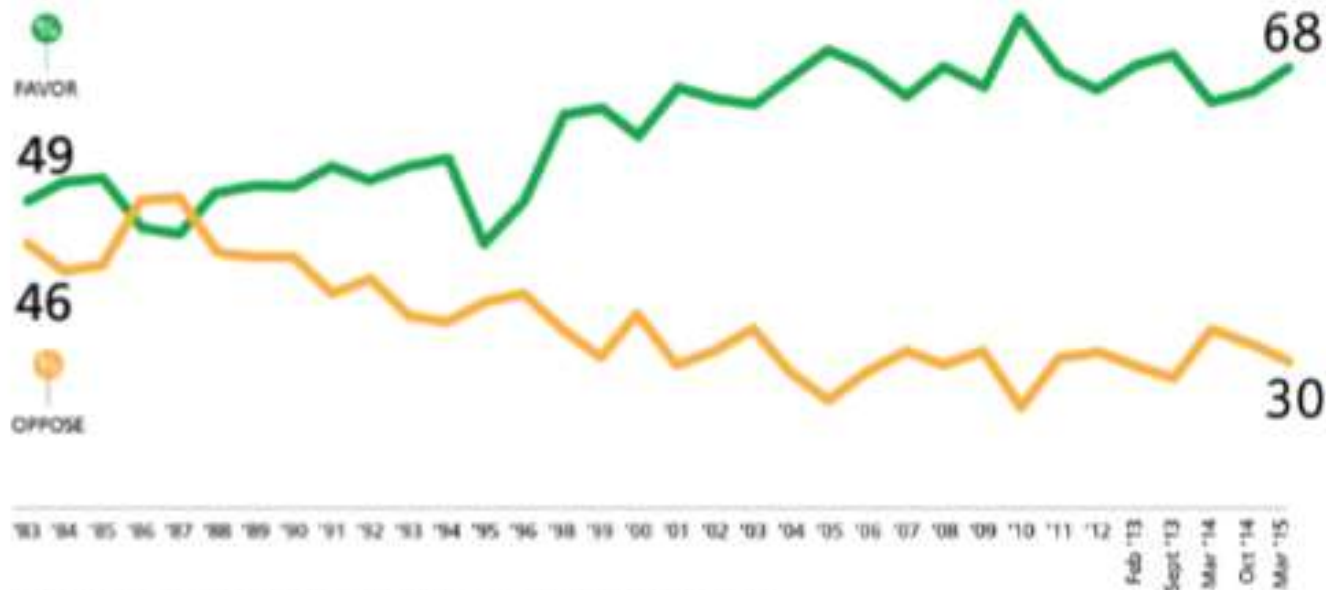
# Trends in US Public Opinion



# ANS

## Favorability to Nuclear Energy: Trend Up in Long-Term, Stable in Short-Term

Overall, do you strongly favor, somewhat favor, somewhat oppose, or strongly oppose the use of nuclear energy as one of the ways to provide electricity in the United States?



Bisconti Research, Inc. with GfK Roper and Quest Global Research

# March 2015 Survey Results



- 86 percent agreed with the statement, "we should renew the license of nuclear power plants that continue to meet federal safety standards."
- 77 percent agree that companies should prepare now so that new nuclear power could be built in the next decade.
- 83 percent of respondents believe it is important for the U.S. nuclear industry to play a leading role in world markets.



# 2014 National Survey Results



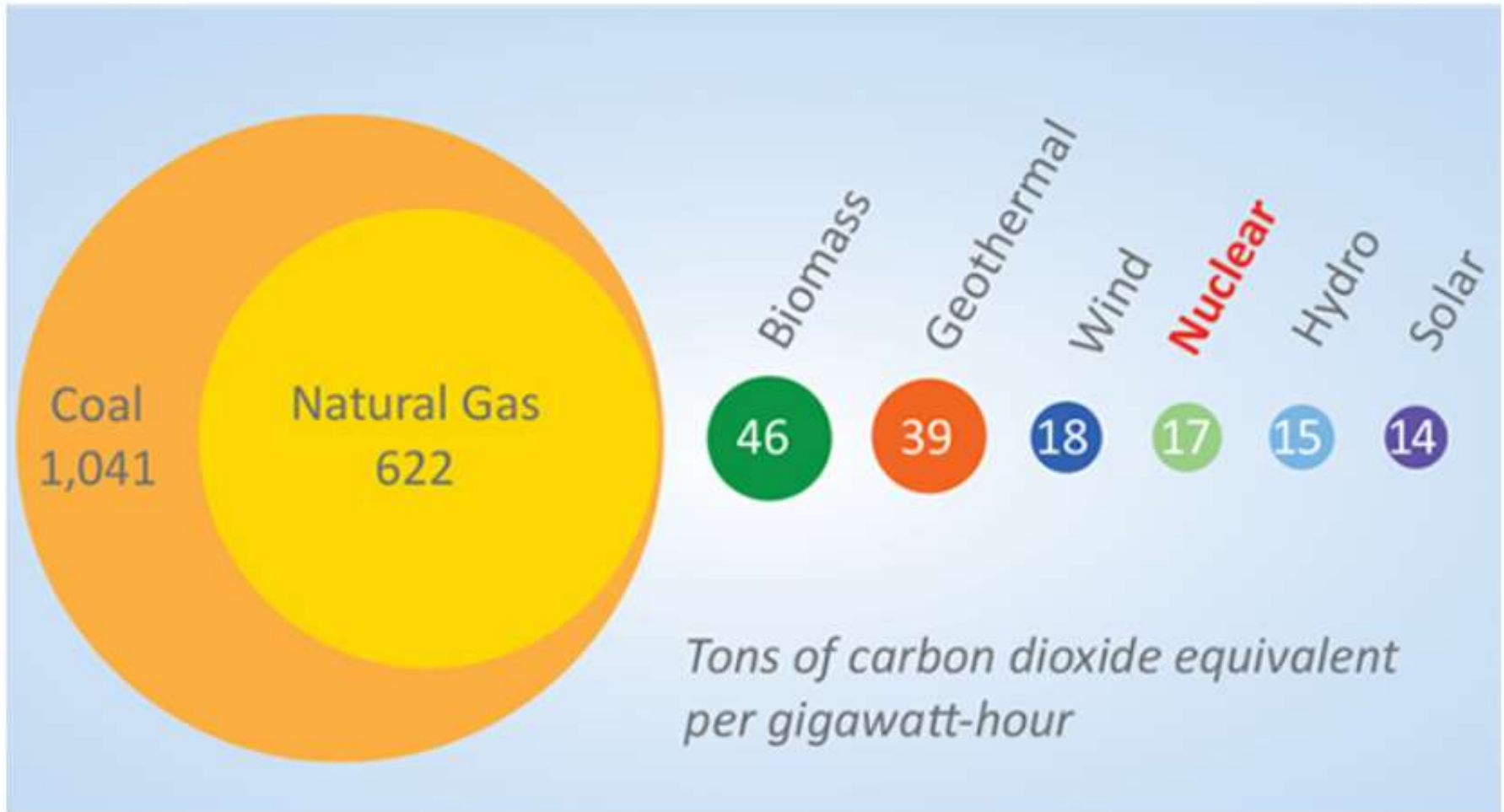
# ANS

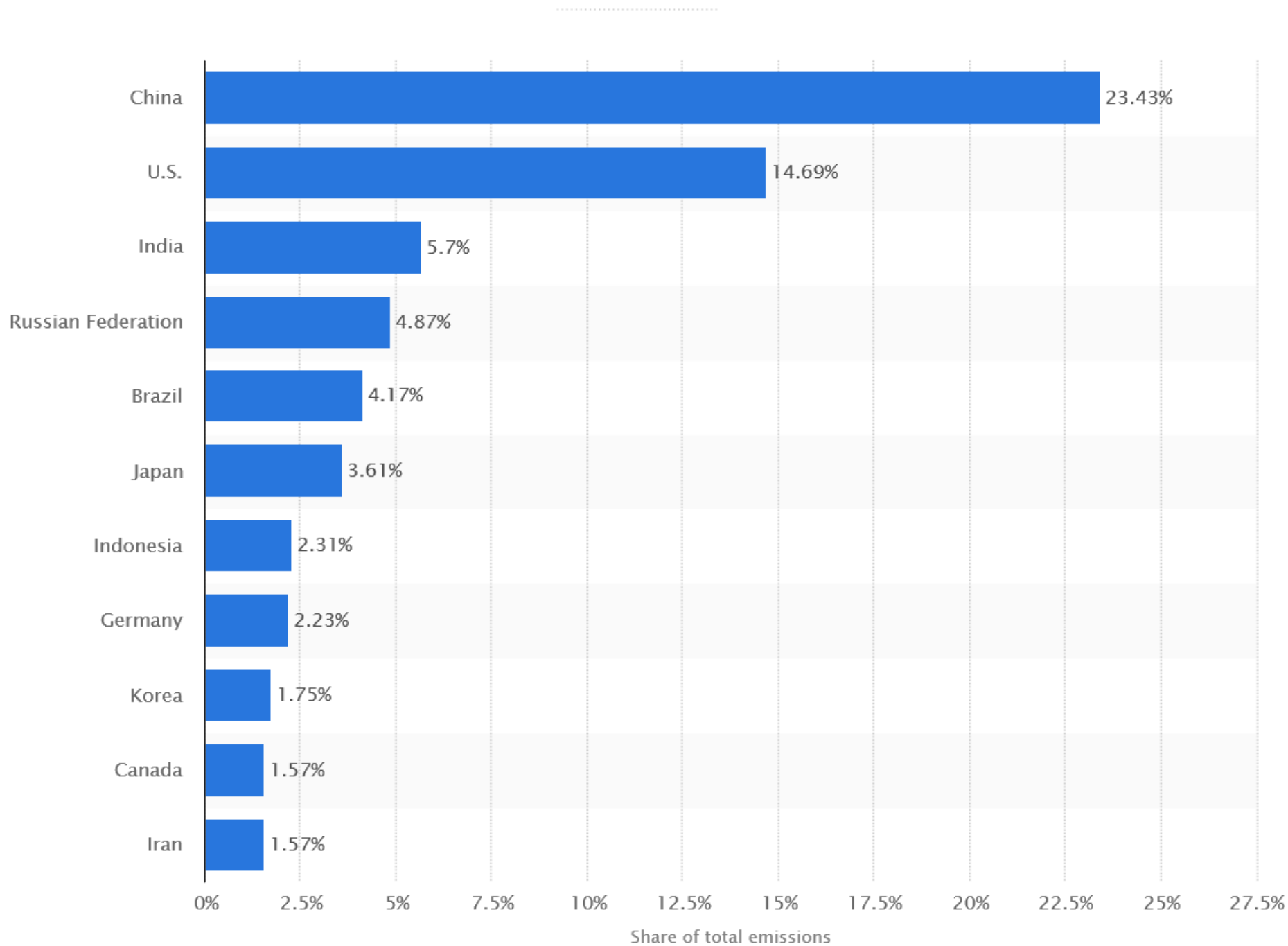
- 82% agree we should renew the license of nuclear power plants that continue to meet federal safety standards,
- 72% agree that electric utilities should prepare now so that new nuclear power plants could be built if needed in the next decade
- 57% agree that we should definitely build more nuclear power plants in the future.
- 66% said they would find it acceptable to add a new reactor at operating sites (30% not acceptable, 4% unsure)
- 25% believe that nuclear energy releases no greenhouse gas, 44% “a little”, and 23% “a lot”

# Lifecycle CO2 Emissions from Electric Sources

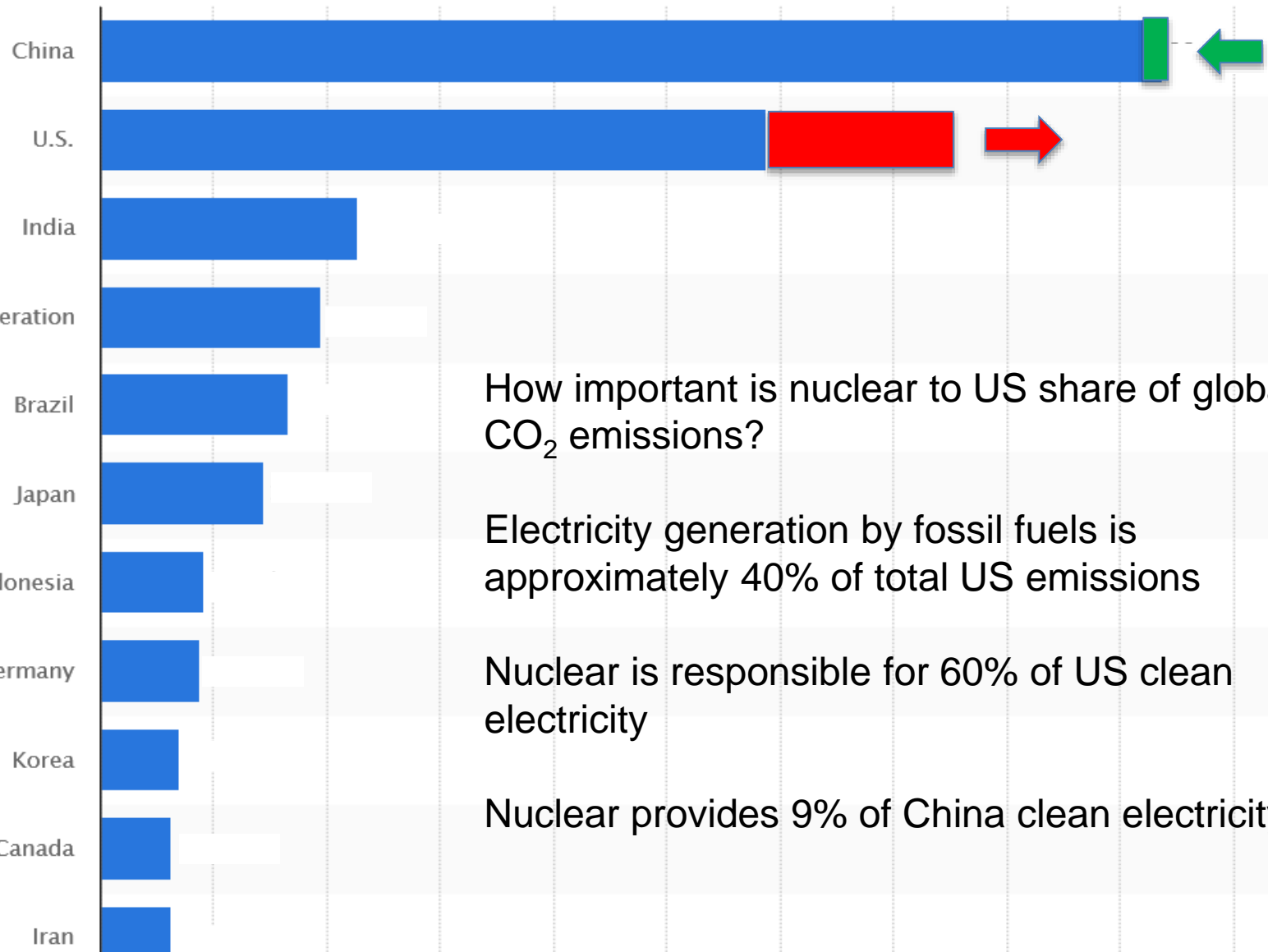


# ANS









How important is nuclear to US share of global CO<sub>2</sub> emissions?

Electricity generation by fossil fuels is approximately 40% of total US emissions

Nuclear is responsible for 60% of US clean electricity

Nuclear provides 9% of China clean electricity

Share of total emissions

# Nuclear for Climate



The ongoing global climate talks expected to culminate with an agreement at COP21 in Paris in December 2015 prompted 39 nuclear associations and societies from all over the world to launch an initiative called Nuclear for Climate. The goal of this initiative is to fuel the debate about how to fight climate change and highlight the essential contribution of nuclear.

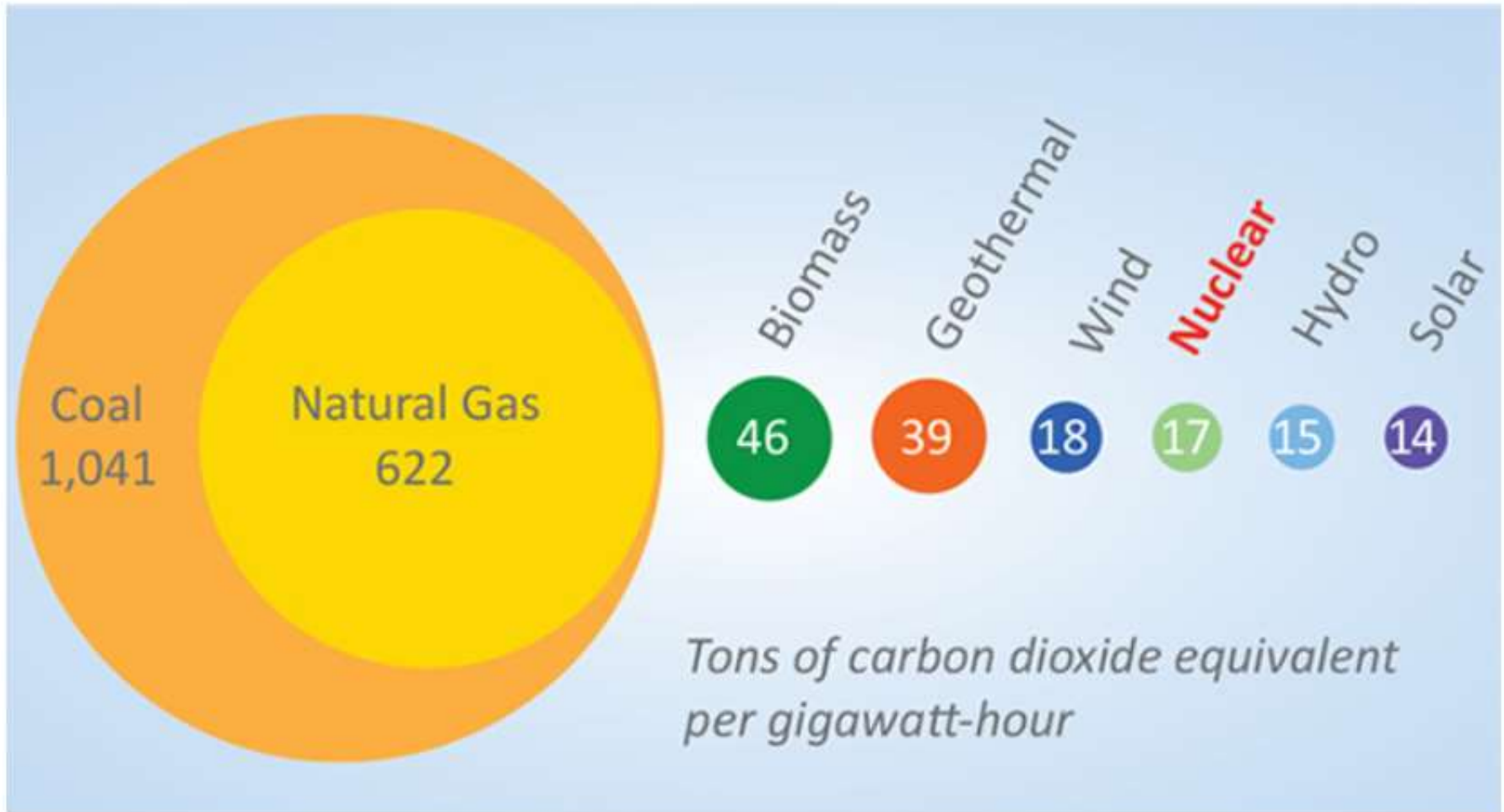
Nuclear for Climate aims to raise awareness among decision-makers and the general public of the undeniable climate change benefits of nuclear.

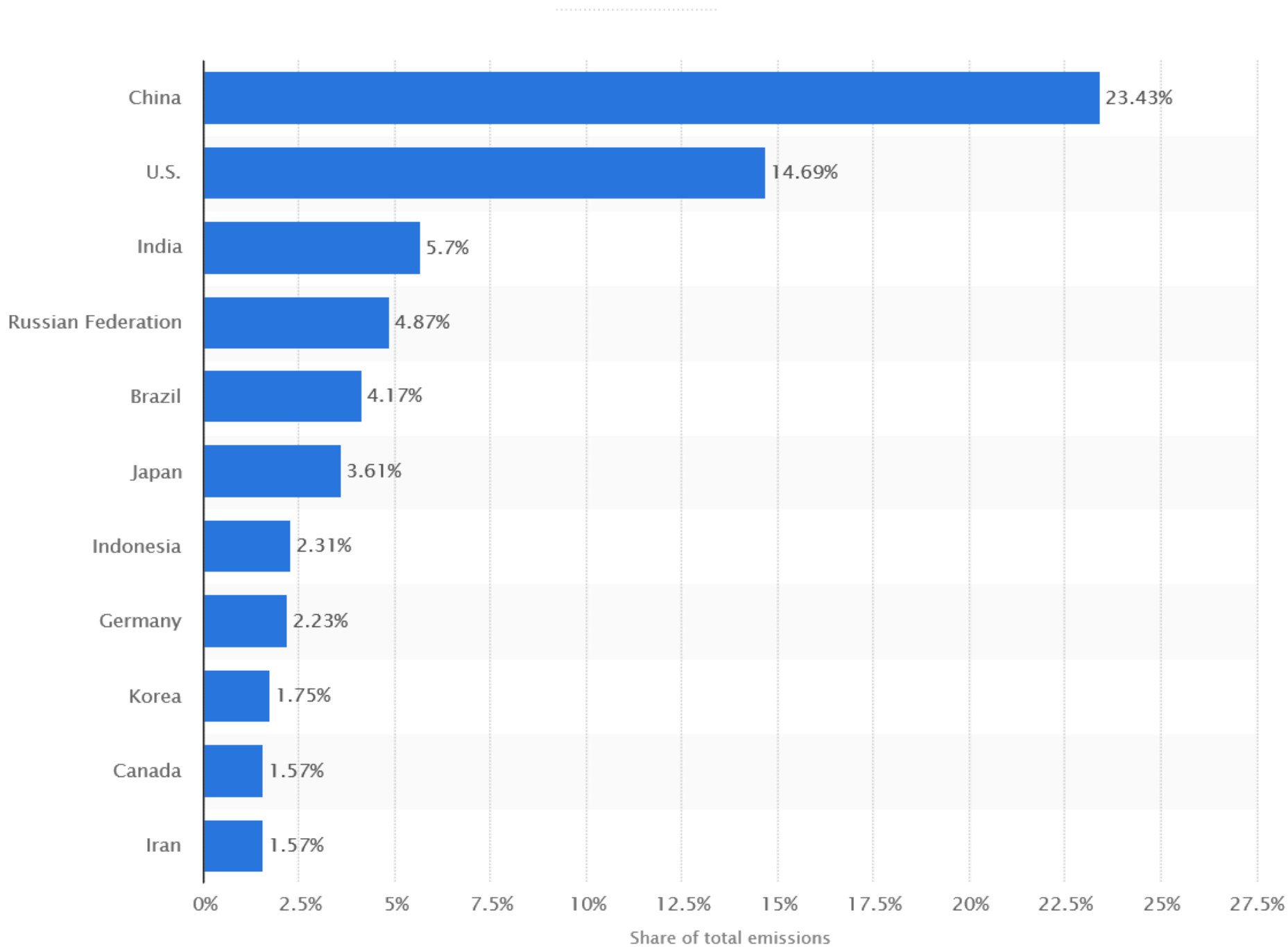


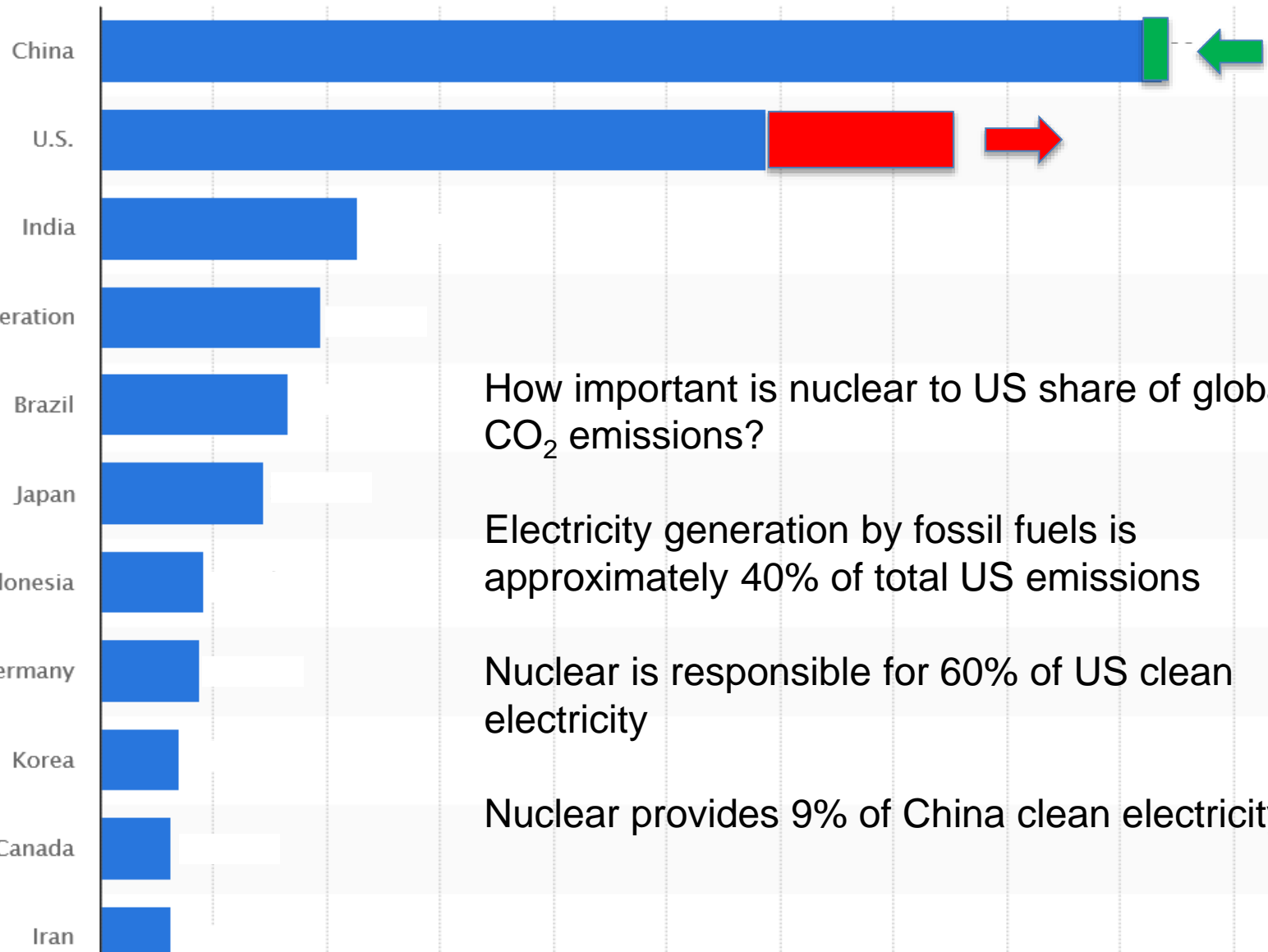
# Lifecycle CO2 Emissions from Electric Sources



# ANS







How important is nuclear to US share of global CO<sub>2</sub> emissions?

Electricity generation by fossil fuels is approximately 40% of total US emissions

Nuclear is responsible for 60% of US clean electricity

Nuclear provides 9% of China clean electricity

Share of total emissions

# EPA Proposed Clean Power Rule



# ANS

- States given individualized “performance” targets based on baseline emission rate
- States with NPPs given credit for 5.8% of “at risk” existing nuclear capacity.
- NPP’s under construction counted in baseline
- Under the rule, if all U.S. nuclear plants were shut down and replaced with NGCC, 15 states would “lower” their emission rates.



# How effective was our campaign?



# ANS

Review of the docket

- 213 “ANS”
- 485 “American Nuclear Society”
- 467 “5.8%”

*Recently, Environmental Protection Agency (EPA) Administrator Gina McCarthy announced in a U.S. House hearing that they will be reconsidering how they treat nuclear power in the proposed Clean Power Plan Rule. She noted that they are “**relooking at it on the basis of comments that came in.**”*

# Special Committee on Nuclear and the States



- Provide resources to States to consider nuclear as an option
- Energy economics and financing of new nuclear build
- Reliability and safety of nuclear generated electricity.
- The value of nuclear as clean power





**ANS**

*Thank You  
for supporting*

**NUCLEAR  
EQUALITY**



**ANS**

# Center for Nuclear Science and Technology Information



[www.nuclearconnect.org](http://www.nuclearconnect.org)

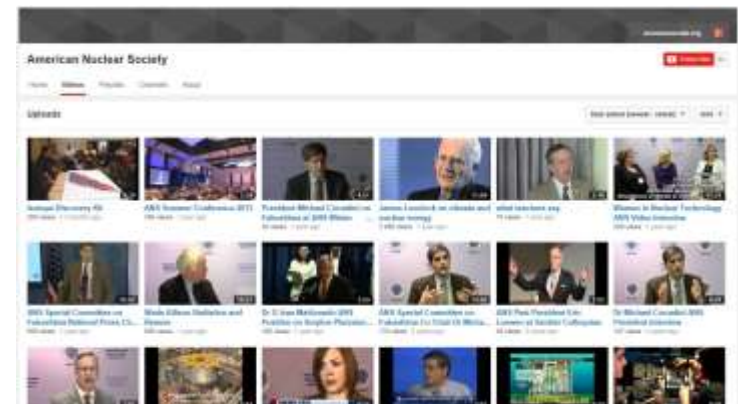


Center for Nuclear Science and Technology Information

An initiative of the American Nuclear Society

INFOGRAPHIC	RECENT VIDEO	TOP 10 MYTHS	DONATE NOW	UPCOMING EVENTS
<p>1 Uranium Fuel Pellet, without being reprocessed and recycled, has about as much energy available in today's light water reactor as...</p>	<p>Michele Brady Haap, newly elected president of the American Nuclear Society, appeared on White House Chronicle on June 16, 2014 to discuss the various applications of nuclear science and technology</p>	<p>Learn the truth behind 10 common misconceptions about nuclear energy</p>	<p>Help promote awareness &amp; understanding of nuclear science &amp; technology by donating today!</p>	<p>Teach nuclear science with confidence. Join us in Anaheim, CA (Disneyland) on November 8th.</p>

# Increased Presence on Social Media

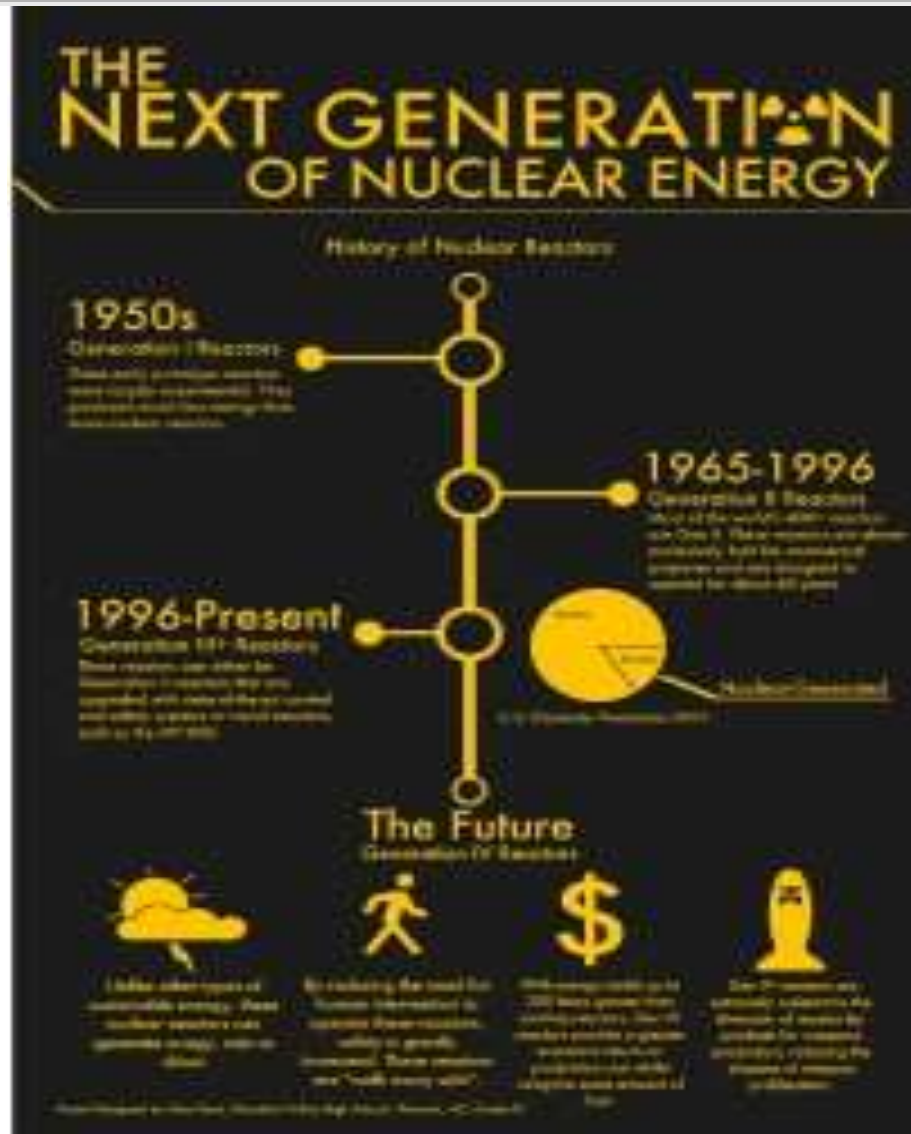




# 2014 ANS Nuclear Art & Multimedia Contest



# ANS





# ANS

## The Future Generation IV Reactors



Unlike other types of sustainable energy, these nuclear reactors can generate energy, rain or shine!



By reducing the need for human intervention to operate these reactors, safety is greatly increased. These reactors are "walk away safe".



With energy yields up to 300 times greater than existing reactors, Gen IV reactors provide a greater economic return on production cost whilst using the same amount of fuel.



Gen IV reactors are extremely resistant to the diversion of reactor by-products for weapons production, reducing the chances of weapon proliferation.





# ANS



MEME: Jennie Yang, age 16, MI



MEME: Ambrea Jones, age 16, SC



MEME: Darien Achs, age 13, IL



MEME: Skylar Stemie, age 13, IL

# Communicating with Policy Makers



# Washington DC Activity Summary



# ANS

- Legislative action on OMB travel restrictions
- Senate Joint Resolution 36 – US-Vietnam 123 Agreement
- NRC use of “qualitative factors” for backfit analysis
- Senate Energy and Water bill included language that, though well-intentioned, would create a regulatory and jurisdictional mess for radioisotope users in the U.S.
- Support funding for low-dose research, BEIR VIII discussion
- NRC release of YMP SER
- Technical qualifications next NRC Commissioner
- Provided testimony to NEAC Subcommittee on new US test/demo reactor
- 810 in Federal Register
- On the horizon
  - Organizing spring visits to the Hill and NRC
  - Prepping for state engagement on EPA carbon rule
  - ANS Policy Statement on Cybersecurity and Nuclear Facilities

- **CAPITOL CRITICAL**

- By Craig Piercy, ANS Washington Representative

First article was in ANS News Sept/Oct Edition

- *Dispelling Myths*
  - *Time to fight for Nuclear Equality*
  - *Defending the use of Radioisotopes*
  - *Defining Progress in Nuclear Waste Policy*

- Central Repository of all digital content of ANS Journals
- First Look gives you early access to peer-reviewed articles
- Journals indexed in Web of Science, Google Scholar and more
- Online Journal subscriptions

# What can ANS do?



- **Inform** others about radiation and improve their understanding
  - Professional community
  - Public
- **Inform** policy makers
  - A clear National Energy Policy that is technology neutral is needed to secure U.S. energy independence and support national security
- **Engage** in conversations about Nuclear Equality
- **Inspire** others to be informed consumers of Nuclear Science & Technology
- **Inspire** professionals to have a questioning attitude and challenge statements and portrayals about NS&T that are not factual or are misrepresentative

# A Bright Future for ANS



ANS is going through a transformation, examining itself inside and out, to enhance our members experience and have a greater impact on the nuclear field





**ANS**

Thank you  
for joining ANS to:

*Inform. Engage. Inspire.*

[www.nuclearconnect.org](http://www.nuclearconnect.org)

# Socrates

“The only good is knowledge and the only evil is ignorance.”

“I cannot teach anybody anything. I can only make them think”





**American Nuclear Society**

# Nuclear Share of Clean Electricity



# ANS



Note: The country's short-form name is used.

Source: IAEA, Power Reactor Information System database, as of May 2013

Percent clean electricity values from US Energy Information Administration International Energy Statistics, 2011

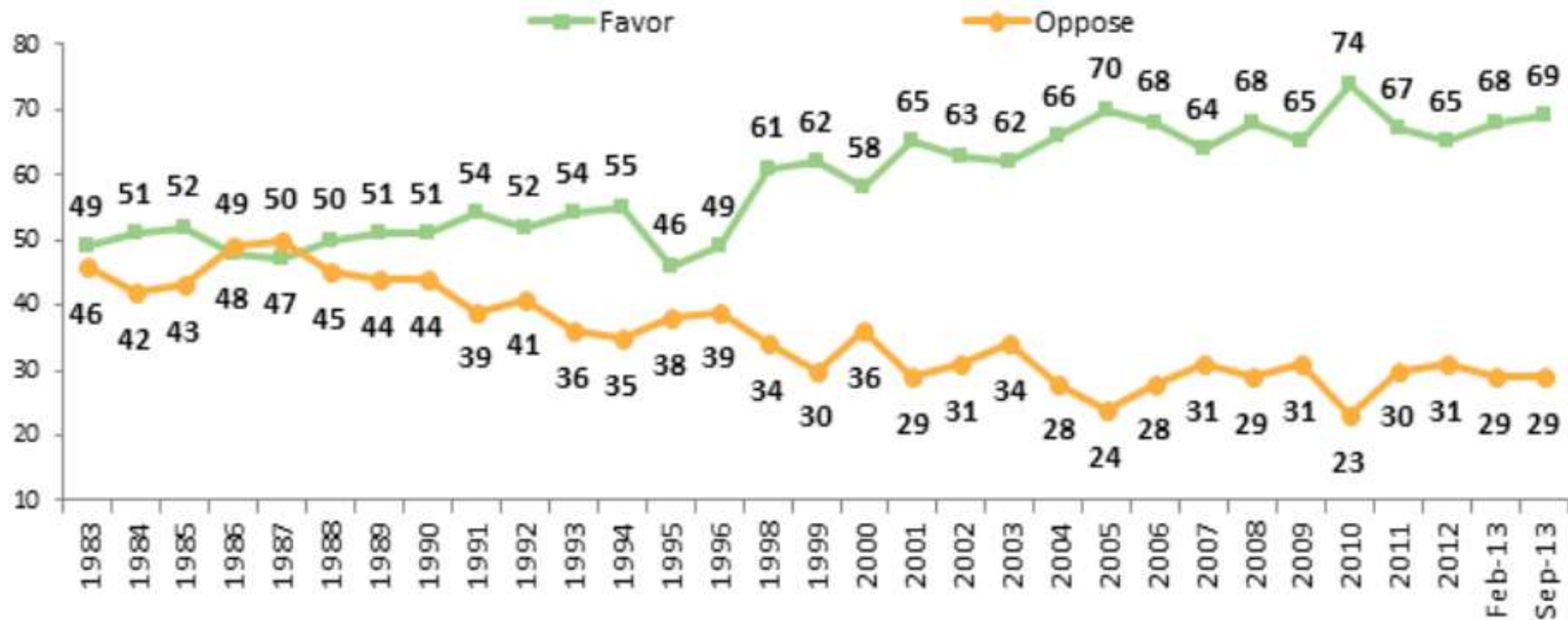


# Trends in US Public Opinion



# ANS

Percent Who Favor and Oppose Nuclear Energy: Annual Averages 1983 to 2013



Source: Bisconti Research, Inc. national survey for the Nuclear Energy Institute. Landline and cell phone interviews with 1,000 nationally representative adults, margin of error is plus or minus three percentage points.

March 11, 2011



Fukushima Daiichi Nuclear Power Station

Image © 2014 DigitalGlobe

Google earth



February 18, 2014

