

POLICY & ETHICS

What Do the Presidential Candidates Know about Science?

Clinton, Trump and Stein answer 20 top questions about science, engineering, technology, health and environmental issues

By Christine Gorman on September 13, 2016



Credit: MARK MAKELA Getty Images (Hillary Clinton); ALEX WONG Getty Images (Donald Trump, Gary Johnson); WIN McNAMEE Getty Images (Jill Stein)

This year's highly unusual presidential election resembles the past two campaigns in at least one way. The candidates of the two major parties— Democrat Hillary Clinton and Republican Donald Trump—provided answers to 20 questions about the most important science-based issues the U.S. faces in coming years. Green Party candidate Jill Stein answered the questions as well. (Libertarian Party nominee Gary Johnson has not responded so far.)

The questions were developed and refined by dozens of scientific organizations representing more than 10 million scientists and engineers after a crowd-sourcing effort led and coordinated by ScienceDebate.org. *Scientific American*, as the

group's media partner, plans to grade the candidates' answers in advance of the September 26 presidential debate.

“Sometimes politicians think science issues are limited to simply things like the budget for NASA or NIH, and they fail to realize that a President's attitude toward and decisions about science and research affect the public wellbeing, from the growth of our economy, to education, to public health,” Rush Holt, CEO of the American Association for the Advancement of Science and executive publisher of the *Science* family of journals, said in a statement accompanying the questions' release. “Voters should have a chance to know where the presidential candidates stand. We want journalists and voters to ask these questions insistently of the candidates and their campaign staff.”

We at *Scientific American* ask our readers and viewers, particularly those with relevant technical expertise, to help by sending us their analyses of one or two of the answers from the candidates. We will take these responses into account, along with our own reporting, to make a final determination.

Our plan is to grade the answers on a pass/fail basis, using the following three questions as a guide: Does the answer address the question asked? Is it well informed with respect to scientific consensus about the issue? Does the response offer specific, workable details?

Please e-mail your responses to editors@sciam.com with the words “Science Debate 2016” in the subject line. We regret that we will not be able to respond to all the answers individually.

Read the questions and answers below and watch this space for our evaluation on September 22.

1. INNOVATION

Science and engineering have been responsible for over half of the growth of the U.S. economy since WWII. But some reports question America's continued

leadership in these areas. What policies will best ensure that America remains at the forefront of innovation?

Hillary Clinton (D): Since World War II, America's leadership in science- and engineering-based innovation has provided economic benefits along with major advances in health, safety, security, and quality of life. Education, research, and commercialization are all key to America's success. As President, I will work to strengthen each of these core elements of the ecosystem and facilitate public-private partnerships between them to ensure that America remains at the forefront of innovation.

Advances in science and engineering start with education. We need universal preschool, to get our kids off to a good start; good K-12 schools and teachers in every ZIP code; and to put higher education in reach for everyone with debt-free college and support for high-quality apprenticeships and training programs. We need strong STEM programming in every school, and we need to provide every public school student with access to education in computer science.

Both basic and applied research are major drivers of innovation. As President, I will work with Congress to ensure that government funding of research is sufficient to allow for multi-year planning, exploration of emerging research areas, and inflation-adjusted costs. Funding is needed not only for the basic science research agencies and the large science and engineering mission agencies but also for the broader universe of agencies that are increasingly dependent on STEM for their missions.

The innovation payoff comes from the commercialization of research results. The first step is what universities call "technology transfer" and the medical community calls "translation"—demonstrating the use of research results in practice and sharing the knowledge with the business community. The government has a critical role to play at this stage by opening access to and sharing government-funded research results. I will support the development of collaborative consortia that accelerate the creation of new industries while providing valuable feedback to researchers. As part of my plan to create more good-paying jobs, I will also invest in "Make it in America" partnerships that will make America the first choice for manufacturing by harnessing regional strengths, supporting manufacturers up and down the supply chain, and ensuring

international competitiveness by improving industrial energy efficiency by one-third within a decade.

Donald Trump (R): Innovation has always been one of the great by-products of free market systems. Entrepreneurs have always found entries into markets by giving consumers more options for the products they desire. The government should do all it can to reduce barriers to entry into markets and should work at creating a business environment where fair trade is as important as free trade. Similarly, the federal government should encourage innovation in the areas of space exploration and investment in research and development across the broad landscape of academia. Though there are increasing demands to curtail spending and to balance the federal budget, we must make the commitment to invest in science, engineering, healthcare and other areas that will make the lives of Americans better, safer and more prosperous.

Gary Johnson (L): This candidate has not yet responded.

Jill Stein (G): Virtually every component of our 2016 Platform contains elements likely to have positive effects on innovation. These include our climate action plan, our free public education and cancellation of student debt proposals, and our Medicare for All plank. Vast resources will be freed for investment in public R&D by reduced Pentagon spending. Millions of people currently hobbled by poverty and underperforming schools will be able for the first time in American history to bring their talents to bear on the problems of the 21st century. A just economy, with living wages and paid sick leave, can be far more innovative than one where innovation is determined by a relative handful of corporate executives and Pentagon planners.

2. RESEARCH

Many scientific advances require long-term investment to fund research over a period of longer than the two, four, or six year terms that govern political cycles. In the current climate of budgetary constraints, what are your science and engineering research priorities and how will you balance short-term versus long-term funding?

Hillary Clinton (D): Science and engineering not only provide the devices and services we enjoy and use on a daily basis—they also help defend against disease, security threats, unmet energy needs, the impacts of climate change, environmental degradation, and many other challenging issues with national and global reach. Advancing science and technology will be among my highest priorities as President.

Historically, federally funded basic research—often done without a particular application in mind and intrinsically long term—has yielded breakthrough discoveries of new knowledge and technologies. This knowledge and these technologies have, through the power of innovation, transformed entire sectors of industry, fueled economic growth, and created high-paying jobs.

I share the concerns of the science and technology community, including many in the industry, that the United States is underinvesting in research. Federal funding of basic research amounts to less than one percent of annual federal spending, yet it is an investment that pays big dividends. I believe it is essential that we strengthen our research capacity, by funding talented young investigators, looking for ways to prioritize “high-risk, high-reward” projects that have the potential to transform entire fields, and enhancing partnerships between government, universities, and the private sector.

Donald Trump (R): The premise of this question is exactly correct—scientific advances do require long term investment. This is why we must have programs such as a viable space program and institutional research that serve as incubators to innovation and the advancement of science and engineering in a number of fields. We should also bring together stakeholders and examine what the priorities ought to be for the nation. Conservation of resources and finding ways to feed the world beg our strong commitment as do dedicated investment in making the world a healthier place. The nation is best served by a President and administration that have a vision for a greater, better America.

Gary Johnson (L): This candidate has not yet responded.

Jill Stein (G): The greatest challenge currently before us is climate change. We will place innovative breakthroughs in the science and technology associated with

mitigation of greenhouse gases and the building of a resilient society that can withstand current and future climate change at the very top of our research priorities.

Presidents are able to affect long term R&D priorities by creating institutions focused on research like the National Science Foundation and the National Institutes of Health that are to some extent insulated from short-term political cycles. We will revisit these institutions--their charge, focus, and operations--to ensure that they're performing as expected. We will look for opportunities and mechanisms whereby science policy can be made more democratic, and more responsive to the preferences and needs of average citizens.

3. CLIMATE CHANGE

The Earth's climate is changing and political discussion has become divided over both the science and the best response. What are your views on climate change, and how would your administration act on those views?

Hillary Clinton (D): When it comes to climate change, the science is crystal clear. Climate change is an urgent threat and a defining challenge of our time and its impacts are already being felt at home and around the world. That's why as President, I will work both domestically and internationally to ensure that we build on recent progress and continue to slash greenhouse gas pollution over the coming years as the science clearly tells us we must.

I will set three goals that we will achieve within ten years of taking office and which will make America the clean energy superpower of the 21st century:

Generate half of our electricity from clean sources, with half a billion solar panels installed by the end of my first term.

Cut energy waste in American homes, schools, hospitals and offices by a third and make American manufacturing the cleanest and most efficient in the world.

Reduce American oil consumption by a third through cleaner fuels and more efficient cars, boilers, ships, and trucks.

To get there, my administration will implement and build on the range of pollution and efficiency standards and clean energy tax incentives that have made the United States a global leader in the battle against climate change. These standards are also essential for protecting the health of our children, saving American households and businesses billions of dollars in energy costs, and creating thousands of good paying jobs.

These standards set the floor, not the ceiling. As President, I will launch a \$60 billion Clean Energy Challenge to partner with those states, cities, and rural communities across the country that are ready to take the lead on clean energy and energy efficiency, giving them the flexibility, tools and resources they need to succeed.

Donald Trump (R): There is still much that needs to be investigated in the field of “climate change.” Perhaps the best use of our limited financial resources should be in dealing with making sure that every person in the world has clean water. Perhaps we should focus on eliminating lingering diseases around the world like malaria. Perhaps we should focus on efforts to increase food production to keep pace with an ever-growing world population. Perhaps we should be focused on developing energy sources and power production that alleviates the need for dependence on fossil fuels. We must decide on how best to proceed so that we can make lives better, safer and more prosperous.

Gary Johnson (L): This candidate has not yet responded.

Jill Stein (G): Climate change is the greatest existential threat that humanity has ever faced. Here is how we will act to address it:

Enact an emergency Green New Deal to turn the tide on climate change, revive the economy and make wars for oil obsolete. Initiate a WWII-scale national mobilization to halt climate change, the greatest threat to humanity in our history. Create 20 million jobs by transitioning to 100% clean renewable energy by 2030, and investing in public transit, sustainable agriculture, conservation and restoration of critical infrastructure, including ecosystems.

- Implement a Just Transition that empowers those communities and workers most impacted by climate change and the transition to a green economy. Ensure that any worker displaced by the shift away from fossil fuels will receive full income and benefits as they transition to alternative work.
- Enact energy democracy based on public, community and worker ownership of our energy system. Treat energy as a human right.

Redirect research funds from fossil fuels into renewable energy and conservation. Build a nationwide smart electricity grid that can pool and store power from a diversity of renewable sources, giving the nation clean, democratically-controlled, energy.

- End destructive energy extraction and associated infrastructure: fracking, tar sands, offshore drilling, oil trains, mountaintop removal, natural gas pipelines, and uranium mines. Halt any investment in fossil fuel infrastructure, including natural gas, and phase out all fossil fuel power plants. Phase out nuclear power and end nuclear subsidies. End all subsidies for fossil fuels and impose a greenhouse gas fee / tax to charge polluters for the damage they have created.
- Support a strong enforceable global climate treaty that limits global warming to no more than 1.5 degrees Celsius and provides just financial compensation to developing countries.
- Support organic and regenerative agriculture, permaculture, and sustainable forestry.
- Enact stronger environmental justice laws and measures to ensure that low-income and communities of color are not disproportionately impacted.

4. BIODIVERSITY

Biological diversity provides food, fiber, medicines, clean water and many other products and services on which we depend every day. Scientists are finding that

the variety and variability of life is diminishing at an alarming rate as a result of human activity. What steps will you take to protect biological diversity?

Hillary Clinton (D): Conserving biodiversity is essential to maintaining our quality of life. Healthy soils provide the foundation for agricultural productivity and help absorb carbon; wetlands soak up floodwaters and pollutants and protect our communities; forests filter our water and keep it clean; bees and other pollinators are essential to our food supply; and coral reefs and coastal marshes are nurseries for our fisheries. Although we have made considerable progress protecting our environment and conserving our natural resources, climate change, pollution, habitat destruction, unsustainable management practices, introduction of invasive species and other forces pose serious threats to biodiversity and our way of life.

We need to collaborate across all sectors and at all levels to conserve our natural resources and maintain the viability of our ecosystems. I believe, for example, that we should be doing more to slow and reverse the decline of at-risk wildlife species before they reach the brink of extinction. That is why I will work to double the State and Tribal Wildlife Grants program to help states, tribal nations, and local communities act earlier to conserve wildlife before they become threatened or endangered.

The 100th anniversary of our national park system is also an opportunity to re-energize America's proud land and wildlife conservation traditions. I will establish an American Parks Trust Fund to scale up and modernize how we protect and enhance our natural treasures, and to better protect wildlife habitat across the country.

Internationally, we need greater cooperation to address declining biodiversity. My Administration will work collaboratively with other nations to advance biodiversity science, further our understanding of the causes of biodiversity loss, and take action to diminish them. We will share information about our conservation successes, including our national parks, fish and wildlife refuge systems, and marine reserves to aid other nations working to protect their natural resources and conserve biodiversity. And we will work collaboratively to end trafficking in wildlife and illegal, unreported, and unregulated fishing that threatens our oceans.

Donald Trump (R): For too long, Presidents and the executive branch of our federal government have continued to expand their reach and impact. Today, we have agencies filled with unelected officials who have been writing rules and regulations that cater to special interests and that undermine the foundational notion of our government that should be responsive to the people. Our elected representatives have done little to uphold their oaths of office and have abrogated their responsibilities. When these circumstances occur, there is an imbalance that rewards special interests and punishes the people who should benefit the most from the protection of species and habitat in the United States. In a Trump administration, there will be shared governance of our public lands and we will empower state and local governments to protect our wildlife and fisheries. Laws that tilt the scales toward special interests must be modified to balance the needs of society with the preservation of our valuable living resources. My administration will strike that balance by bringing all stakeholders to the table to determine the best approach to seeking and setting that balance.

Gary Johnson (L): This candidate has not yet responded.

Jill Stein (G): Protecting biodiversity is an extremely important and often overlooked priority. Here is how we will act to protect biodiversity:

- Protect our public lands, water supplies, biological diversity, parks, and pollinators. Ban neonicotinoids and other pesticides that threaten the survival of bees, butterflies, and other pollinators.
- Label GMOs, and put a moratorium on new GMOs and pesticides until they are proven safe.
- Support organic and regenerative agriculture, permaculture, and sustainable forestry.
- Protect the rights of future generations. Adopt the Precautionary Principle. When an activity poses threats of harm to human health or the environment, in the absence of objective scientific consensus that it is safe, precautionary measures

should be taken. The proponent of an activity, rather than the public, should bear the burden of proof.

- Invest in clean air, water, food and soil for everyone.
- Enact stronger environmental justice laws and measures to ensure that low-income and communities of color are not disproportionately impacted by harmful pollution and other negative environmental and health effects.
- Support conversion to sustainable, nontoxic materials and the use of closed-loop, zero waste processes.

5. THE INTERNET

The Internet has become a foundation of economic, social, law enforcement, and military activity. What steps will you take to protect vulnerable infrastructure and institutions from cyber attack, and to provide for national security while protecting personal privacy on electronic devices and the internet?

Hillary Clinton (D): As President, I will fight to ensure that the Internet remains a space for free exchange, providing all people equal access to knowledge and ideas. While we must protect this exchange and the privacy of individuals, we must also invest in cybersecurity, which is not only essential to our national and economic security, but will become increasingly important as devices across sectors are networked.

Since my time in the Senate, I have worked across the aisle to improve our nation's cybersecurity. Internet freedom and security were at the forefront of my work as Secretary of State, and we must ensure this effort continues into the next administration. I supported the USA Freedom Act enacted in 2015. I also support the bipartisan effort led by Sen. Warner and Rep. McCaul, to create a national commission on digital security and encryption to help show the way forward.

This is an issue that spans both the public and private sector. I will build on the Obama Administration's Cybersecurity National Action Plan, modernizing our

government-wide cybersecurity and federal IT and empowering a federal Chief Information Security Officer. I also support public-private collaboration on cybersecurity innovation, along with implementing the National Institute of Standards and Technology Cybersecurity Framework. The next President will be confronted with these challenges, and will need common sense approaches to balance cybersecurity with personal privacy. The next president must be able to thoughtfully address these nuanced issues.

As president I will make it clear that the United States will treat cyberattacks just like any other attack. We will be ready with serious political, economic and military responses and we will invest in protecting our governmental networks and national infrastructure. I believe the United States should lead the world in setting the rules of cyberspace. If America doesn't, others will.

Donald Trump (R): The United States government should not spy on its own citizens. That will not happen in a Trump administration. As for protecting the Internet, any attack on the Internet should be considered a provocative act that requires the utmost in protection and, at a minimum, a proportional response that identifies and then eliminates threats to our Internet infrastructure.

Gary Johnson (L): This candidate has not yet responded.

Jill Stein (G): The Internet and the access to information it provides is an extremely important resource for the entire world. Here is how we will protect and improve the Internet:

- Protect the free Internet. Oppose the Online Piracy Act and all other legislation that would undermine freedom and equality on the Internet.
- Vigorously defend net neutrality.
- Support public broadband Internet.
- Negotiate international treaty banning cyberwarfare; create a new UN agency tasked with identifying the sources of cyber attacks.

6. MENTAL HEALTH

Mental illness is among the most painful and stigmatized diseases, and the National Institute of Mental Health estimates it costs America more than \$300 billion per year. What will you do to reduce the human and economic costs of mental illness?

Hillary Clinton (D): Nearly a fifth of all adults in the United States, more than 40 million people, are coping with a mental health issue. Close to 14 million people live with a serious mental illness such as schizophrenia or bipolar disorder. Moreover, many of these individuals have additional complicating life circumstances, such as drug or alcohol addiction, homelessness, or involvement with the criminal justice system. Veterans are in acute need of mental health care, with close to 20 percent of those returning from the Iraq and Afghanistan wars experiencing post-traumatic stress or depression. And the problem is not limited to adults: an estimated 17 million children in the United States experience mental health issues, as do one in four college students. Too many Americans are being left to face mental health issues on their own, and too many individuals are dying prematurely from associated health conditions. We must do better.

That's why I recently released a comprehensive and detailed plan to address this important issue that impacts so many American families. Under my plan, we'll promote early diagnosis and intervention, including launching a national initiative for suicide prevention. We'll integrate our nation's mental and physical health care systems so that health care delivery focuses on the "whole person," and significantly enhance community-based treatment opportunities. We'll improve criminal justice outcomes by training law enforcement officers in crisis intervention, and prioritizing treatment over jail for low-level, non-violent offenders. We'll enforce mental health parity to the full extent of the law. We'll improve access to housing and job opportunities. And we'll invest in brain and behavioral research and developing safe and effective treatments.

I'm proud of my record of advocating for greater protections and expanded access to treatment for people with mental health conditions, including co-sponsoring the Mental Health Parity and Addiction Equity Act. My goal is that within my time in office as president, Americans will no longer separate mental health from physical health when it comes to access to care or quality of treatment. The next

generation must grow up knowing that mental health is a key component of overall health and there is no shame, stigma, or barriers to seeking out care.

Donald Trump (R): This is one of the great unfolding tragedies in America today. States are reducing their commitments to mental health treatment and our jails are filled with those who need mental health care. Any mental health reforms must be included in our efforts to reform healthcare in general in the country. We must make the investment in treating our fellow citizens who suffer from severe mental illness. This includes making sure that we allow family members to be more involved in the total care of those who are severely mentally ill. We must ensure that the national government provides the support to state and local governments to bring mental health care to the people at the local level. This entire field of interest must be examined and a comprehensive solution set must be developed so that we can keep people safe and productive.

Gary Johnson (L): This candidate has not yet responded.

Jill Stein (G): As part of a Medicare for All universal health care system we need a mental health care system that safeguards human dignity, respects individual autonomy, and protects informed consent. In addition to full funding for mental health care, this means making it easier for the chronically mentally ill to apply for and receive Supplemental Security Income, and funding programs to increase public awareness of and sensitivity to the needs of the mentally ill and differently abled.

We must ensure that the government takes all steps necessary to fully diagnose and treat the mental health conditions resulting from service in combat zones, including post-traumatic stress disorder.

We will also release prisoners with diagnosed mental disorders to secure mental health treatment centers, and ensure psychological and medical care and rehabilitation services for mentally ill prisoners.

7. ENERGY

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Strategic management of the US energy portfolio can have powerful economic, environmental, and foreign policy impacts. How do you see the energy landscape evolving over the next 4 to 8 years, and, as President, what will your energy strategy be?

Hillary Clinton (D): The next decade is not only critical to meeting the climate challenge, but offers a tremendous opportunity to ensure America becomes a 21st century clean energy superpower. I reject the notion that we as a country are forced to choose between our economy, our environment, and our security. The truth is that with a smart energy policy we can advance all three simultaneously. I will set the following bold, national goals—and get to work on Day 1, implementing my plan to achieve them within ten years of taking office:

Generate half of our electricity from clean sources, with half a billion solar panels installed by the end of my first term.

Cut energy waste in American homes, schools, hospitals and offices by a third and make American manufacturing the cleanest and most efficient in the world.

Reduce American oil consumption by a third through cleaner fuels and more efficient cars, boilers, ships, and trucks.

My plan will deliver on the pledge President Obama made at the Paris climate conference—without relying on climate deniers in Congress to pass new legislation. This includes:

Defending, implementing, and extending smart pollution and efficiency standards, including the Clean Power Plan and standards for cars, trucks, and appliances that are already helping clean our air, save families money, and fight climate change.

Launching a \$60 billion Clean Energy Challenge to partner with states, cities, and rural communities to cut carbon pollution and expand clean energy, including for low-income families.

Investing in clean energy infrastructure, innovation, manufacturing and workforce development to make the U.S. economy more competitive and create good-paying jobs and careers.

Ensuring the fossil fuel production taking place today is safe and responsible and that areas too sensitive for energy production are taken off the table.

Reforming leasing and expand clean energy production on public lands and waters tenfold within a decade.

Cutting the billions of wasteful tax subsidies oil and gas companies have enjoyed for too long and invest in clean energy.

Cutting methane emissions across the economy and put in place strong standards for reducing leaks from both new and existing sources.

Revitalizing coal communities by supporting locally driven priorities and make them an engine of U.S. economic growth in the 21st century, as they have been for generations.

Donald Trump (R): It should be the goal of the American people and their government to achieve energy independence as soon as possible. Energy independence means exploring and developing every possible energy source including wind, solar, nuclear and bio-fuels. A thriving market system will allow consumers to determine the best sources of energy for future consumption. Further, with the United States, Canada and Mexico as the key energy producers in the world, we will live in a safer, more productive and more prosperous world.

Gary Johnson (L): This candidate has not yet responded.

Jill Stein (G): Our Green New Deal plan prioritizes a rapid transition to 100% clean renewable energy. Our energy strategy will also include:

- Enact energy democracy based on public, community and worker ownership of our energy system. Treat energy as a human right.
- Redirect research funds from fossil fuels into renewable energy and conservation. Build a nationwide smart electricity grid that can pool and store power from a diversity of renewable sources, giving the nation clean, democratically-controlled energy.

- End destructive energy extraction and associated infrastructure: fracking, tar sands, offshore drilling, oil trains, mountaintop removal, natural gas pipelines, and uranium mines. Halt any investment in fossil fuel infrastructure, including natural gas, and phase out all fossil fuel power plants. Phase out nuclear power and end nuclear subsidies. End all subsidies for fossil fuels and impose a greenhouse gas fee / tax to charge polluters for the damage they have created.

8. EDUCATION

American students have fallen in many international rankings of science and math performance, and the public in general is being faced with an expanding array of major policy challenges that are heavily influenced by complex science. How would your administration work to ensure all students including women and minorities are prepared to address 21st century challenges and, further, that the public has an adequate level of STEM literacy in an age dominated by complex science and technology?

Hillary Clinton (D): In 2020, estimates show there will be 1.4 million computer-science related jobs in the United States, but current projections show we only have 400,000 computer science graduates to fill them. Less than one in five high school students has ever taken a computer science course; only seven percent of our country's high schools offer Advanced Placement courses in computer science; and less than 40 percent of high school graduates have taken a physics course. We must do more to provide our students and workforce with the skills they need to get hired and advance in their careers.

Every student should have the opportunity to learn computer science by the time they graduate high school. I support the Obama Administration's "Computer Science for All" initiative. And I will take steps to increase investment and scale instruction and lesson programs that help improve student achievement or increase college enrollment and completion in computer science fields. These steps will help prepare the diverse tech workforce of tomorrow. At the same time, we need to expand the pool of computer science teachers so that we train an additional 50,000 CS teachers in the next decade.

Strong STEM programming in every public school is critical to our nation's success and to reducing economic and social inequality. But today, less than 40 percent of high school graduates have taken a physics course, and the lack of STEM programming is even more pronounced in schools with high concentrations of students of color. We will support states, cities, and charters in developing innovative schools, like Denver's School of Science and Technology and the Science Leadership Academy of Philadelphia, which have demonstrated success at engaging underrepresented populations in science and technology.

Beyond high school, we need to do more support the Historically Black Colleges and Universities, Hispanic-Serving Institutions, and other Minority-Serving Institutions that train a large share of scientists and engineers of color. In addition to making it possible for every student to attend a four-year public college or university debt-free, we will create a special fund to support low-cost, modest-endowment HBCUs, HSIs, and MSIs. And we need to make sure that a four-year degree is not the only pathway to a middle-class life, including in technology and engineering careers, by supporting high-quality apprenticeship programs and training.

Donald Trump (R): There are a host of STEM programs already in existence. What the federal government should do is to make sure that educational opportunities are available for everyone. This means we must allow market influences to bring better, higher quality educational circumstances to more children. Our cities are a case-study in what not to do in that we do not have choice options for those who need access to better educational situations. Our top-down-one-size-fits-all approach to education is failing and is actually damaging educational outcomes for our children. If we are serious about changing the direction of our educational standing, we must change our educational models and allow the greatest possible number of options for educating our children. The management of our public education institutions should be done at the state and local level, not at the Department of Education. Until more choices are provided in our cities, those who tout their concern about educational outcomes cannot be taken seriously.

Gary Johnson (L): This candidate has not yet responded.

Jill Stein (G): Education is critically important to the future of our world. Here is how we will ensure that our students receive the best education possible:

- Guarantee tuition-free, world-class public education from pre-school through university.
- Abolish student debt to free a generation of Americans from debt servitude and eliminate economic barriers to higher education.
- Protect our public school systems from privatization.
- Replace Common Core with curriculum developed by educators, not corporations, with input from parents and communities.
- Restore arts, music and recreation to school curriculums.
- Ensure racially inclusive, sensitive and relevant curriculums.
- Recognize poverty as the key obstacle to learning. Ensure that kids come to school ready to learn: healthy, nourished, secure and free from violence.
- Increase federal funding of public schools to equalize public school funding.

9. PUBLIC HEALTH

Public health efforts like smoking cessation, drunk driving laws, vaccination, and water fluoridation have improved health and productivity and save millions of lives. How would you improve federal research and our public health system to better protect Americans from emerging diseases and other public health threats, such as antibiotic resistant superbugs?

Hillary Clinton (D): America has witnessed enormous successes with some of its major public health initiatives, such as smoking cessation and water

fluoridation. Yet, we have a long way to go to strengthen the public health system to provide adequate protection for our communities. Recent events like lead contamination in drinking water in Flint, Michigan, development of antibiotic resistant microbes, uncontrolled spread of Aedes mosquitos that spread tropical diseases like Zika, Dengue and Chikungunya, the growth of opiate addiction, and the continuing need to address HIV make clear the shortcomings of our public health system and the urgent need for improvements.

But despite these threats, we are not investing in public health preparedness and emergency response the way we should to keep our families and communities safe. A 2015 study found that spending on public health had fallen more than nine percent since 2008. And uncertain long-term budgets leave our public health agencies dependent on emergency appropriations—meaning that when Congress fails to step up, communities are left without the resources they need, vaccines languish in development, and more people get sick.

That is why as President, I will create a Public Health Rapid Response Fund, with consistent, year-to-year budgets, to better enable the Centers for Disease Control, the U.S. Department of Health and Human Services, the Federal Emergency Management Agency, state and local public health departments, hospital systems, and other federal agencies to quickly and aggressively respond to major public health crises and pandemics. I will also ensure that our government has strong leadership and is organized to better support and work with people on the ground facing public health challenges.

In addition, we need to do more to boost our preparedness for biological threats and bioweapons; to support research for new diagnostic tests, therapeutic treatments, and vaccines for emerging diseases; to build capacity in public health departments; to train the next cadre of public health professionals and ensure that public health and environmental health practices are standard to the educations of medical students; and to provide resources for states and local governments to plan for complex, multi-faceted public health threats, like the impacts of climate change, and build more resilient communities.

Donald Trump (R): The implication of the question is that one must provide more resources to research and public health enterprises to make sure we stay ahead of potential health risks. In a time of limited resources, one must ensure

that the nation is getting the greatest bang for the buck. We cannot simply throw money at these institutions and assume that the nation will be well served. What we ought to focus on is assessing where we need to be as a nation and then applying resources to those areas where we need the most work. Our efforts to support research and public health initiatives will have to be balanced with other demands for scarce resources. Working with Congress—the people’s representatives—my administration will work to establish national priorities and then we will work to make sure that adequate resources are assigned to achieve our goals.

Gary Johnson (L): This candidate has not yet responded.

Jill Stein (G): A Medicare For All single payer healthcare system would place health as the bottom line rather than industry profits, which is fundamental for improving public health.

A Medicare For All system would:

allow health data to be aggregated on a population-wide scale (much of it is currently held in secret as proprietary information by private companies like health insurers) so that trends and outbreaks could be monitored.

permit assessment of the health needs of the entire population to be determined so that priorities could be set based on areas of need and funds could be given to institutions that would focus on solutions to priority areas.

drive public policy to pursue a greater public health and preventative approach because having a healthier population would save money.

cover every person living in the United States and would remove financial barriers to care. This means that people with infectious diseases and other conditions that impact the population would have access to care when they need it.

10. WATER

The long-term security of fresh water supplies is threatened by a dizzying array of aging infrastructure, aquifer depletion, pollution, and climate variability. Some American communities have lost access to water, affecting their viability and destroying home values. If you are elected, what steps will you take to ensure access to clean water for all Americans?

Hillary Clinton (D): Chronic underinvestment in our nation's drinking and wastewater systems has sickened and endangered Americans from Flint, Michigan, to Ohio and West Virginia. Outdated and inadequate wastewater systems discharge more than 900 billion gallons of untreated sewage a year, posing health risks to humans and wildlife life, disrupting ecosystems, and disproportionately impacting communities of color. In addition, many struggling communities around the United States have limited or no access to clean, safe water.

We will invest in infrastructure and work with states, municipalities, and the private sector to bring our water systems into the 21st century and provide all Americans access to clean, safe drinking water.

Climate change is also triggering changes in weather patterns, including the increased prevalence of long, hard droughts that pose a dire risk to the health and prosperity of American communities, particularly in the West. The federal government must become a better partner in supporting state and locally-led efforts to improve water security. To that end, we will create a coordinated, multi-agency Western Water Partnership to help fund water efficiency, consideration, and infrastructure modernization projects across the region, including significant new investments in water reuse and reclamation.

We will also work to bring cutting edge efficiency, treatment and reuse solutions to our nation's water challenges by establishing a new Water Innovation Lab. The Lab will bring urban water managers, farmers and tribes together with engineers, entrepreneurs, conservationists and other stakeholders to develop practical and usable technologies and strategies that can be deployed by local water utilities, agricultural and industrial water users, and environmental restoration projects across the country.

Donald Trump (R): This may be the most important issue we face as a nation for the next generation. Therefore, we must make the investment in our fresh water infrastructure to ensure access to affordable fresh water solutions for everyone. We must explore all options to include making desalinization more affordable and working to build the distribution infrastructure to bring this scarce resource to where it is needed for our citizens and those who produce the food of the world. This must be a top priority for my administration.

Gary Johnson (L): This candidate has not yet responded.

Jill Stein (G): We need a national comprehensive water plan.

Clean water is a human right. The Green New Deal's focus on infrastructure will help prevent future poisoned drinking water crises like that in Flint, Michigan.

Rejuvenating the federal Superfund program will help clean up the polluted drinking water of millions of Americans.

11. NUCLEAR POWER

Nuclear power can meet electricity demand without producing greenhouse gases, but it raises national security and environmental concerns. What is your plan for the use, expansion, or phasing out of nuclear power, and what steps will you take to monitor, manage and secure nuclear materials over their life cycle?

Hillary Clinton (D): Meeting the climate challenge is too important to limit the tools available in this fight. Nuclear power—which accounts for more than 60 percent of our zero carbon power generation today—is one of those tools. I will work to ensure that the climate benefits of our existing nuclear power plants that are safe to operate are appropriately valued and increase investment in the research, development and deployment of advanced nuclear power. At the same time, we must continue to invest in the security of our nuclear materials at home, and improve coordination between federal, state, and local authorities. We must also seek to reduce the amount of nuclear material worldwide—working with other

countries so minimize the use of weapons-grade material for civil nuclear programs.

Donald Trump (R): Nuclear power is a valuable source of energy and should be part of an all-the-above program for providing power for America long into the future. We can make nuclear power safer, and its outputs are extraordinary given the investment we should make. Nuclear power must be an integral part of energy independence for America.

Gary Johnson (L): This candidate has not yet responded

Jill Stein (G): Nuclear fission technology is unsafe, expensive, and dirty from the mining of uranium to the disposal of spent fuel. As such we will end subsidies to the nuclear industry immediately and phase out nuclear power over a 10 year timeline. Existing nuclear waste will be handled with onsite dry cask storage of high-level waste into perpetuity. No transport of nuclear waste.

12. FOOD

Agriculture involves a complex balance of land and energy use, worker health and safety, water use and quality, and access to healthy and affordable food, all of which have inputs of objective knowledge from science. How would you manage the US agricultural enterprise to our highest benefit in the most sustainable way?

Hillary Clinton (D): America's rural communities lie at the heart of what makes this country great. The affordability of our food, the independence and sophistication of our energy supply, and the strength of our small communities all depend on a vibrant rural America.

As president, my administration will do more to support family farms by doubling funding for the Beginning Farmer and Rancher Development program; building strong and sustainable local food systems; and providing a focused safety net by continuing to make progress in targeting federal resources in commodity

payment, crop insurance, and disaster assistance programs to support family operations.

And we will spur investment to help power the rural economy, including by expanding access to equity capital for rural businesses by increasing the number of Rural Business Investment Companies, which make equity investments in small rural businesses—driving growth and creating jobs in rural areas, and supporting investments in clean energy.

We must also acknowledge the other issues facing our rural communities. We need to expand health care access to all areas of our country, which includes broadening telemedicine. As president, I will explore ways in which we can expand tele-health reimbursement under Medicare and other programs, including federally qualified health centers and rural health clinics.

Donald Trump: The implication of your question is that there should be central control of American agriculture by the federal government. That is totally inappropriate. The agriculture industry should be free to seek its best solutions through the market system. That said, the production of food is a national security issue and should receive the attention of the federal government when it comes to providing security for our farmers and ranchers against losses to nature.

Gary Johnson (L): This candidate has not yet responded

Jill Stein (G): We need a food system that is healthy and sustainable. To this end, we will:

- Invest in clean air, water, food and soil for everyone.
- Ban neonicotinoids and other pesticides that threaten the survival of bees, butterflies, and other pollinators.
- Label GMOs, and put a moratorium on GMOs and pesticides until they are proven safe.

- Support organic and regenerative agriculture, permaculture, and sustainable forestry.
- Protect the rights of future generations. Adopt the Precautionary Principle. When an activity poses threats of harm to human health or the environment, in the absence of objective scientific consensus that it is safe, precautionary measures should be taken. The proponent of an activity, rather than the public, should bear the burden of proof.
- Redirect the Dept of Agriculture to meet the needs of small farmers to realize these goals.

13. GLOBAL CHALLENGES

We now live in a global economy with a large and growing human population. These factors create economic, public health, and environmental challenges that do not respect national borders. How would your administration balance national interests with global cooperation when tackling threats made clear by science, such as pandemic diseases and climate change, that cross national borders?

Hillary Clinton (D): Many of the greatest—and hardest—challenges facing our country extend beyond our borders and can only be ultimately addressed through global solutions. Climate change is a case in point. And that is why as Secretary of State I elevated the role of climate policy in our diplomacy, appointing our country's first Special Envoy for Climate Change, making climate policy a key part of our broader relationship with China and other key countries, and helping to create and launch the global Climate and Clean Air Coalition to reduce potent non-carbon climate pollution.

As the world's biggest and most powerful economy—and as the second-biggest emitter of greenhouse gases and the biggest historical emitter—the United States has a responsibility to lead the global response to the climate challenge. By making strong progress to reduce greenhouse gas emissions at home, President Obama was able to persuade and pressure other major emitters, including China and India, to step up. This dual process, where domestic policy changes helped spur

international action, led to the historic 195-nation Paris climate agreement, the first in our history where every country agreed to be part of the solution to climate change.

The Paris agreement is critical, but it is not sufficient on its own. To keep global warming below the two degrees Celsius threshold and avoid the worst consequences of climate change, we need to cut emissions by at least 80 percent below 2005 levels by mid-century. To get there, we will need to continually work to improve upon the goals set in Paris, both in the United States and around the world. That's why we must work to support more clean energy investment in emerging economies, help developing nations build resilience to the climate impacts that can't be avoided, and continue to drive clean energy innovation here at home. And we will continue to work on a bilateral and multilateral basis with our partners, with key countries like China, and with the UNFCCC to protect our nation, our planet, and our children's future.

When dealing with the outbreak of diseases, we must be sure to act with caution, and rely on science to inform our decisions around trade, travel, and treatment. We are privileged to live in a country that individuals around the world aspire to visit and even immigrate to. It is within our national interest to think beyond our borders, and through our leadership, do everything we can to foster peace, health, and security around the world. In the United States, we need to break the cycle in which our own public health system is beholden to emergency appropriations for specific epidemics. We can do this by creating a dedicated Rapid Response Fund to help shore up our defenses, accelerate development of vaccines and new treatments, and respond more effectively to crises. We will also create a comprehensive global health strategy that moves beyond the disease-by-disease emergency model and seeks to build a robust, resilient global health system capable of quickly responding to and ending pandemics.

Donald Trump: Our best input to helping with global issues is to make sure that the United States is on the proper trajectory economically. For the past decade we have seen Gross Domestic Product growth that has not provided adequate resources to fix our infrastructure, recapitalize our military, invest in our education system or secure energy independence. We cannot take our place as world leader if we are not healthy enough to take care of ourselves. This means we must make sure that we achieve our goals in tax reform, trade reform,

immigration reform and energy independence. A prosperous America is a much better partner in tackling global problems that affect this nation achieving its national objectives.

Gary Johnson (L): This candidate has not yet responded

Jill Stein (G): We need a foreign policy based on diplomacy, international law and respect for human rights. By strengthening international institutions, we lay the groundwork for greater cooperation on critical challenges such as climate change and pandemic diseases.

14. REGULATIONS

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Science is essential to many of the laws and policies that keep Americans safe and secure. How would science inform your administration's decisions to add, modify, or remove federal regulations, and how would you encourage a thriving business sector while protecting Americans vulnerable to public health and environmental threats?

Hillary Clinton (D): It is essential that environmental, health, and energy regulations, among other areas, use the best available science to guide decision-making, and I am committed to making sure that continues. For instance, we will have science guide us as we make important investments around health care. We will continue to invest in research to further our understanding of disease, including ramping up our investment in Alzheimer's and related dementias to \$2 billion per year, continuing Vice President Biden's Cancer Moonshot, and scaling up our broader investment in the National Institutes of Health's budget to combat all of the diseases of our day.

My opponent in this race has consistently discounted scientific findings, from his comments about vaccines to his claim that climate change is a hoax. These dangerous positions not only put Americans at risk, but can have long term impacts on our country's growth and productivity. Science will ensure our country continues to progress, and will help our government use its resources to provide the best possible life for all Americans.

Donald Trump: This is about balance. We must balance a thriving economy with conserving our resources and protecting our citizens from threats. Science will inform our decisions on what regulations to keep, rescind or add. A vibrant, robust free market system will regulate the private sector.

Gary Johnson (L): This candidate has not yet responded

Jill Stein (G): We will rely on evidence-based approaches to regulation. Science advisors will play a central role in our administration. We will appoint scientific review panels and committees.

Some guiding principles for our approach to regulation:

- Protect the rights of future generations. Adopt the Precautionary Principle. When an activity poses threats of harm to human health or the environment, in the absence of objective scientific consensus that it is safe, precautionary measures should be taken. The proponent of an activity, rather than the public, should bear the burden of proof.
- Redirect research funds from fossil fuels into renewable energy and conservation, as well as other technologies that promote the transition to a sustainable civilization.
- Enact stronger environmental justice laws and measures to ensure that low-income and communities of color are not disproportionately impacted by harmful pollution and other negative environmental and health effects.

15. VACCINATION

Public health officials warn that we need to take more steps to prevent international epidemics from viruses such as Ebola and Zika. Meanwhile, measles is resurgent due to decreasing vaccination rates. How will your administration support vaccine science?

Hillary Clinton (D): Through vaccinations and vaccine science, I am committed to protecting our nation's children, as well as populations worldwide, from infectious disease threats.

Over the last two decades, we have made extraordinary global gains in reducing childhood illness and deaths through expanded use of vaccines and immunization. The number of childhood deaths from infections such as measles, whooping cough, diphtheria, and other diseases has dramatically declined in recent years, in large measure due to vaccination. We still have a long way to go, but globally—with the support of Gavi, UNICEF, the World Health Organization and other international organizations—I will work hard to press for the elimination of these deadly diseases.

At the same time, the recent measles outbreaks in California's Marin and Orange counties remind us that we cannot be complacent with our own nation's vaccine policies. Measles, for example, remains a serious matter, killing almost 100,000 children annually around the world. As president, I will work closely with the talented physicians, nurses, and scientists in our US Public Health Service to speak out and educate parents about vaccines, focusing on their extraordinary track record in saving lives and pointing out the dangers of not vaccinating our children.

Additionally, the recent outbreaks of Ebola, Zika, and MERS are a wake-up call that we must continue to innovate and develop disease countermeasures. Our scientists have made great progress. Yet there remains a troubling "innovation gap" between early phase vaccine discovery and industrial-scale production and vaccine delivery. We need to engage stakeholders across industry, non-profits, foundations, and government to bridge this gap and spur the development of a new generation of vaccines.

Donald Trump: We should educate the public on the values of a comprehensive vaccination program. We have been successful with other public service programs and this seems to be of enough importance that we should put resources against this task.

Gary Johnson (L): This candidate has not yet responded

Jill Stein (G): Vaccines are a critical part of our public health system. Vaccines prevent serious epidemics that would cause harm to many people and that is why they are a foundation to a strong public health system. Polio is an important example. So is H Flu—a bacteria that caused serious illness, including meningitis, in 20,000 children a year in the US, before development of the H flu vaccine. We need universal health care as a right to ensure that everyone has access to critical vaccines.

Experts like Douglas Diekema, MD MPH say that the best way to overcome resistance to vaccination is to acknowledge and address concerns and build trust with hesitant parents. To reverse the problem of declining vaccination rates, we need to increase trust in our public health authorities and all scientific agencies. We can do that by removing corporate influence from our regulatory agencies to eliminate apparent conflicts of interest and show skeptics, in this case vaccine-resistant parents, that the motive behind vaccination is protecting their children's health, not increasing profits for pharmaceutical companies.

16. SPACE

There is a political debate over America's national approach to space exploration and use. What should America's national goals be for space exploration and earth observation from space, and what steps would your administration take to achieve them?

Hillary Clinton (D): President Kennedy's challenge in 1962 to go to the Moon within a decade electrified the nation, prompted a long period of American leadership in science and technology, and spurred a generation of innovators.

In the decades since, we have explored the sun and every planet in our solar system; mapped the surface and studied the atmosphere of Mars and confirmed the presence of water on the Red Planet; discovered new solar systems with Earth-like planets; mapped the distribution of galaxies in the universe; observed black holes, dark matter, and dark energy; built programs to monitor our ozone layer and the catastrophic impact of global climate change; and identified and mapped near-Earth asteroids as a first step to protect our planet from a major asteroid

impact. The International Space Station stands as the largest and most complex international technological project in history and has been key to understanding the response of the human body to long periods in zero gravity. And in recent years, new companies have sprung up that offer the promise of innovative approaches to transporting cargo and, eventually, humans in space. Americans have always been willing to think big, take risks, and push forward. These pillars will continue to underpin what America does in space, just as they define who we are as a people.

As president, my administration will build on this progress, promote innovation, and advance inspirational, achievable, and affordable space initiatives. We must maintain our nation's leadership in space with a program that balances science, technology and exploration; protect our security and the future of the planet through international collaboration and Earth systems monitoring; expand our robotic presence in the solar system; and maximize the impact of our R&D and other space program investments by promoting stronger coordination across federal agencies, and cooperation with industry. I will work with Congress to ensure that NASA has the leadership, funding and operational flexibility necessary to work in new ways with industry, placing emphasis on inventing and employing new technologies and efficiencies to get more bang for the buck while creating jobs and growing the American economy.

Today, thanks to a series of successful American robotic explorers, we know more about the Red Planet than ever before. A goal of my administration will be to expand this knowledge even further and advance our ability to make human exploration of Mars a reality.

As a young girl, I was so inspired by America's leadership and accomplishments in space that I wrote to NASA about becoming an astronaut. As president, I will help inspire the next generation of young Americans and do what I can to ensure that we have the world's most exciting and advanced space program, one that meets our highest human aspirations in a world where the sky is no longer the limit.

Donald Trump: Space exploration has given so much to America, including tremendous pride in our scientific and engineering prowess. A strong space program will encourage our children to seek STEM educational outcomes and will bring millions of jobs and trillions of dollars in investment to this country. The

cascading effects of a vibrant space program are legion and can have a positive, constructive impact on the pride and direction of this country. Observation from space and exploring beyond our own space neighborhood should be priorities. We should also seek global partners, because space is not the sole property of America. All humankind benefits from reaching into the stars.

Gary Johnson (L): This candidate has not yet responded

Jill Stein (G): We recognize the inspiration provided by space exploration and so we support:

1. the peaceful exploration of space
2. space-based systems to monitor environmental conditions on Earth
3. measures to ensure that space technology benefits all the people of Earth

Space exploration and science are international scientific endeavours requiring cooperation between many nations and peoples across borders. The peaceful exploration of space provides inspiration, education, and valuable scientific knowledge. Cooperation on space science and exploration is a promising path to peace. The US has an opportunity to continue leading in space science while ending space militarization. The US can lead international collaboration in space science and exploration without privatizing outer space or turning over space science and exploration efforts to corporations.

Climate science, including the study of other planets in our solar system and beyond, is essential for understanding how to address climate change on Earth. Space science, exploration, and Earth observation provide tools, technologies, and science to help address not only climate change but flooding, drought, storms, famine, and other crises. By focusing US space efforts away from corporate and military interests, we can work to create peace here on Earth and in space, prevent the deployment of space weapons and instead focus on technologies to solve problems on Earth, not create new ones.

Here are steps we will take to advance space exploration and science:

- Funding STEM education and forgiving student debt of STEM scholars so they can focus on science and research.

- signing of the International Treaty for the Demilitarization of Space.

- Ensuring scientists, not corporate or military interests, are driving the space exploration and science agenda

- Ensure funding of pure research, for the benefit of all humanity and our planet.

- Work closely with the United Nations Office for Outer Space Affairs (UNOOSA) on ensuring the peaceful exploration of space.

17. OPIOIDS

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There is a growing opioid problem in the United States, with tragic costs to lives, families and society. How would your administration enlist researchers, medical doctors and pharmaceutical companies in addressing this issue?

Hillary Clinton (D): Our country is in the grips of a quiet epidemic of drug and alcohol addiction. Twenty-three million Americans suffer from addiction, and 52 million Americans over the age of 12 have misused prescription drugs, including one in four teenagers. We must work with medical doctors and nurses across the country to treat this issue on the ground, from how patients are accessing these medications to how we are supporting them in recovery.

To combat America's deadly epidemic of drug and alcohol addiction, I have proposed a \$10 billion initiative, and laid out a series of goals to help communities across the country. We need to expand the Substance Abuse Prevention and Treatment block grant and support new federal-state partnerships targeting prevention, treatment, recovery, and other areas of reform. We must empower communities to implement preventive programming for teenagers; help

individuals suffering from addiction receive ongoing, comprehensive treatment; and provide first responders with naloxone, which prevents overdoses from becoming fatal. We must also work with those individuals prescribing controlled medications, and ensure they are getting the proper training in providing these prescriptions.

Finally, we must prioritize rehabilitation and treatment over prison for low-level and non-violent offenders. Currently, 65 percent of inmates in our prison system meet medical criteria for substance use disorders and over half of inmates suffer from a mental health problem. Jail time should not be a substitute for treatment. Working together, we can combat this epidemic and ensure that people across the country are getting the care they need to live long and healthy lives.

Donald Trump: We first should stop the inflow of opioids into the United States. We can do that and we will in the Trump administration. As this is a national problem that costs America billions of dollars in productivity, we should apply the resources necessary to mitigate this problem. Dollars invested in taking care of this problem will be more than paid for with recovered lives and productivity that adds to the wealth and health of the nation.

Gary Johnson (L): This candidate has not yet responded

Jill Stein (G): We will end the "war on drugs" and redirect funds presently budgeted for the "war on drugs" toward expanded research, education, counseling and treatment.

18. OCEAN HEALTH

There is growing concern over the decline of fisheries and the overall health of the ocean: scientists estimate that 90% of stocks are fished at or beyond sustainable limits, habitats like coral reefs are threatened by ocean acidification, and large areas of ocean and coastlines are polluted. What efforts would your administration make to improve the health of our ocean and coastlines and increase the long-term sustainability of ocean fisheries?

Hillary Clinton (D): Our coastal and ocean resources play a critical role in providing nutritious food, good livelihoods, and critical storm protection for our nation. With about 40 percent of our nation's population living in coastal counties, 1.8 million Americans making their livelihood from fisheries, and 3 billion people globally dependent on the oceans for a major portion of their protein, we cannot afford to ignore the health of our oceans.

I will continue to recover and rebuild U.S. fish stocks by making sound management decisions based on the best available science. The Magnuson-Stevens Fishery Conservation and Management Act laid an important foundation for guiding how we manage our fisheries. My administration will work with fishers so that we continue to have the best managed fisheries in the world, and I will oppose efforts in Congress that seek to weaken Magnuson-Stevens or divorce it from our best science. These steps will protect the livelihoods of today's fishers and ensure the health of these resources for generations to come.

At the same time, we will act globally to address the fisheries crisis. Ninety percent of our seafood is imported, making the United States one of the top markets for fish from around the world. Yet, experts estimate that up to 32 percent of that seafood, worth up to \$2 billion, comes from "pirate" fishing. This illegal, unreported, and unregulated (IUU) fishing also deprives fishing communities of up to \$23 billion per year and puts honest, hardworking American fishers at a disadvantage in the marketplace. I will work with our industry, and other countries, to implement strong traceability standards for our seafood from bait to plate.

In addition, we must continue to protect and restore the coastal habitat upon which healthy fisheries depend. My administration will work collaboratively across government, academia, and industry to build solutions that keep our waters clean, our coastal and ocean resources healthy, and our communities thriving.

At the same time, climate change and carbon pollution is also taking a heavy toll on our oceans. From oyster farms in Washington State to coral reefs in Hawaii and rising seas in Virginia, warming, acidifying waters are damaging our resources and the people who depend on them. I will make sure America continues leading the global fight against climate change, support development of the best climate science, and instruct federal agencies to incorporate that knowledge into their

policies and practices so that we are preparing for the future, not just responding to the past.

Donald Trump (R): My administration will work with Congress to establish priorities for our government and how we will allocate our limited fiscal resources. This approach will assure that the people's voices will be heard on this topic and others.

Gary Johnson (L): This candidate has not yet responded

Jill Stein (G): Our climate action and environmental protection plans will work to conserve fish stocks and coral reefs. Rapid response to climate change is the centerpiece of the Stein administration. From plastic trash to ocean acidification, we will move smartly to address ocean health with or without Congress.

19. IMMIGRATION

There is much current political discussion about immigration policy and border controls. Would you support any changes in immigration policy regarding scientists and engineers who receive their graduate degree at an American university? Conversely, what is your opinion of recent controversy over employment and the H1-B Visa program?

Hillary Clinton (D): As president, I will fight to make sure the United States continues to be a place where individuals from around the world can come to pursue their dreams and use their talents to help our country grow and innovate. This includes the talented scientists and engineers who choose to pursue their education at American universities.

Our immigration system is plagued by visa backlogs and other barriers that prevent high-skilled workers and entrepreneurs from coming to, staying in, and creating jobs in America. Far too often, we require talented people from other countries who are trained in United States universities to return home, rather than stay in here and continue to contribute to our economy. As part of a comprehensive immigration solution, we should "staple" a green card to STEM

masters and PhDs from accredited institutions—enabling international students who complete degrees in these fields to move to green card status. I will also support “start-up” visas that allow top entrepreneurs from abroad to come to the United States, build companies in technology-oriented globally traded sectors, and create more jobs and opportunities for American workers.

In my first 100 days in office, I will put a bill before Congress introducing comprehensive immigration reform. This bill will secure our borders, focus our enforcement resources on violent criminals, keep families together, and include reforms to retain and attract talented, skilled scientists, engineers, and entrepreneurs.

In addition, there are an estimated nine million lawful permanent residents in our country who are eligible to become citizens. We need to promote the benefits of American citizenship, and eliminate the cost barriers to naturalization. I will also work to ensure that individuals who immigrate to our country have the support they need to integrate into their communities. I will create a National Office for Immigrant Affairs, and will support affordable integration services through new grant funding.

Donald Trump (R): Immigration has been one of the cornerstones of my campaign. The issues brought up in your question are exactly what we should be addressing in immigration reform. If we allow individuals in this country legally to get their educations, we should let them stay if they want to contribute to our economy. It makes no sense to kick them out of the country right after they achieve such extraordinary goals. As for the H1-B program, we cannot allow companies to abuse this system. When we have American citizens and those living in the United States legally being pushed out of high paying jobs so that they can be replaced with “cheaper” labor, something is wrong. The H1-B system should be employed only when jobs cannot be filled with qualified Americans and legal residents.

Gary Johnson (L): This candidate has not yet responded

Jill Stein (G): We support the H1-B Visa program. However, we must look at it in the context of overall immigration policy, trade, economic and military policies.

In the big picture, we are concerned about a global economy in which people have to leave their home countries to find decent jobs. We support more just international development and demilitarization, so that people don't have to go half way around the world to find just employment.

20. SCIENTIFIC INTEGRITY

Evidence from science is the surest basis for fair and just public policy, but that is predicated on the integrity of that evidence and of the scientific process used to produce it, which must be both transparent and free from political bias and pressure. How will you foster a culture of scientific transparency and accountability in government, while protecting scientists and federal agencies from political interference in their work?

Hillary Clinton (D): The scientists I know are women and men of great integrity. We all have something to learn from the scientific ideals of respectful argument, based on evidence, to reach an eventual consensus.

The work done by scientists at federal agencies is critical for shaping our policies on health, environment, food and drug safety, national security, and many other issues. The scientific and technological information and processes relied upon in policymaking must be of the highest integrity to engender public trust in government.

As president, I will support efforts to ensure a culture of scientific integrity in each of our science-based agencies, strengthen the credibility of government research, and facilitate open communication and public engagement.

I am deeply concerned by the recent increase in partisan political efforts to interfere in science. I strongly support the free exchange of ideas and data, peer review, and public access to research results and other scientific information, all of which can help protect science-based policy decisions from undue influence from special interests.

Finally, I believe federal policies can do even more to reinforce public trust in the integrity of science throughout the research enterprise. Though very rare, deliberate fraud in how scientists use public research dollars must be exposed, punished, and prevented. We can and will create further incentives to encourage scientists not only to maintain accountability and accuracy checks, but also to share data, code, and research results for reuse and support replication by others. Similarly, self-serving scientific claims and blatant conflicts of interest must be exposed, punished, and prevented, so that the public can trust scientific conclusions. Finally, we can and should provide further incentives to prevent foreseeable harm to human subjects and robustly protect personal privacy.

Donald Trump (R): Science is science and facts are facts. My administration will ensure that there will be total transparency and accountability without political bias. The American people deserve this and I will make sure this is the culture of my administration.

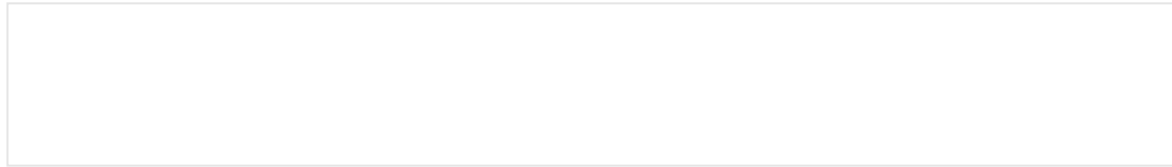
Gary Johnson (L): This candidate has not yet responded

Jill Stein (G): It is a major concern that many Americans don't trust our scientific and regulatory agencies, and extremely unfortunate that there are valid reasons for this declining trust that must be addressed.

For example, the current FDA commissioner appointed by President Obama was a highly paid consultant for big pharmaceutical corporations, as Senator Sanders pointed out in opposing his nomination. In the case of Vioxx, the FDA approved a profitable pain reliever that caused up to 140,000 cases of heart disease, and even tried to silence its own scientists who discovered this deadly side effect.

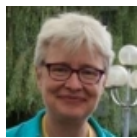
The CDC actually accepts huge amounts of money from big pharmaceutical corporations, as an investigation by the British Medical Journal revealed. So many scientists, doctors and watchdog groups have flagged these clear conflicts of interest in the FDA, CDC and other federal agencies.

As President I would stop the revolving door and clean up these agencies so that the American people can trust that they're putting people over profits, and science over lobbying interests.



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