Supplementary Materials

for

McCright, Aaron M., Meghan Charters, Katherine Dentzman, and Thomas Dietz. 2016. "Examining the Effectiveness of Climate Change Frames in the Face of a Climate Change Denial Counter-Frame." *Topics in Cognitive Science* 8(1):76-97.

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Predictors	National Economy Economic Heads of Households (N=245)	National Security Members of Military Family (N=236)	Stewardship of God's Creation Self-Identified Christians (N=239)	Public Health Primary Health Care Deciders (N=270)
Positive frame	1.60***	.93***	.24	.34
	(.26)	(.21)	(.24)	(.23)
Positive frame and	~ /	()	()	
Denial counter-frame	.90***	.49*	.28	.05
	(.24)	(.22)	(.24)	(.22)
Political ideology	.41***	.15	.05	.29**
i onnour rucciogy	(.11)	(.09)	(.10)	(.09)
Party identification	06	.23**	.13	.00
5	(.10)	(.08)	(.09)	(.08)
Female	.57*	.35	.45*	.50*
	(.23)	(.18)	(.20)	(.19)
Age	21*	06	.05	.03
1150	(.09)	(.07)	(.09)	(.08)
White	38	58*	.20	18
	(.27)	(.24)	(.25)	(.25)
Education	14	04	06	.03
Education	(.09)	(.08)	(.08)	(.09)
Income	.15	.05	08	03
meome	(.10)	(.08)	(.09)	(.08)
Religiosity	.01	05	.06	.06
Religiosity	(.05)	(.05)	(.04)	(.05)
Christian	07	.21	(.04)	35
Chiristian	(.29)	(.25)		(.25)
Non-Christian	.16	.21		55
Non-Chilistian	(.39)	(.32)		(.38)
Constant	3.22***	3.17***	4.00***	3.89***
Constant	(.67)	(.54)	(.58)	(.58)
Adjusted R ²	.24	.22	.05	.10

Note: The reference category for the experimental condition dummy variables is the control condition.

* p<.05 ** p<.01 *** p<.001

Predictors	Beliefs about Climate Change	Beliefs about Climate Science	Awareness of Climate Change Consequences	Support for Greenhouse Gas Emissions Reductions
Denial counter-frame	19	15	19	04
	(.13)	(.13)	(.14)	(.13)
Economic opportunity frame	.18	.03	.10	.29*
	(.13)	(.14)	(.14)	(.13)
Economic opportunity frame + denial counter-frame	32*	24	24	04
	(.13)	(.13)	(.14)	(.13)
National security frame	13	13	.03	.09
	(.13)	(.13)	(.14)	(.13)
National security frame + denial counter-frame	33*	27	22	06
2	(.13)	(.14)	(.14)	(.13)
Christian Stewardship frame	15	16	04	.04
1	(.13)	(.13)	(.14)	(.13)
Christian Stewardship frame + denial counter-frame	17	10	07	.03
I	(.13)	(.13)	(.14)	(.13)
Public health frame	03	04	06	.19
	(.13)	(.13)	(.14)	(.13)
Public health frame + denial counter-frame	20	20	09	05
	(.13)	(.13)	(.14)	(.13)
Political ideology	.33***	.34***	.33***	.35***
23	(.03)	(.03)	(.03)	(.03)
Party identification	.15***	.17***	.12***	.14***
5	(.03)	(.03)	(.03)	(.03)
Female	.23***	.10	.27***	.20**
	(.06)	(.06)	(.07)	(.06)
Age	03	10***	01	.01
C	(.03)	(.03)	(.03)	(.03)
White	02	.07	02	.13
	(.08)	(.08)	(.08)	(.08)
Education	.04	.06*	.01	.03
	(.03)	(.03)	(.03)	(.03)
Income	00	.02	00	.01
	(.02)	(.03)	(.03)	(.02)
Religiosity	.00	.01	.02	.02
	(.02)	(.02)	(.02)	(.02)
Christian	17*	37***	22*	31***
	(.08)	(.09)	(.09)	(.08)
Non-Christian	.06	05	.09	.07
	(.11)	(.11)	(.12)	(.11)
Constant	3.05***	3.01***	3.47***	2.56***
	(.19)	(.20)	(.21)	(.19)
Adjusted R ²	.30	.33	.26	.32

Table SM2: Unstandardized Coefficients (and Standard Errors) from OLS Regression Models Predicting ACC Views (N=1591)

Note: The reference category for the experimental condition dummy variables is the control condition. * p<.05 ** p<.01 *** p<.001

Leaders Say We Must Slow Climate Change Now

Monday, September 30, 2013 Posted: 11:28 AM EST



Smoke billows from chimneys at a power plant in Pittsburgh, Pennsylvania. Scientists say they are 95 percent certain global warming is caused by humans.

Washington—Today's scientific report from the Intergovernmental Panel on Climate Change provides unequivocal evidence that climate change is happening now, is caused by humans, and is producing harmful societal impacts. Many scientists and policy-makers urge us to take action to reduce our greenhouse gas emissions, primarily by promoting energy efficiency and renewable energy technologies. Various groups, such as economic leaders, military experts, Christian leaders, and medical experts, are advocating for us to reduce our nation's greenhouse gas emissions to slow climate change.

Leaders Say We Must Slow Climate Change Now; Others Disagree

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But Conservative Leaders and Republican Politicians Don't Agree

However, most conservative leaders and Republican politicians believe that so-called climate change is vastly exaggerated by environmentalists, liberal

scientists seeking government funding for their research, and Democratic politicians who want to regulate business. Conservative Republicans argue that there is no strong evidence that humans are influencing the climate and that the alleged scientific consensus is politically motivated.

Some scientists testifying at Congressional hearings are quick to point out that the Earth hasn't actually warmed in the last decade. Even if climate change would happen in the future, these scientists claim it would be a good thing for our agriculture, health, and overall quality of life—not something we should stop. Further, conservative Republicans argue that trying to reduce our nation's greenhouse gas emissions via regulations would harm our economy, national security, and national sovereignty.

Leaders Say Slowing Climate Change Will Benefit Economic Opportunity

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Dealing with Climate Change Will Benefit Economic Opportunity

Economic leaders argue that dealing with climate change will improve our economic competitiveness with other countries, drive a new wave of American

innovation and entrepreneurialism, and create millions of full-time blue-collar jobs that cannot be exported.

The US is falling behind in the global race to the next economic revolution: an economy based on renewable energy. Our economic competitors, such as China, Japan, and Germany, are developing renewable energy technology and promoting energy efficiency much faster than the US. Some economic leaders argue that the well-being of our nation's economy demands that we catch up to—and surpass—our economic competitors.

Economic leaders argue that aggressively promoting energy efficiency and renewable energy technology will create new markets that will drive a new wave of innovation and entrepreneurialism, as we saw in earlier decades with the rise of the automobile, the shift to mass production, and the emergence of the internet. Increased energy efficiency will also help businesses save money they can reinvest in further growth. Further, if US companies invent successful renewable energy technologies (e.g., new windmill designs, new batteries), they can make large profits and ensure large global market share by exporting these technologies around the world.

Perhaps most important, many economic leaders argue that the greatest benefit may be the creation of millions of full-time blue collar jobs across the US. These would be jobs in the development, installation, operation, and maintenance of wind, solar, biomass, and geothermal energy production. Because they are tied to a physical location, these high-quality jobs could not be exported—allowing us to strengthen the US middle class.

For these reasons, economic leaders urge us to promote energy efficiency and renewable energy technologies to substantially decrease our greenhouse gas emissions. Doing this will significantly increase our economic opportunities.

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Leaders Say Slowing Climate Change Will Benefit National Security

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Dealing with Climate Change Will Benefit National Security

Military experts argue that dealing with climate change will strengthen our national security by reducing environmental pressures that trigger foreign

conflicts, decreasing the fossil fuels revenues of hostile countries, and reducing the vulnerability of our military's field operations.

Military experts point out that climate change is increasing the frequency and severity of natural disasters, which can aggravate ongoing conflicts, weaken fragile governments, lead to revolutions over scarce food and water, and force large numbers of refugees to cross borders. This is especially a concern in regions—like sub-Saharan Africa and the Middle East—already experiencing a rise in radical extremism. Any of these developments may demand action by US military forces as warriors, security forces, or humanitarian aid providers.

Our country's large use of oil helps keep world oil prices high. Military experts say that these high prices enrich major oil exporters such as Saudi Arabia, Venezuela, Russia, and Iran—countries that are rarely supportive of our national interests. We shouldn't be exporting oil from countries that give aid and support to our enemies. Further, even if we don't directly purchase oil from such countries, our heavy dependence upon oil props up world oil prices—helping those countries to make more profits.

Heavy dependence upon fossil fuels is also keeping our military forces unnecessarily vulnerable, many military experts say. When our ships or land vehicles are refueling, they aren't able to fight in battle. It would be more efficient to produce energy where we use it than transport large amounts of fuel across long distances through supply lines that are increasingly vulnerable to our enemies' improvised explosive devices.

For these reasons, military experts urge us to promote energy efficiency and renewable energy technologies to substantially decrease our greenhouse gas emissions. Doing this will significantly strengthen our national security.

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Dealing with Climate Change Will Benefit God's Creation

Christian leaders argue that dealing with climate change will strengthen our stewardship and care for God's creation, help us act more Christ-like toward d the world, and strengthen our witness to the world.

the poor and marginalized around the world, and strengthen our witness to the world.

According to the Bible, God's glory is revealed in creation. Christian leaders argue that we cannot fully worship God and simultaneously destroy His creation. We need to be good stewards of God's creation and not damage our climate, because the natural world is a precious gift for which we will be held accountable. Also, our climate supports all other parts of God's creation—including ourselves.

Christians are called to care for the poor, oppressed, and marginalized people of the world, say Christian leaders. To care for the weakest or poorest among us is to care for Christ himself. Climate change is already hurting hundreds of millions of poor people around the world, and doing nothing to slow climate change will only increase the suffering of many more hundreds of millions of poor people.

Christian leaders point out that Christians are quick to provide relief when disasters strike. The donation of money, food, and time helps relieve the suffering of many disaster victims. This displays the love and compassion of Christ. Yet, the same Christian leaders argue that people should not only see our witness in relief efforts after a disaster but also see our witness in how we prevent such disasters in the first place. Thus, doing what we can to reduce the likelihood of future disasters due to climate change will strengthen our witness to the world.

For these reasons, Christian leaders urge us to promote energy efficiency and renewable energy technologies to substantially decrease our greenhouse gas emissions. Doing this will significantly benefit God's creation.

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Leaders Say Slowing Climate Change Will Benefit Public Health

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Dealing with Climate Change Will Benefit Public Health

Medical experts argue that dealing with climate change will improve our public health by reducing the likelihood of extreme weather events, reducing

air quality and allergen problems, and limiting the spread of pests that carry infectious diseases—all of which increase physical and psychological health risks. Medical experts note that these increased risks are especially dangerous for vulnerable groups, such as children, pregnant women, the poor, and the elderly.

Climate change is increasing the severity and frequency of extreme weather events—like heat waves, floods, droughts, hurricanes, and forest fires—that aggravate physical, psychological, and emotional stress, according to medical experts. For instance, heat waves lead to more hospitalizations and deaths due to heat stroke, asthma, heart disease, and lung disease. Also, floods lead to increased risks of physical injury, water-borne diseases, respiratory infections (due to overgrowth of molds), exposure to toxic chemicals, and psychiatric disorders—such as anxiety and depression.

Even when we don't experience extreme weather events, medical experts claim that reduced air quality caused by climate change will worsen respiratory problems such as asthma, bronchitis, and emphysema. Further, climate change is leading to longer and more intense allergy seasons.

Medical experts also point out that climate change is changing the areas of the world that can support the mosquitoes, ticks, and other pests that spread major infectious diseases such as malaria, dengue fever, West Nile virus, hantavirus, Lyme disease, and cholera. We will likely see increased risks of these infections by US citizens getting infected either within our borders or when travelling abroad, potentially causing new epidemics in the US.

For these reasons, medical experts urge us to promote energy efficiency and renewable energy technologies to substantially decrease our greenhouse gas emissions. Doing this will significantly improve our public health.

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