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Would You Like It Hot or Cold? An Analysis of U.S.-China Climate Policy

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CLAREMONT MCKENNA COLLEGE

**Would You Like It Hot or Cold?
An Analysis of U.S.-China Climate Policy**

SUBMITTED TO

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AND

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BY

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FOR

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ABSTRACT

As the world's largest emitters and economies, the United States and China play a critical role in global climate mitigation. Using Putnam's two-level game showcases how the domestic political context of each country impacts their international policies. However, Putnam's framework does not differentiate between bilateral and multilateral circumstances. The clarity and concentration of perceived costs and benefits for the United States and China from climate policies lead to differing outcomes on the multilateral and bilateral stage. Fear of the free-rider effect makes players assume payoffs that resemble the Prisoner's Dilemma during multilateral climate negotiations, whereas bilateral negotiations usually result in more cooperative outcomes. These contrasting policy outcomes reflect the hot and cold relationship between the United States and China. The additional expediency and effectiveness of bilateral agreements suggest that substantial climate action will likely originate from strong bilateral agreements. In an optimal scenario, increased U.S.-China climate collaboration translates into a stronger relationship between the two global superpowers and provides other nations with the confidence and certainty to invest in abatement in a renewed global climate regime.

Keywords: U.S.-China relations, climate change, multilateral climate policy, bilateral climate policy

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INTRODUCTION

Climate change poses a large threat to the livelihood of current and future generations. In September 2013, the Intergovernmental Panel on Climate Change (IPCC), a United Nations-sponsored committee of scientists, reported that—with a low margin of uncertainty—anthropogenic sources significantly contribute to climate change.¹ Human activities including burning fossil fuels, raising livestock, and accumulating waste in landfills emit greenhouse gases (GHGs), such as carbon dioxide (CO₂), nitrous oxide, and methane gas, which trap heat in the Earth's atmosphere.² In the past hundred years, the Earth's average temperature has increased by 0.8 degrees Celsius.³ The global temperature is currently rising at more than 0.1 degrees Celsius per decade, though climate scientists and global leaders agree that nations need to curb temperature rise to less than 2 degrees Celsius in order to avoid a calamitous climate shift.⁴

As the Earth's climate changes, society faces many social, environmental, and economic challenges. Higher levels of CO₂ and particulates deteriorate air quality and

¹ Justin Gillis, "U.N. Climate Panel Endorses Ceiling on Global Emissions," *New York Times*, September 27, 2013, accessed October 21, 2013, <http://www.nytimes.com/2013/09/28/science/global-climate-changereport.html?pagewanted=1>.

² Intergovernmental Panel on Climate Change (IPCC), "IPCC Fourth Assessment Report: Climate Change 2007: Working Group I: The Physical Science Basis," 2007, accessed on February 2, 2015, http://www.ipcc.ch/publications_and_data/ar4/wg1/en/spmssp-human-and.html.

³ "Climate Change: Basic Information," *Environmental Protection Agency*, accessed on February 3, 2015, <http://www.epa.gov/climatechange/basics/>.

⁴ Patrick Lynch, "Secrets from the Past Point to Rapid Climate Change in the Future," *NASA Global Climate Change*, December 15, 2011, accessed on April 20, 2015, <http://climate.nasa.gov/news/649/>.

negatively impact public health. Sea level rise and increased extreme weather events displace populations, creating millions of climate refugees.⁵ Higher temperatures have disturbed ecosystems and stunted agricultural output. In order to address climate change and its implications, society must collectively decrease its GHG emissions.

The United States and China hold titles as the world's largest economies and GHG emitters. Their cumulative emissions make up about half of the world's CO₂ emissions. China surpassed the United States in CO₂ emissions in 2006, though the U.S. carbon footprint per capita is about twice as large.^{6,7} China's rapid industrialization starting in the 1980s launched the nation into over three decades of economic growth. In 2014, China surpassed the U.S. as the largest economy based on purchasing power adjusted-GDP.⁸ If the United States and China continue operating business as usual and do not pursue aggressive climate policies to curb emissions, the world could surpass the threshold of 2 degrees Celsius and experience exponentially higher risk of a global climate catastrophe. International and domestic efforts by other nations can only make a marginal impact without the participation, cooperation, and leadership of China and the

⁵ In 2008, the UN estimated that climate change has displaced about 20 million people and projected the world will have about 200 million climate refugees by 2050. See Hannah Barnes, "How Many Climate Migrants Will There Be?" *BBC*, September 2, 2013, accessed on April 20, 2015, <http://www.bbc.com/news/magazine-23899195>.

⁶ "China Overtakes U.S. in Greenhouse Gas Emissions," *New York Times*, June 20, 2007, accessed on February 3, 2015, http://www.nytimes.com/2007/06/20/business/worldbusiness/20iht-emit.1.6227564.html?_r=0.

⁷ Maria Gallucci and Paul Horn, "For U.S. and China, World's Biggest Climate Polluters, It's Still Business as Usual," *Inside Climate News*, February 3, 2014, accessed on February 5, 2015, <http://insideclimatenews.org/news/20130129/united-states-china-carbon-greenhouse-gas-emissions-renewable-energy-coal-plants-pollution-global-warming-climate>.

⁸ Purchasing power adjusted-GDP takes out the impact of foreign exchange rates in measuring economic output. In terms of real GDP, the U.S. still has a larger economy than China. See "China Surpasses U.S. as World's Largest Economy Based on Key Measure," *Reuters*, October 8, 2014, accessed on February 5, 2015, <http://rt.com/business/194264-china-surpass-us-gdp/>.

United States. Thus, both nations have the unique responsibility to curb their emissions and lead efforts to combat climate change.

Despite the critical importance of both countries' ability to act on climate change, the Chinese and U.S climate agenda face constraints based on their distinct domestic political atmosphere and on how clear or diffuse they perceive the costs and benefits of certain climate policies.⁹ Contrasting policy outcomes on the multilateral and bilateral stage capture the mix of friendship and antagonism that has defined the Sino-U.S. relationship in modern history. Multilateral climate negotiations exhibit tensions within the U.S.-China relationship. China and the United States have refused to make substantial commitments on collective climate action, citing each other's inaction as the rationale for such policy stalemate. On the bilateral level, the two nations have engaged in a lot of climate policy collaboration, especially since President Barack Obama took over the White House in 2009. In November 2014, President Obama and President Xi Jinping made a historical agreement to reduce their nation-wide GHG emissions, a success that can be attributed to presidential leadership and changing policy preferences. The discrepancies between different levels of climate policy offer a unique narrative on the relationship between the United States and China as well as insights on the domestic political constraints and motivations of each nation.

⁹ Climate policies include mitigation and adaptation strategies. Climate mitigation policies attempt to reduce emissions and curb climate change through improved energy efficiency, increased regulations on emissions-heavy industries, and renewable energy deployment. Climate adaptation finds strategies for society to adjust their lifestyle to the changing climate. Adaptation policies include building shore protection to guard against rising sea levels and developing emergency response plans for the changing intensity and frequency of extreme weather events. See U.S. Environmental Protection Agency, "Climate Change," <http://www.epa.gov/climatechange/>.

Different theoretical frameworks, including Putnam's two-level game, Prisoner's Dilemma, and the Coordination Game, showcase the contrasting faces of U.S.-China climate policy. Applying the two-level game framework to climate policy draws out two key insights. Firstly, domestic landscapes impact international policies more heavily than the international landscape influences domestic policies. The certainty and clarity of costs and benefits perceived by policymakers influence how heavily they will advocate for or against certain climate policies. Secondly, inconsistent policy outcomes between bilateral and multilateral levels suggest that policymakers view costs and benefits differently across the two international levels. On the bilateral scale, players assume payoffs shown in the Coordination Game, but perceive outcomes that reflect the Prisoner's Dilemma matrix during multilateral negotiations.

Due to the domestic political environments constraining both the United States and China, the nations have found bilateral collaboration more politically palatable and productive than multilateral engagements on climate change. Based on the lack of movement in multilateral policy, the world will likely see an increased role of bilateral climate agreements in advancing substantial climate policy. Moving forward, the United States and China should focus on keeping each other accountable on the bilateral level, which could build trust between the two nations and pave the way forward for more multilateral policy in the future. Understanding the complex dynamics between U.S. and Chinese interactions on climate change informs future expectations for conflict and collaboration—not only between these two nations, but among countries across the globe.

Other nations watch and take cue from China and the United States as indicators of how developed and developing nations should address climate change.

CHAPTER ONE:

Theoretical Frameworks for Climate Policy

Three theoretical frameworks help to structure the analysis of U.S.-China climate policies: Putnam's two-level game, Prisoner's Dilemma, and the Coordination Game. These different approaches are layered and combined in the cost-benefit matrix (see **Figure 3**), which captures the interdependent relationship between the United States and China. This matrix shows how domestic forces and their perception of costs and benefits influence climate policy.

Putnam's Two-Level Game

In Robert Putnam's "Diplomacy and Domestic Politics: The Logic of Two-Level Games," Putnam describes how international policymaking involves both international-level and domestic-level groups. Domestic politics can influence international policies and vice versa:

At the national level (Level II), domestic groups pursue their interests by pressuring the government to adopt favorable policies, and politicians seek power by constructing coalitions among those groups. At the international level (Level I), national governments seek to maximize their own ability to satisfy domestic pressures, while minimizing the adverse consequences of foreign developments.¹⁰

¹⁰ Robert D. Putnam, "Diplomacy and Domestic Politics: the Logic of Two-Level Games," *International Organization*, Summer 1988, Vol. 42: 3, pg. 434.

These two levels are constrained and driven by one another. On Level I, international negotiators bargain over a tentative agreement that seeks to maximize the win-sets of the nations they represent.¹¹ Win-sets refer to a collection of potential international policies that can gain enough domestic support for “ratification.”¹² Putnam refers to “ratification” as any decision-making process on Level II required to implement an international agreement.¹³ Large win-sets indicate that domestic players can accept a variety of policies and increases the chances of overlap with the win-sets of other nations, making Level I agreement more likely. Small win-sets indicate that domestic policymakers will approve of a very limited set of policies, raising the barrier to advancing international policies. Win-sets depend on the preferences of domestic and international players, the distribution of power among these constituents, and Level II political institutions. After developing an international agreement, Level I players discuss the terms with their domestic counterparts in an effort to ratify the treaty.¹⁴ Any internationally binding treaty needs ratification by the domestic political institution in place. In practice, Level II interactions usually occur before Level I negotiations, so domestic players set clear expectations before sending negotiators to the international bargaining table.¹⁵ If the nations have small win-sets and domestic policy preferences do not overlap, nations are unlikely to reach an agreement. Thus, Putnam’s two-level game brings attention to the domestic political landscapes of the nations involved in the international agreement.

¹¹ Putnam, pg. 436.

¹² *Ibid.*

¹³ *Ibid.*

¹⁴ *Ibid.*

¹⁵ *Ibid.*

If the Level II political institution of a nation has a high level of autonomy and practices centralized decision-making, the nation has larger win-sets and is more likely to reach an international agreement.¹⁶ However, disclosing large win-sets could harm national interests by decreasing the nation's bargaining power abroad.¹⁷ Level I negotiators from other nations can "push around" this country and negotiate policies that distribute gains at a disadvantage to the nation with the larger win-sets.¹⁸ The risk of getting short-ended in international agreements incentivizes nations to reduce the perceived size of their win-sets to bolster bargaining power. Understanding the perception of policy costs and benefits becomes critical to predicting these win-sets and policy negotiation behavior.

Putnam also emphasizes that countries may have the incentive to cheat as a function of the size of their win-sets. Less overlap in ideal outcomes for either nation increases the chances of defection. Negotiators need to carefully consider domestic-level interests to minimize defection when striking a deal. Furthermore, Putnam asserts that "the temptation to defect can be dramatically reduced among players who expect to meet again."¹⁹ The increased frequency and certainty of future negotiations keep both parties accountable to their agreements. Putnam's two-level game codifies the role of domestic and international players in forging international agreements, which provides a clear framework to analyze U.S.-China climate policy.

¹⁶ Putnam , pg. 449.

¹⁷ *Ibid.*

¹⁸ Putnam, pg. 440.

¹⁹ *Ibid.*

Prisoner's Dilemma vs. Coordination Game

As implied in Putnam's game, the two nations' domestic political landscape constrains their climate strategy, both at home and abroad. Game theory models—the Prisoner's Dilemma and the Coordination Game—capture different approaches to climate policy in international negotiations and showcase how China and the United States operate in an interdependent space, where the other's decisions will impact expectations of individual payoffs.²⁰ Policymakers will hold initial presumptions of payoffs that influence their decision-making, regardless of whether their payoff expectations and the reality of policy outcomes align. Under the Prisoner's Dilemma model (see **Figure 1**), if China invests in abatement technologies and the United States does not, policymakers predict that China will have a lower payoff than the United States. The United States faces the same outcomes of lower payoffs if the U.S. abates but China does not. Players can form assumptions that reflect this payoff matrix if they prioritize short-term economic gain and geopolitical competition. The players may view the economic cost burdens of abatement more clearly compared to the potential long-term, diffuse benefits of climate mitigation.

²⁰ Applying game theory models with payoffs and outcomes takes a realist approach to foreign relations, since the models often define winners and losers. Notably, game theory assumptions of interdependent behavior also suggest opportunities for international collaboration between two players in order to maximize payoffs, which give these games a liberal internationalist spin.

Figure 1. Sino-U.S. Climate Policy under the Prisoner’s Dilemma²¹

		China’s Strategy	
		Invest in Abatement	Pollute
U.S. Strategy	Invest in Abatement	3,3	1,4
	Pollute	4,1	2,2

Each nation expects higher payoffs if asymmetrical abatement occurs (i.e. when one country invests in abatement and the other does not), suggesting that both nations will pollute and operate business as usual in Nash Equilibrium. Compared to the Nash Equilibrium, both countries would be better off if they negotiate an international agreement to abate.²² Even if both players initially agree to abate, either side can and will likely defect if the international agreement is not perfectly enforced, resulting in business as usual pollution levels.²³ The Prisoner’s Dilemma framework suggests that the United States and China will continue polluting at increasing levels in a state of Nash Equilibrium, even though this leads to sub-optimal outcomes for both nations.

In contrast to the Prisoner’s Dilemma, the Coordination Game presents higher payoffs when both nations abate compared to results from asymmetrical abatement or non-abatement (see **Figure 2**). With these payoff assumptions, neither country has the incentive to defect from abatement.

²¹ Stephen DeCanio and Anders Fremstad, “Game Theory and Climate Diplomacy,” *Economics for Equity & Environment*, October 2010, pg. 10.

²² *Ibid.*

²³ *Ibid.*

Figure 2. Sino-U.S. Climate Policy in a Coordination Game²⁴

		China's Strategy	
		Invest in Abatement	Pollute
U.S. Strategy	Invest in Abatement	4,4	1,3
	Pollute	3,1	2,2

Assigning higher payoff expectations to collective abatement could suggest that both nations place a premium on curbing climate change. China and the United States could recognize the potential harm of collective inaction and expect economic gains from developing a green economy.²⁵ Higher payoff expectations can also arise from the political benefits of collective abatement, such as the increased political capital resulting from effective U.S.-China leadership and the multiplier effect when other nations follow suit in mitigation efforts. If these political and environmental benefits are more concentrated or clear than the short-term economic costs of abatement, then Chinese and U.S. policy decisions would reflect the Coordination Game. The Coordination Game framework implies that both nations have equally compelling motivations to invest in abatement and will likely cooperate on climate mitigation in Nash Equilibrium. The ability for China and the United States to collaborate on climate mitigation depends on whether nations subscribe to the assumptions within the Prisoner's Dilemma or Coordination Game.

²⁴ DeCanio and Fremstad, pg. 13.

²⁵ *Ibid.*

Clarity in Costs and Benefits

The concentration and certainty of costs and benefits influence how the two players perceive payoffs, which guides climate policy behavior on the unilateral, bilateral, and multilateral level (see **Figure 3**). Costs and benefits expectations determine if China and the United States will operate under a Prisoner's Dilemma or Coordination Game framework.

Figure 3. Cost-Benefit Matrix

		China		
		<i>Clear Costs</i>	<i>Unclear Costs/Benefits</i>	<i>Clear Benefits</i>
United States	<i>Unclear Costs/Benefits</i>	Both Do Not Abate		Only China Abates
	<i>Clear Benefits</i>	Only U.S. Abates		Both Abate

COORDINATION GAME

When both nations recognize certain costs of abatement, neither is incentivized to abate.

When benefits are certain for both nations, both will likely abate.²⁶ When costs are certain for the U.S. while benefits are clear for China, China will take abatement action unilaterally. The opposite occurs if China expects abatement to lead to clear costs and the

²⁶ This model does not explicitly explain policy outcomes if certain climate policies have clear costs and clear benefits. Instead, the cost-benefit matrix presupposes that players have weighed the costs and benefits in order to decide which components are most concentrated, clear, and political valuable to act on.

U.S. expects clear benefits from abatement. Different stakeholders in the policy process may hold varying priorities. If the political institution separates legislators from the executive branch, these groups can hold disparate policy preferences. Notably, the President has a stake in Level I and Level II interactions, since he remains accountable to his constituents and also sets the foreign policy agenda. Members of opposing political parties, subject to the influence of distinct interest groups and constituents, also hold divergent policy preferences. Assumptions of costs and benefits are in the eye of the beholder, elevating the importance of how political institutions structure policymaking and engage with the general public. Depending on how much these stakeholders influence the Level I or Level II process, they can shape policies to match their policy preferences.

An analysis of the domestic landscape and international dynamics between the United States and China reveal that both nations held assumptions reflecting the Prisoner's Dilemma payoff structure and explain why multilateral negotiations led to the lack of abatement. In contrast, bilateral agreements presented clear benefits for both parties, similar to payoffs in the Coordination Game. This framework builds more complexity to Putnam's two-level game by distinguishing differences in multilateral and bilateral interactions. The cost-benefit framework, paired with a set of game theory concepts, are critical in analyzing U.S. and Chinese policies on a unilateral, bilateral, and multilateral level.

CHAPTER TWO:

The Domestic Policy Landscape

Based on Putnam's two-level game, the players within the domestic landscape determine the political palatability and feasibility of certain international climate policies. Different domestic political institutions, constituents, and policy preferences motivate and constrain the United States and China. The domestic policies of each nation display the political pressures facing policymakers and the perceived concentration or clarity of costs and benefits to stakeholders. This chapter provides the domestic background relevant to explore international climate policies of the United States and China. Specifically, national variables that influence climate policy at home and abroad include: 1) the political institution, 2) the policy preferences of interest groups and policymakers, 3) leadership commitment and influence, and 4) the competition for international influence and power. An analysis of the motivations behind U.S. and Chinese climate policy showcase the different political agendas and perceptions of costs and benefits driving each country.

Drivers of U.S. Climate Policy: Federalism, Partisanship & Leadership

The United States is governed by a democratic federalist government that has become marred by political partisanship, private interest groups, and divisive state

interests. These factors have concentrated the costs and diluted the benefits of climate policy for legislators, creating a political environment not conducive to passing substantive federal climate policy. America's desire to maintain global leadership and influence has placed a premium on the use of hard power in the form of economic and military strength, which further decreases the likelihood of implementing strong climate policy that could hinder economic growth. The Great Recession elevated the importance of economic growth as the nation's top priority. Despite these factors that make authorizing U.S. climate policy unlikely, changes in presidential leadership have pushed climate policy to the forefront of the nations' executive policy agenda, as climate mitigation remains an inactive topic in Congress.

Under democratic governance, policy preferences of decision-makers in Washington should reflect public attitude toward climate change. Democratic processes incentivize policymakers to act in the interest of their constituents, since legislators gain votes from adequately representing their voter coalitions. Public opinion on climate change has fluctuated throughout the past two decades. In 2000, the Program on International Policy Attitudes found that "an overwhelming majority of the U.S. public embrace[d] the idea of global warming as a real problem that requires action" and favored the ratification of the Kyoto Protocol.²⁷ The percentage of Americans worried about climate change dropped dramatically after the 2008 financial crisis—only 36

²⁷ Steven Kull, "Americans on the Global Warming Treaty," *Program on International Policy Attitudes (PIPA)*, February 4, 2000.

percent thought Congress should prioritize protecting the environment.²⁸ During the economic recession, people became cautious about imposing costs on industries that could slow economic recovery. As unemployment rates decreased and the economy rebounded over time, public opinion started to support an active role of policymakers in climate mitigation. In 2010, 69 percent of American believed that the United States should make a “large or medium-scale effort to reduce global warming even if it incurs large or moderate economic costs.”²⁹ A majority (62 percent) of Americans also supported U.S. climate action regardless of other countries’ actions.³⁰ The American public’s belief in climate change increased to 66 percent of respondents in 2014, including 88 percent of Democrats, 59 percent of Independents, and 61 percent of liberal and moderate Republicans.³¹ Voters indicated they are twice as likely “to vote for a congressional or presidential candidate who strongly supports” climate action.³² In the past two years, Americans favored protecting the environment more than developing energy supplies.³³ The main outlier was conservative Republicans; only 28 percent of

²⁸ Jeffrey M. Jones, “Americans Increasingly Prioritize Economy over Environment,” Gallup, March 17, 2011, accessed November 17, 2013, <http://www.gallup.com/poll/1615/environment.aspx>.

²⁹ Yale Project on Climate Change and Communication, “American Opinion on Climate Change Warms Up,” *Yale School of Forestry & Environmental Studies*, 2010, accessed on April 15, 2015, <http://environment.yale.edu/climate-communication/article/american-opinion-on-climate-change-warms-up>.

³⁰ A. Leiserowitz, et al, “Politics & Global Warming,” *Yale University and George Mason University*, Spring 2014, New Haven, CT: Yale Project on Climate Change Communication.

³¹ *Ibid.*

³² *Ibid.*

³³ Oil prices have fallen as a result of advancements in hydraulic fracturing to extract natural gas, which may influence public policy preference toward environmental protection and energy development. The usual drawbacks of GHG emissions reduction regulations, including higher energy prices, are less salient since Americans have benefited from lower energy prices overall. See Andrew Dugan, “Americans Choose the Environment over Energy Development,” *Gallup*, April 13, 2015, accessed on April 15, 2015, http://www.gallup.com/poll/182402/americans-choose-environment-energy-development.aspx?utm_source=Politics&utm_medium=newsfeed&utm_campaign=tiles.

conservative Republicans believe that climate change is occurring and a majority of them indicated a lower likelihood to vote for a candidate with a strong climate policy platform.³⁴ These ebbs and flows in public sentiment provide the initial context for U.S. climate policy.

Despite rising public concern, the issue of climate change has grown increasingly partisan in Washington, which suggests legislators include additional considerations in their cost-benefit calculations. Republicans in Congress often deny climate change or any stringent legislation on emissions reduction, while Democrats usually advocate for increased regulation.³⁵ Due to strategic gerrymandering and the current election process, elected officials have become increasingly radical and less representative of the general public. In other words, the policy preferences of voters from opposite ends of the spectrum are usually better represented than those of the general public. Furthermore, powerful interest groups influence the policymaking process by funding political campaigns and lobbying. Between 1998 and 2010, the oil and gas industry contributed \$213 million to members of the Republican Party—a figure that far out shadows funding from environmental groups for political campaigns.³⁶ Once elected, these policymakers have an incentive to pass or block legislation based on the interests of their funders in

³⁴ Leiserowitz, “Politics & Global Warming.”

³⁵ Prominent climate deniers in Congress include Senator Jim Inhofe (R-OK), Senator Lisa Murkowski (R-AL), Senator Mitch McConnell (R-KY), and Senator Fred Upton (R-MI). Many politicians that deny climate change chair congressional committees and hold major leadership positions. Senator Jim Inhofe (R-OK), head of the Senate Environment and Public Works Committee, has even denounced climate change as “the greatest hoax ever perpetrated on the American people.” See Tom McCarthy, “Meet the Republicans in Congress Who Don’t Believe Climate Change Is Real,” *The Guardian*, November 17, 2014, accessed on April 20, 2015, <http://www.theguardian.com/environment/2014/nov/17/climate-change-denial-scepticism-republicans-congress>.

³⁶ Daniel Weiss, “Anatomy of a Senate Climate Bill Death,” *Think Progress*, October 12, 2010, accessed November 22, 2013, <http://thinkprogress.org/climate/2010/10/12/206855/anatomy-of-a-senate-climate-bill-death/>.

hopes of receiving campaign support in future elections.³⁷ Even if a majority of the public wants government action on climate, the increasingly radical Republican leaders in Congress have successfully blocked many climate policies. The oil and gas industry alongside other industry interest groups outspent environmental groups by almost eight-fold during the legislative battle over the 2009 cap-and-trade bill, formally called the American Clean Energy and Security Act (ACES).³⁸

In addition to the partisan divide over climate change, state interests bind Congress from enacting effective climate policies. In the U.S. federalist system, elected officials must balance interests of the state and the nation. These interests often come into conflict in climate policy, since legislation on GHG emissions disproportionately impact states that rely on emissions-heavy industries. Congressmen and Senators representing states that depend on fossil fuel extraction—regardless of their political affiliation—often do not support legislation that imposes additional environmental regulations for fear of killing jobs and stalling economic growth in their state. Not only do Republican officials have the prerogative to oppose climate policy, their Democratic counterparts whom represent coal-reliant states will vote across party lines to protect their state economy. According to the Environmental Protection Agency (EPA), reducing GHG emissions through more stringent regulations on power plants have significant health benefits,

³⁷ Due to the amount of money it takes to run a successful political campaign, many elected officials exhibit the “never-ending campaign” phenomenon where they do not stop fundraising, which distracts policymakers from their core legislative responsibilities and can bias their decision-making.

³⁸ Pro-environment groups spent about \$22.4 million on federal lobbying efforts, while the oil and gas industry spent \$195 million. See Evan Mackinder, “Pro-Environment Groups Outmatched, Outspent in Battle over Climate Change Legislation,” *OpenSecrets.org*, August 23, 2010, accessed on April 22, 2015, <http://www.opensecrets.org/news/2010/08/pro-environment-groups-were-outmatc/>.

outweighing costs from 8 to 1 or 12 to 1 by 2030.³⁹ Every dollar invested could lead to \$7 in health benefits alone.⁴⁰ These regulations present clear benefits to the public, yet the uneven distribution of costs onto coal-heavy states has handicapped Congress from passing legislation to reduce emission from coal-fired power plants. To policymakers, increased regulations present concentrated cost in terms of losing political popularity and votes. Even though environmental regulations would decrease GHG emissions and mitigate climate change in the long-term, these benefits seem diffusive and not immediate enough for policymakers to put their careers on the line.

As a result of this domestic political landscape, the United States has not made great strides in developing recent legislation to further address climate change and environmental issues. The death of the 2009 cap-and-trade bill revealed large barriers in authorizing effective climate policy in Congress.⁴¹ The controversial bill would create a carbon market where firms trade permits to emit. This market-based mechanism incentivizes firms to invest in abatement technologies and reduce emissions over time at relatively low compliance costs compared to alternative command-and-control policies. The bill passed through the House of Representatives on a partisan vote of 219 to 212,⁴²

³⁹ Juliet Eilperin and Steven Mufson, “Everything You Need to Know about the EPA’s Proposed Rule on Coal Plants,” *The Washington Post*, June 2, 2014, accessed on April 16, 2015, http://www.washingtonpost.com/national/health-science/epa-will-propose-a-rule-to-cut-emissions-from-existing-coal-plants-by-up-to-30-percent/2014/06/02/f37f0a10-e81d-11e3-afc6-a1dd9407abcf_story.html.

⁴⁰ *Ibid.*

⁴¹ Alice Chang, “The Politics of Cap-and-Trade: Lessons from the European Union, Australia, and the United States,” *The Journal of MacroTrends in Energy and Sustainability*, Vol. 1 Issue 1, 2013.

⁴² 43 Democratic Congressmen voted against the bill, which suggests that state interests and other factors beyond partisanship influenced decision-making. See OpenCongress, “H.R. 2454 – American Clean Energy and Security Act of 2009,” <https://www.opencongress.org/bill/hr2454-111/show>.

but failed to gather enough support in the Senate, where Democrats did not hold a supermajority of 60 seats to circumvent the filibuster.

While Congress remains divided over carbon reduction programs like cap-and-trade, policymakers on the Hill have worked on less divisive issues, like clean energy deployment, energy efficiency, and natural gas development. These policy areas offer clear avenues for technological advancement, the creation of green jobs, and energy security. By presenting clear benefits to constituents and the American economy, politicians worked across partisan lines to push forward these policies. One of the most significant contributions of Congress in the recent energy policy regime is the promotion of natural gas extraction. Congress intentionally left many loopholes in legislation to minimize compliance costs for the natural gas industry. The Halliburton Loophole within the Safe Drinking Water Act allows drilling firms to not disclose the underground injection chemicals used during the fracking process. Other loopholes exist in the Clean Water Act and Clean Air Act. Natural gas emits far less GHG emissions compared to coal, and the deployment of natural gas has drastically reduced national emissions.⁴³ Congress also developed tax incentives, including the Federal Renewable Energy Production Tax Credit (PTC) and the Solar Investment Tax Credit (ITC), to foster a growing renewable energy industry.⁴⁴ The PTC, originally passed as a part of the Energy Policy Act of 1992, supports the development of renewable energy facilities and has

⁴³ Natural gas should only be a transitional base load fuel, since the process of hydraulic fracturing still emits a lot of methane gas into the atmosphere that also contributes to climate change.

⁴⁴ Besides federal policies, 36 states have developed Renewable Portfolio Standards to promote renewable energy adoption, setting the target of 20 percent power generated from renewable energy by 2020. See National Renewable Energy Laboratory, "Renewable Portfolio Standards," accessed on April 24, 2015, <http://www.seia.org/policy/finance-tax/solar-investment-tax-credit>.

largely benefited the wind energy sector.⁴⁵ Authorized by Congress through the Energy Policy Act of 2005, the ITC provides a 30 percent tax credit for residential, commercial, and utility-scale solar systems, which has driven the increased adoption of solar energy systems, created green jobs, and decreased the cost of solar.⁴⁶ In 2013, the U.S. invested \$48.4 billion in the renewable energy sector.⁴⁷ Since 2007, U.S. wind power generation grew by 300 percent, while solar generation increased by 600 percent.⁴⁸ The solar energy industry employed over 140,000 American workers in 2013 with a projected 20 percent annual increase.⁴⁹ Politicians can rally around protecting and promoting the U.S. renewable industry because of the green jobs and economic opportunities associated with the development of this sector. Arguably, setting regulations to reduce GHG emissions also drive innovation, create jobs, and promote energy security. However, the general public and politicians seem to see this connection as more tenuous compared to directly promoting the solar and wind industry and investing in the natural gas industry. Policies in clean energy and natural gas deployment are far more politically palatable than regulations on GHG emissions, which are often strategically branded as job-killing

⁴⁵ While the PTC has helped to grow U.S. wind capacity, the constant debate in Congress about extending the PTC has created a boom-bust cycle within the wind energy industry. In other words, the annual amount of installed wind capacity fluctuates based on uncertainties over whether the PTC would be renewed. See “Production Tax Credit for Renewable Energy,” *Union of Concerned Scientists*, accessed on April 23, 2015, http://www.ucsusa.org/clean_energy/smart-energy-solutions/increase-renewables/production-tax-credit-for.html#.VTpvmvFViko.

⁴⁶ “Solar Investment Tax Credit,” *Solar Energy Industries Association*, accessed on March 8, 2015, <http://www.seia.org/policy/finance-tax/solar-investment-tax-credit>.

⁴⁷ Angus McCrone, Ethan Zindler, and Nathaniel Bullard, “Clean Energy Investment Falls for Second Year,” *Bloomberg New Energy Finance*, January 14, 2014, accessed on March 8, 2015, <http://about.bnef.com/press-releases/clean-energy-investment-falls-for-second-year/>.

⁴⁸ John Miller, “How Effective Are U.S. Renewable Power Policies?” *The Energy Collective*, December 3, 2013, accessed on March 8, 2015, <http://theenergycollective.com/jemillerep/311406/how-effective-are-us-renewable-power-policies>.

⁴⁹ Senator Jon Tester, et al., Letter to Vice President Joe Biden on Solar Dispute, *U.S. Congress*, April 9, 2014.

policies. Most politicians consider these policies on GHG emissions reduction noxious to their career. Congress' choice in policy areas showcases the domestic political constraints on authorizing direct emissions reduction initiatives like a national cap-and-trade program.

Besides the role of Congress in developing climate policies, the executive political leadership sets the policy agenda at home and abroad. President Bill Clinton (1993-2001), President George W. Bush (2001-2009), and President Barack Obama (2009 - current) all held distinct climate policy agendas. Prior to Kyoto Protocol negotiations in 1997, President Clinton expressed that the United States had “a clear responsibility and a golden opportunity to conquer...the challenge of climate change.”⁵⁰ Reducing emissions can “create a wealth of new opportunities for entrepreneurs at home, uphold [U.S.] leadership abroad, and harness the power of free markets to free [the] planet from an unacceptable risk.”⁵¹ President Clinton's rhetoric revealed his support for U.S. climate action—both unilaterally and in partnership with other nations. For instance, President Clinton launched a number of voluntary emissions reduction programs for the utilities, transportation, and construction industries and a \$6.3 billion fund to stimulate energy efficiency practices.⁵² He also advocated for a carbon tax, but Congress did not accept this policy as an economically responsible means to reduce GHG emissions.⁵³

⁵⁰ President Bill Clinton, “Address at National Geographic Society,” Oct. 22, 1997, <http://www.presidency.ucsb.edu/ws/?pid=53442>.

⁵¹ *Ibid.*

⁵² Amy Royden, “U.S. Climate Change Policy under President Clinton: A Look Back,” *Golden Gate University Law Review*, Vol. 32: 4, September 28, 2010.

⁵³ *Ibid.*

In contrast with President Clinton’s advocacy for strong climate policy, President Bush questioned the certainty of climate science and did not view climate change as an imminent treat that necessitated U.S. leadership, especially if imposing GHG emissions regulations could harm the domestic economy. President Bush said that “we do not know how much our climate could or will change in the future. We do not know how fast the change will occur, or even how some of our actions could impact it.”⁵⁴ In fact, President Bush supported energy policies that promoted emissions-heavy industries, like coal and petroleum. Prior to entering the White House, President Bush worked for 11 years in the oil and gas industry and received \$21.3 million from the CEO of Enron, an energy commodities firm, during his presidential campaign.⁵⁵ President Bush’s point of view on climate change and his close ties to the oil and gas industry explain the lack of climate mitigation policies during the Bush Administration, reversing much of the progress made under President Clinton.

Once President Obama came into office in 2009, he made climate change a key priority for the nation and pledged to reduce U.S. GHG emissions by 17 percent below 2005 levels before 2020.⁵⁶ These goals matched with emissions reduction targets outlined in ACES. Even though President Obama aspired to forward climate mitigation policies, he inherited a weak economy after the start of the Great Recession and lacked the public support to prioritize environmental protection over economic development. During his

⁵⁴ President George W. Bush, “President Bush Discusses Global Climate Change,” June 11, 2001, <http://georgewbush-whitehouse.archives.gov/news/releases/2001/06/20010611-2.html>.

⁵⁵ Vice President Dick Cheney worked as CEO of Halliburton prior to coming into office. See Michael Lisowski, “Playing the Two-Level Game: U.S. President Bush’s Decision to Prejudiate the Kyoto Protocol,” *Environmental Politics*, 2002, Vol. 11: 4, pg. 106.

⁵⁶ Executive Office of the President, “The President’s Climate Action Plan,” *June 2013*.

first term, he chose to focus on the recovering economy and used his political capital to push through the health care reform. President Obama placed climate policy on the back burner after the 2009 cap-and-trade bill died in the Senate. After winning his second presidential election in 2012, President Obama moved full-force on climate policy and exercised his executive powers to implement emissions regulations. The 2013 Executive Climate Action Plan outlines clear policy priorities, such as deploying clean energy, decreasing emissions of the transportation sector, and building stronger infrastructure to adapt to the impacts of climate change.⁵⁷ Besides these domestic efforts, the Obama Administration emphasized its commitment toward working with developed and developing nations to act on climate change.⁵⁸ At the prompting of President Obama, the EPA has acted under the auspices of the Clean Air Act to set emissions regulations for the transportation sector and coal power plants.⁵⁹ The EPA and the National highway Traffic Safety Administration (NHTSA) have set historically stringent vehicle emissions standards to reduce about 3.1 million metric tons of carbon emissions within the transportation industry.⁶⁰ Currently, the EPA is finalizing carbon pollution standards for coal power plants, which aim to reduce emissions by 30 percent of 2005 levels by 2030.⁶¹

President Obama's ambitious climate agenda suggests that he perceives clear benefits to advancing climate policy. He believes "there's no greater threat to [the] planet than climate change" and hopes to leave a policy legacy within his second presidential

⁵⁷ *Ibid.*

⁵⁸ *Ibid.*

⁵⁹ In *Massachusetts v. EPA* (2007), the U.S. Supreme Court ruled that the Clean Air Act authorizes the EPA to regulate greenhouse gases.

⁶⁰ U.S. Environmental Protection Agency, "Regulatory Initiatives," <http://www.epa.gov/climatechange/EPAactivities/regulatory-initiatives.html>.

⁶¹ Eilperin and Mufson, "Everything You Need to Know about the EPA's Proposed Rule on Coal Plants."

term.⁶² The current Republican Congress makes the prospects of authorizing substantial climate policy grim for the remainder of President Obama's term. The paralysis in Congress on climate policy places additional pressure and importance on the executive branch in developing regulations and international agreements. Legislators and executive leadership hold different policy preferences, illustrated through the lack of legislation on emissions reduction and a recent increase in executive action on climate mitigation.

Drivers of China's Climate Policy: Maintaining Legitimacy as a One-Party State

In contrast to the United States, the Communist Party of China (CPC) governs the nation in a one-party state, whose sole political agenda focuses on staying in power. With rising local protests and demands for better environmental protection measures, the CPC sees clear benefits to improve China's environment. While China continues to focus on economic development, the Party's self-interest has led to the creation of strategic policies and a national narrative to rebalance the nation's breakneck growth with environmental protection. After China's leadership transition to President Xi Jinping, he launched policies to achieve the Chinese Dream, a phrase he coined in 2012 to embody the aspirations of the Chinese people to improve their standard of living and to emulate China's intentions of becoming a global superpower. To fulfill the Chinese Dream for the Chinese people, President Xi hopes to deliver "better education, more stable jobs, better

⁶² Reena Flories, "Obama: 'No Greater Threat' Than Climate Change," *CBS News*, April 18, 2015, accessed on April 19, 2015, <http://www.cbsnews.com/news/obama-warns-no-greater-threat-climate-change/>.

income, more reliable social security, medical care of a higher standard, more comfortable living conditions, and a more beautiful environment.”⁶³

Similar components that influence U.S. climate policy preferences shape the CPC’s win-sets and decision on how to act on climate. China’s political structure, shifting policy preferences in favor of sustainable development, changes in executive leadership, and the desire to project power overseas have contributed to the nation’s affinity toward unilateral GHG emissions reduction efforts.^{64,65} While these components accurately explain some motivators for China’s climate action, the foundational driver that differentiates China from the United States is China’s political system. China operates under an authoritarian regime subject to different political constraints. The Party develops policies that promote political stability and has the authority to make national policy decisions without much pushback from political elites.

More recently, the Chinese people have begun to recognize the value of ecosystem services and environmental preservation, making poor air quality a source of social instability. As a result of China’s unsustainable extraction and consumption of coal, the nation suffers from the consequences of poor air quality. In January 2013, the concentration of hazardous particles in Beijing’s air exceeded World Health Organization (WHO) standards by forty times; city residents referred to these conditions as an

⁶³ President Xi Jinping, Full Text of Speech by New Communist Party General Secretary Xi Jinping at the Politburo Standing Committee Members’ Meeting with the Press at the Great Hall of the People in Beijing, *BBC*, November 15, 2012, accessed on March 23, 2015, <http://www.bbc.com/news/world-asia-china-20338586>.

⁶⁴ Luke Schoen, “Why Is China Taking Action on Clean Energy and Climate Change,” *ChinaFAQs*, May 2013, pg. 2.

⁶⁵ Lisa Williams, “China’s Climate Policies: Actors and Drivers,” *Lowy Institute for International Policy*, July 24, 2014.

“airpocalypse.”⁶⁶ The Asian Development Bank found that “less than 1 percent of China’s 500 largest cities meet the WHO’s air quality standards.”⁶⁷ In 2010, air pollution caused about 1.2 million premature deaths in China and drove down life expectancy by 5.5 years in Northern China.⁶⁸ Poor air quality correlates to a rise in chronic illnesses, such as asthma and cancer, in both urban and rural populations. These realities leave many of China’s metropolises unsuitable for living and deter social elites and top talent from living in these regions.⁶⁹ Since air pollution has such visible impacts on public health in certain parts of China, acting on this salient issue through emissions reduction programs can drastically improve the quality of life in these areas. Even though the main motivator for CPC policy has traditionally been fostering economic growth, the Party has a vested interest in environmental protection to maintain social stability. According to China’s 2013 State of the Environment report, the Chinese people held over 700 demonstrations about environmental protection.⁷⁰ Environmental protests have grown by 29 percent each year from 1966 to 2011, which motivates the CPC to prioritize environmental protection and rebalance the nation’s breakneck economic growth.⁷¹ By implementing climate policies and curbing emissions now, the CPC hedges against long-term threats to the regime. While a two-party system in the United States gives political

⁶⁶ Beina Xu, “China’s Environmental Crisis,” *Council on Foreign Relations*, April 25, 2014, accessed on February 2, 2015, <http://www.cfr.org/china/chinas-environmental-crisis/p12608>.

⁶⁷ *Ibid.*

⁶⁸ *Ibid.*

⁶⁹ Genia Kostka, “Barriers to the Implementation of Environmental Policies at the Local Level in China,” *World Bank*, Development Research Group: Environment and Energy Team, August 2014, pg. 6.

⁷⁰ Stephen Vines, “How Will China Deal with Growing Anger over Pollution?” *Al Jazeera*, August 1, 2014, accessed on March 7, 2015, <http://www.aljazeera.com/indepth/opinion/2014/07/china-pollution-protests-2014729105632310682.html>.

⁷¹ *Ibid.*

elites more leeway to point fingers at the opposition party and use each other as scapegoats, the Chinese political system has only one-party. If anything goes wrong, the Chinese people look to the CPC for answers. While the Party can deploy smart repression tactics, they acknowledge that addressing any potential risks of social unrest will benefit the Party in the long-term.

After weighing the costs and benefits of climate policy to the regime, the CPC has implemented aggressive abatement goals. The CPC has set historically ambitious national targets to reducing energy intensity and carbon intensity in the 11th (2006 – 2010) and 12th (2011 – 2015) Five-Year Plans (FYPs).⁷² In the 11th FYP, the government committed to reduce energy intensity by 20 percent before 2010.⁷³ The 12th FYP aims to reduce carbon emissions intensity by 17 percent below 2005 levels by 2020 and to grow non-fossil fuel sources to 11.4 percent of the total energy mix by 2015.⁷⁴ A 2013 National Development and Reform Commission (NRDC) report outlines China’s investments in GHG emissions reduction programs, including developing clean energy and energy efficiency technologies, increasing forest carbon sinks, and piloting seven regional carbon cap-and-trade programs.⁷⁵

⁷² Energy intensity represents units of energy per dollar of GDP in order to measure how efficiency the economy converts energy into economic output. Carbon intensity refers to the amount of CO₂ emitted per unit of energy produced.

⁷³ “CPI Study Finds China Made Solid Progress Towards 11th FYP Energy Intensity Targets But May Face Challenges in Meeting 12th FYP Targets,” *Climate Policy Initiative*, February 2011, accessed on April 19, 2015, <http://climatepolicyinitiative.org/press-release/cpi-study-finds-china-made-solid-progress-towards-11th-fyp-energy-intensity-targets-but-may-face-challenges-in-meeting-12th-fyp-targets/>.

⁷⁴ Joanna Lewis, “Energy and Climate Goals of China’s 12th Five-Year Plan,” *Center for Climate and Energy Solutions*, March 2011, <http://www.c2es.org/international/key-country-policies/china/energy-climate-goals-twelfth-five-year-plan>.

⁷⁵ The National Development and Reform Commission, “China’s Policies and Actions for Addressing Climate Change,” *The People’s Republic of China*, 2013.

Besides bolstering the Party's legitimacy, climate policy can also strengthen the Chinese economy and China's international competitiveness. Then-Premier Wen Jiabao recognized the synergistic opportunity of economic growth and sustainable development: "greening of the economy is not a burden on growth; rather, it is an engine that drives growth and an effective means to achieve sustainable development."⁷⁶ China holds the title as the world's largest investor in renewable energy, spending over \$56.3 billion in 2014,⁷⁷ and retains 24 percent of the world's renewable energy capacity.⁷⁸ As of 2014, China has over twice as much renewable energy capacity compared to that of the United States, and more than four times as much capacity compared to Germany and India.⁷⁹ Much of this increase in capacity and generation is powered by China's manufacturing sector. The Chinese people benefit from additional jobs in the growing renewable energy sector, which translates to clear advantages for the CPC in supporting the political status quo.⁸⁰

Even if climate policies in China set back the local economy in the short-term, the CPC has developed smart repression mechanisms to absorb small-scale social tensions. As China transitions its energy sources to non-fossil fuels, these policies will inevitably lead to closures of coal power plants and job loss. As an authoritarian government, the

⁷⁶ President Xi, Full Text of Speech by New Communist Party General Secretary.

⁷⁷ Jack Perkowski, "China Leads in Renewable Investment - Again!" *Forbes*, June 17, 2014, accessed on March 5, 2015, <http://www.forbes.com/sites/jackperkowski/2014/06/17/china-leads-in-renewable-investment-again/>.

⁷⁸ Energy capacity differs from how much electricity is actually generated and used. Capacity refers to the maximum amount of energy the power sources are able to generate at one given time.

⁷⁹ John Mathews, "Falling Oil Prices Unlikely to Influence China's Renewable Energy Investment Strategies," *Clean Technical*, January 28, 2015, accessed on March 5, 2015, <http://cleantechnica.com/2015/01/28/falling-oil-prices-unlikely-influence-chinas-renewable-energy-investment-strategies/>.

⁸⁰ In 2011, China had about 1.6 million jobs in the renewable energy industry. See Schoen, pg. 7.

CPC can mollify local unrest over lost jobs through calculated repression and point toward these policy decisions as necessary actions to improve air quality. In fact, the CPC ordered the closure of four major coal-fired power plants in Beijing to improve air quality and intends to replace coal-generated energy with natural gas-generated energy.⁸¹ The CPC strategically plans to build new power plants farther inland, away from metropolitan areas.⁸² With hindsight of the Tiananmen Massacre and the resulting political damage, the Party views social unrest in urban areas as less manageable, more visible, and more threatening to the Party. While the government is in the process of piloting regional carbon cap-and-trade programs and more directly tackling GHG emissions reduction, the bulk of policy efforts such as coal plant closures and renewable energy development have largely focused on improving air quality and not necessarily climate mitigation.⁸³ The Chinese people are more likely to protest against public health concerns than worries about global climate change. Such strategic policies and behaviors reveal that the Party's main priority is to maintain legitimacy.

Similar to the United States, China underwent leadership transitions from President Hu Jintao (2003 - 2012) to President Xi Jinping (2012 - current). In a one-party system, the Party usually advances policies in a cohesive manner and decision-making illustrates heavy path dependency. The policy platform of succeeding leaders aligns

⁸¹ David Stanway, "Beijing Shuts Big Coal-Fired Power Plant to Ease Smog: Xinhua," *Reuters*, July 23, 2014, accessed on March 8, 2015, <http://www.reuters.com/article/2014/07/23/us-china-pollution-beijing-idUSKBN0FS16J20140723>.

⁸² Richard Martin, "China's Great Coal Migration," *Fortune*, July 11, 2014, accessed on March 8, 2015, <http://fortune.com/2014/07/11/coal-china/>.

⁸³ Kate Galbraith, "Don't Get Caught Up in the Air Pollution Hype," *Foreign Policy*, March 4, 2014, accessed on April 18, 2015, <http://foreignpolicy.com/2015/03/04/china-pollution-emissions-india-climate-change/>.

closely with that of prior political elites and builds upon previous policies. In contrast, the U.S. political structure and two-party system can result in drastic changes in the policy preferences of political elites across leadership transitions. Consecutive American presidents held opposing perspectives on climate change that slow down and even reversed policies implemented in prior years. Starting in the early 2000s, the CPC built up momentum to reduce emissions and improve air quality and public health. The Party continued to pursue these climate policies domestically throughout President Hu and President Xi's administrations.⁸⁴

Policymakers in either nation face differing costs and benefits, which either enable or block effective climate action. China's climate policy is driven by the CPC's concern to remain in power, while the United States has more political barriers to overcome in a democratic, federalist system. The United States has struggled to take substantial legislative action on climate change due to congressional perceptions of concentrated costs and diffuse benefits associated with taking climate action. Deadlock in Congress elevated the role of the executive branch in developing climate policies. Political factors in China led to the expedient deployment of climate policies, because these climate policies result in clear benefits for the CPC. These dynamics inform China and U.S. behavior on the international level, as predicted in Putnam's two-level game.

⁸⁴ While Chinese leadership acts more cohesively compared to U.S. leaders from opposing parties, the different personalities of the two Chinese presidents shifted China's climate policy abroad (see Chapter Four).

CHAPTER THREE:

The International Policy Landscape

In addition to the importance of domestic-level players, Putnam emphasizes the role of international negotiators and the international political context. This chapter takes a thematic look at the Sino-U.S. relationship to understand ongoing power dynamics and tensions.⁸⁵ Since the Reagan Administration, the bilateral relationship has developed a hot and cold narrative. The two nations can be friends in certain situations and foes in others. Conflicting interests, the lack of trust, and adverse domestic political environments characterize the adversarial side of the Sino-U.S. relationship. These nations are woven from different cloth; different histories have formed contrasting values that often conflict and result in adversarial behavior. American and Chinese political ideologies and political systems fundamentally oppose one another. Even though most political indicators push these two countries apart, realities of their economic interdependence pull them back together and incentivize strategic cooperation to ensure mutual growth. According to J. Stapleton Roy, a scholar at the Woodrow Wilson International Center, neither country hopes to engage in “unchecked strategic rivalry,”

⁸⁵ For additional background on U.S.-China foreign policy, refer to Warren Cohen’s *America’s Response to China: A History of Sino-American Relations*.

since it could lead to political and economic instability.⁸⁶ Instead, the two nations have agreed to seek “a stable and sustainable balance between competition and cooperation.”⁸⁷ More recently, China and the United States have recognized their overlapping interests in issues such as energy security, climate change, and nuclear nonproliferation. Understanding the push and pull dynamics between the United States and China contextualizes the two nations’ points of view when entering international climate discussions and the different behavior each nation exhibits on the bilateral and multilateral policy levels.

The Rise to Global Power

The Korean War, a proxy war in Vietnam, and ideological tensions over Taiwan fueled intense rivalry between the United States and China before rapprochement in the 1970s.⁸⁸ After the Cultural Revolution and Mao Zedong’s death in 1976, China began to open up to the world under Deng Xiaoping’s growth-focused leadership. Powered by China’s impressive economic growth, the nation has become a dominant economic, political, and military force in the East and across the globe. Benefiting from low labor costs, China held a trade surplus of over \$60 billion as of January 2015, marking a record high in net exports and affirming China’s critical role in supporting global consumption.⁸⁹ China currently makes up 14.3 percent of the world’s GDP.⁹⁰

⁸⁶ J. Stapleton Roy, “Opening Statement at the Senate Foreign Relations Committee Hearing on U.S.-China Relations,” *Wilson Center*, June 26, 2014, accessed on February 16, 2016, <http://www.wilsoncenter.org/article/the-future-us-china-relations>.

⁸⁷ *Ibid.*

⁸⁸ Pew Center on Global Climate Change and Asia Society, “A Roadmap for U.S.-China Cooperation on Energy and Climate Change,” January 2009, pg. 14.

⁸⁹ “China Balance of Trade,” *Trading Economics*, accessed on February 14, 2015, <http://www.tradingeconomics.com/china/balance-of-trade>.

Conservative estimates project that China will contribute to 28 percent of the global GDP by 2030.⁹¹ In March 2014, China announced a 12.2 percent increase in its military budget, which signifies the nation's intent to hold a strong military presence in the Pacific region.⁹² Nearly a decade before, the CPC coined the term "peaceful rise" to characterize the nation's intentions as benign and to ensure that China's rise to power does not destabilize or disrupt the region.⁹³ Increases in military spending do not necessarily indicate that China has empirical intentions. However, the CPC must balance their commitment to peaceful development with its priority to maintain sovereignty and territorial integrity.⁹⁴ Challenges to do so—as with territorial disputes over Diaoyu Islands—have already led to increased regional instability in the Asia-Pacific as well as growing internal unrest.

While China's economy has grown exponentially and has caught up to the United States in terms of purchasing power adjusted-GDP, "parity on paper will not quickly yield equal influence abroad" and the United States remains the world's most influential nation.⁹⁵ The United States became a world power in the 20th century, particularly during and after World War II. The nation developed foreign policies to create a world order

⁹⁰ Daniel Kliman, "Is China the Fastest-Rising Power in History?" *Foreign Policy*, May 16, 2014, accessed on February 14, 2015, <http://foreignpolicy.com/2014/05/16/is-china-the-fastest-rising-power-in-history/>.

⁹¹ *Ibid.*

⁹² Edward Wong, "China Announced 12.2% Increase in Military Budget," *The New York Times*, March 5, 2014, accessed on February 14, 2015, http://www.nytimes.com/2014/03/06/world/asia/china-military-budget.html?_r=0.

⁹³ Yan Xuetong, "The Rise of China and its Power Status," *Chinese Journal of International Politics*, Vol. 1, 2006, pg. 5 – 33.

⁹⁴ Roy, "Opening Statement at the Senate Foreign Relations Committee Hearing on U.S.-China Relations."

⁹⁵ Kliman, "Is China the Fastest-Rising Power in History?"

aligned with American interests and values of freedom and democracy.⁹⁶ Due to China's rapid rise, the United States has a national interest to increase engagement with China. However, attempts to project American values on China are bound to lead to points of contention, as shown through disagreements over Taiwan and human rights issues. Judging by the mutual benefit of U.S.-China trade as well as the scale of influence both countries have across the globe, a new Cold War between the United States and China does not fall under the interest of any nation. Developing and maintaining a strategic partnership serves as the key to U.S. and Chinese development as well as global stability.

Push Effect: Conflicting Political Values

While the Founding Fathers of the United States envisioned a nation of free and liberated citizens in a democratic republic, the Communist Party of China developed political order using communist ideology. Even though the CPC has largely abandoned its founding communist ideology, the Party's focus on protecting its legitimacy and sovereignty often comes into conflict with the U.S. foreign policy agenda. Conflicts over Taiwan and human rights issues revealed fundamental differences in values between the two nations and generated distrust and suspicion. The recent rise in nationalism exacerbates these bilateral disputes. Disregarding their internal contentions with the Party, the Chinese people largely buy-in to China's victimization narrative, and resent America for attempting to suppress China's rise to global supremacy.

Acknowledging Taiwan's independence versus the "One China" policy has been a point of contention between the two nations and fueled growing distrust. Taiwan is

⁹⁶ Warren Cohen, *America's Response to China: A History of Sino-American Relations*, Columbia University Press, New York, 2010, pg. 195.

governed by a democratic republic that aligns with U.S. political ideals. In the past, the United States dealt arms to Taiwan at great disapproval of the CPC. Chinese leaders interpreted U.S. behavior as deceitful and attributed it to the U.S. agenda to obstruct the reunification of China.⁹⁷ During the Bush Administration, President Bush viewed China a “strategic competitor” and tended to deploy hardline strategies to contain China, such as developing long-range anti- missile systems in response to China’s growing military power, increasing arms sales to Taiwan, and vowing to “do whatever it takes” to defend Taiwan from mainland attacks.^{98,99} Though President Bush quickly withdrew his statement about Taiwan and publicly endorsed the “One China” policy, the Bush Administration did not make U.S.-China cooperation a priority and often fostered a more adversarial tone.¹⁰⁰ Tensions over Taiwan highlighted fundamental political differences between China and the United States and raised suspicions toward one another.

The treatment of political dissidents and minority groups in China represents another point of social and political strain. The regime uses a portfolio of tactics, such as violence, coercion, and imprisonment, to deter and contain dissidents throughout the country, which directly opposes American values of free speech and freedom of expression. The violent suppression of political dissent on June 4th, 1989, demonstrated

⁹⁷ China retaliated by selling arms to U.S. adversaries, including Iran, Syria, and Libya. See Warren Cohen, pg. 226-227, 233. And see Jeffrey A. Bader, *Obama and China’s Rise: An Insider’s Account of America’s Asia Strategy*, Brookings Institution Press, Washington, D.C., 2012, pg. 71.

⁹⁸ Tony Karon, “Bush China Policy Defaults to Engagement,” *TIME*, July 31, 2001, accessed on April 19, 2015, <http://content.time.com/time/world/article/0,8599,169585,00.html>.

⁹⁹ John Lewis, “The Contradictions of Bush’s China Policy,” *The New York Times*, June 2, 2001, accessed on April 19, 2015, <http://www.nytimes.com/2001/06/02/opinion/the-contradictions-of-bush-s-china-policy.html>.

¹⁰⁰ Al-Qaeda’s attacks on September 11th in 2001 shifted the Bush Administration’s focus away from Asia and toward the Middle East and the war on terrorism. See Bader, pg. 20.

the gap between American values and those of the Party.^{101,102} Besides the Tiananmen Massacre, the Chinese government has deployed oppressive tactics on Tibetans and Uighurs through denying their religious freedom, which violates the basic human rights that Americans hold dear.¹⁰³ The CPC views these religious gatherings as precursors to social unrest and separatist movements.

The resurgence of China's victimization narrative and a new wave of nationalism exacerbate Sino-U.S. tensions. Many Chinese people believe that foreigners from Japan and the West have humiliated and victimized their nation in a "Century of Humiliation."¹⁰⁴ In light of the Chinese Dream and the perpetuation of this victimization narrative throughout popular and elite levels, China may interpret any restricting U.S. foreign policy as a strategic move to stunt and contain China's growth.¹⁰⁵ This popular belief generates distrust in Beijing toward American policies, leading to chronic levels of resentment and suspicion between the two countries. A complex blend of political disagreements, historical narratives, and competing national interests repel these nations from each other.

Pull Effect: Interdependence & Overlapping Interests

While the two nations have conflicting values, they undeniably rely on one another for economic growth and share other overlapping interests. In 2014, the United

¹⁰¹ Cohen, pg. 257.

¹⁰²The United States placed sanctions on China to display its disapproval and disgust towards the Tiananmen Massacre. Namely, the United States tried to remove China from its most favored nation (MFN) trading status and threatened nonrenewal of China's MFN status if the country does not meet certain human rights standards. See Bader, pg. 19.

¹⁰³ Elliot Sperling, "Human Rights Violations in Tibet," *Human Rights Watch*, June 14, 2000, accessed on February 16, 2015, <http://www.hrw.org/news/2000/06/12/human-rights-violations-tibet>.

¹⁰⁴ Orville Schell, "China's Victimization Syndrome," *Project Syndicate*, April 22, 2005, accessed on April 19, 2015, <http://www.project-syndicate.org/commentary/china-s-victimization-syndrome>.

¹⁰⁵ Cohen, pg. 248.

States had a trade deficit of over \$342 billion with China¹⁰⁶ and remains the largest importer of Chinese goods.¹⁰⁷ China's export-led growth needs American consumers. China purchases U.S. government bonds as a stable investment option, which finances U.S. national debt.¹⁰⁸ China enjoys the benefits of technology transfers from Western innovators and foreign direct investment from American investors. In 2009, the U.S.-China Business Council reported that American firms, like Apple and Nike, invested \$3.6 billion in China.¹⁰⁹ These American businesses can access cheap labor markets in China and keep costs low.¹¹⁰ Furthermore, many U.S. companies see China as their top growth market.¹¹¹ The American and Chinese economies are intertwined, which incentivizes collaboration and cooperation for mutual benefit.

According to the Pew Center on Global and Climate Change and Asia Society, "leaders in both nations have recognized their increasing strategic interdependence and have effectively collaborated to solve or manage regional and global threats and

¹⁰⁶ "Trade in Goods with China," *Census.gov*, accessed on February 16, 2015, <https://www.census.gov/foreign-trade/balance/c5700.html>.

¹⁰⁷ "U.S-China Trade Facts," *Office of the United States Trade Representative*, <https://ustr.gov/countries-regions/china-mongolia-taiwan/peoples-republic-china>.

¹⁰⁸ While purchasing U.S. bonds help finance U.S. national debt, China's monetary policies have become a point of contention. On economic grounds, the U.S. disagrees with the CPC's monetary policies that fix exchange rates and artificially weaken the Renminbi (RMB) to promote China's export-driven growth. The CPC buys U.S. government debt with newly printed currency to flood the market with RMB and artificially drive down exchange rates. As a result of the weaker RMB, the value of the USD appreciates, which favors China's export-driven industry by making Chinese goods relatively cheaper. However, the CPC rejects any accusations of currency manipulation. See Brian Palmer, "If Currency Manipulation Is So Great for Exports, Why Don't We Do It?" *Slate*, October 17, 2012, accessed on February 16, 2015, http://www.slate.com/articles/news_and_politics/explainer/2012/10/china_currency_manipulation_how_does_it_harm_the_u_s_and_what_can_we_do.html.

¹⁰⁹ Gady Epstein and Robyn Meredith, "U.S. Companies that Invest Big in China," *Forbes*, July 5, 2010, accessed on April 23, 2015, <http://www.forbes.com/2010/07/05/us-investments-china-markets-emerging-markets-fdi.html>.

¹¹⁰ Bernard Shusman, "U.S. Experts See Growing Desire to Curb Outsourcing to China," *Voice of America*, April 28, 2014, accessed on February 16, 2015, <http://www.voanews.com/content/us-experts-see-growing-desire-to-curb-outsourcing-to-china/1903083.html>.

¹¹¹ Epstein and Meredith, "U.S. Companies that Invest Big in China."

challenges.”¹¹² The two nations began to understand the importance of developing a strategic partnership and identifying common interests in global issues, such as nuclear nonproliferation in North Korea and Iran, energy security, and climate change.¹¹³ Unlike prior administrations that took a fairly hostile approach toward China, the Obama Administration treated China as a potential partner in tackling global issues instead of an inevitable adversary.¹¹⁴ President Obama explicitly placed the Asia-Pacific region as a high priority on the American foreign policy agenda, which largely focused on the Middle East under the Bush Administration. President Obama prescribed a “pivot” to Asia in hopes of rebalancing power in the East and establishing a strong American presence across Asia. The United States cannot contain China with similar strategies deployed against the Soviet Union during the Cold War. Instead, the United States must engage and partner with China as an equal. According to Yun Sun, a senior fellow at the Stimson Center, a global security think tank, “counter to the heated rhetoric over the last few years, U.S.-China relations show more signs of cooperation than confrontation right now.”¹¹⁵ While this brief description of the Sino-American relationship only highlights moments of tension and friendship, it showcases the complex and often conflicting nature of their bilateral interaction based on concurrently opposing and overlapping interests.

¹¹² Pew Center on Global Climate Change and Asia Society, pg. 14.

¹¹³ In the 1980s, China and the United States worked together as Anti-Soviet allies during the Cold War. However, this relationship cooled quickly and the United States hosted no state visits for over a decade, until President Jiang Zemin visited in 1997. President Bush undermined much of the amelioration of U.S.-China relations under President Clinton by taking a fairly adversarial stance on China. See Warren Cohen, “The United States and China During the Cold War,” *The Gilder Lehrman Institute of American History*, <http://www.gilderlehrman.org/history-by-era/seventies/essays/united-states-and-china-during-cold-war>.

¹¹⁴ Bader, pg. 69.

¹¹⁵ Emily Pauhala, “The APEC Summit Closes with a ‘Historic’ Climate Deal between the U.S. and China,” *TIME*, November 12, 2014, accessed on March 24, 2015, <http://time.com/3577820/apec-climate-change-barack-obama-xi-jinping-greenhouse-gas/>.

CHAPTER FOUR:

Stalemate on the Multilateral Level

Climate change policy captures a unique cross-section within decision-making, where policymakers must balance political posturing, economic growth, and environmental integrity. To complicate policymaking further, GHG pollution does not respect national boundaries, making multilateral collaboration and collective action critical in tackling the challenge of climate change.¹¹⁶ Collective climate action would drastically reduce GHG emissions, slow the increase in atmospheric temperatures, and hedge against higher abatement costs in the future.¹¹⁷ However, climate mitigation is a public good, which creates the issue of free-riding where non-abating nations reap the same benefits of abatement without bearing any additional costs. If certain nations invest more in abatement technologies, other countries could free-ride, which deters early investor nations from making additional investments.¹¹⁸ These free-riders gain unfair economic advantages from offering lower prices on the global market at the expense of

¹¹⁶ Jonathan Mellor, "Game Theory Offers Lessons in Collective Action and Climate Change," *Yale Climate & Energy Institute*, January 23, 2014, accessed on February 21, 2015, <http://climate.yale.edu/news/game-theory-offers-lessons-collective-action-and-climate-change>.

¹¹⁷ Julie Rehmeyer, "Game Theory Suggests Current Climate Negotiations Won't Avert Catastrophe," *Science News*, October 29, 2012, accessed on February 21, 2015, <http://climate.yale.edu/news/game-theory-offers-lessons-collective-action-and-climate-change>.

¹¹⁸ *Ibid.*

nations that abated.¹¹⁹ If nations agree to take collective action, parties can defect and free-ride due to the lack of accountability in non-binding, multilateral agreements. Thus, nations should develop binding and enforceable multilateral agreements to avoid free-riding. In practice, most climate agreements—assuming the parties even draft up an agreement—end up as a watered down and toothless version of themselves after the negotiation process as international delegations fight to maximize their win-sets.

Chinese and U.S. behavior during bilateral and multilateral climate negotiations embody their nuanced, multifaceted relationship. In Putnam’s two-level game, Putnam does not explicitly separate multilateral and bilateral levels in his Level I analysis. However, U.S.-China actions in these two contexts led to divergent policy outcomes. On a multilateral level, both China and the United States played fairly conservative roles in climate negotiations, sometimes even blocking progress in climate mitigation agreements. The complex dynamics on the multilateral scale have produced climate policy outcomes represented in the Prisoner’s Dilemma. In contrast, the two nations engaged in bilateral collaboration and forwarded joint climate mitigation programs, suggesting more alignment with the Coordination Game in the bilateral context. These two opposing policy outcomes exemplify how China and the United States exhibit difference faces of their complex relationship depending on their assessment of costs and benefits. Multilateral interactions showcase one face of the U.S.-China relationship—one of antagonistic competition and short-term geopolitical interests—while bilateral interactions reflect friendlier, more cooperative tendencies between the two nations.

¹¹⁹ Rehmeier, “Game Theory Suggests Current Climate Negotiations Won’t Avert Catastrophe.”

Analyzing the rhetoric of the Kyoto Protocol negotiations and COP15 demonstrate how domestic political preferences and the lack of trust between the two nations contributed to small win-sets that lacked enough overlap and blocked effective collective action on climate change. Both nations found it politically enticing and strategic to prioritize economic growth over abatement on the multilateral level due to the risk of free-riding. Thus, both nations' dominant strategies have been to pollute and not make notable commitments to emissions reduction on the multilateral stage. Inaction by the United States and China had profoundly negative consequences on forwarding international climate policy. When these large players do not support a treaty or agreement, the agreement loses clout. If the two largest economies and emitters do not lead global climate mitigation and adaptation efforts, other countries have little incentive to invest and commit to abatement.

The Kyoto Protocol

In 1992, delegate countries developed and signed the United Nations Framework Convention on Climate Change (UNFCCC) with the goal of taking collective action to curb GHG emissions.¹²⁰ The UNFCCC divided developed and developing nations into Annex I or Non-Annex I nations, respectively. The UNFCCC categorized China as a Non-Annex I country and the United States as an Annex I nation. Part of the Convention mandates annual meetings known as Conference of the Parties (COPs) to forward the global climate policy regime. In 1997, delegate nations met in Kyoto for COP3 and crafted the Kyoto Protocol—the first international treaty in history focused on decreasing

¹²⁰ Alan Manne and Richard Richels, "The Kyoto Protocol: A Cost-Effective Strategy for Meeting Environmental Objectives?" *Efficiency and Equity of Climate Change Policy*, 1999, pg. 43.

GHG emissions. The binding agreement committed Annex I signatories to decreasing emissions by at least 5 percent below 1990 levels between 2008 and 2012.^{121,122} The Kyoto Protocol exempted developing nations from meeting GHG emissions reduction targets to allow these nations to develop without hindrance from high abatement costs. The Protocol used the “common but differentiated responsibility” (CBDR) principle to justify the uneven distribution of climate mitigation and adaptation responsibilities between developed and developing nations. Industrialized nations polluted freely for decades after the Industrial Revolution, imposing externalities upon the world’s environment for which they should compensate. Notably, the impacts of climate change asymmetrically affected poorer countries more than industrialized nations. Wealthier nations also had more resources to invest in abatement and greater capacity to absorb the cost burden of abatement. Currently, 192 nations, including China, have ratified the Protocol.¹²³ Even though Vice President Al Gore signed the Kyoto Protocol in 1998, the U.S. withdrew from the Protocol and refused to ratify it. This withdrawal demonstrated the influence of domestic political actors, which held unfavorable perceptions of costs and benefits toward the multilateral climate treaty.¹²⁴

¹²¹ “Kyoto Protocol,” *United Nations Framework Convention on Climate Change*, accessed on February 23, 2015, http://unfccc.int/kyoto_protocol/items/2830.php.

¹²² At a COP in Doha, Qatar, 37 nations agreed upon a second commitment period in 2012, which bound them to collectively reduce emissions by 18 percent below 1990 levels before 2020. See Christina Figueres, “Environmental Issues: Time to Abandon Blame-Games and Become Proactive,” *The Economic Times*, December 15, 2012, accessed on April 20, 2015, http://articles.economictimes.indiatimes.com/2012-12-15/news/35836633_1_emission-reduction-targets-global-greenhouse-gas-emissions-climate-change.

¹²³ “Status of Ratification of the Kyoto Protocol,” *United Nations Framework Convention on Climate Change*, accessed on February 26, 2015, http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php.

¹²⁴ Initially, Vice President Al Gore signed the Kyoto Protocol with a national commitment to decrease GHG emissions by 7 percent. See Agrawala and Andresen, “U.S. Climate Policy: Evolution and Future Prospects,” *Energy and Environment*, 2001.

Even though a majority of Americans supported the ratification of the Kyoto Protocol, an uncompromising Senate and a change in executive leadership blocked the ratification of the Protocol. In 2000, the Program on International Policy Attitudes found that “an overwhelming majority of the U.S. public embrace[d] the idea of global warming is a real problem that requires action” and favored the ratification of the Kyoto Protocol.¹²⁵ The lack of public understanding and salience around Kyoto offers an explanation for the inconsistency in policy preferences between the general public and the government. Only 7 to 25 percent of the public heard or knew about the ongoing climate negotiation.¹²⁶ Another survey found that the American public held drastic misperceptions on whether President Bush supported or opposed the Kyoto Protocol. Respondents’ responses split nearly half-half on whether President Bush supported or opposed the Protocol, even though President Bush repudiated the agreement.¹²⁷ Kyoto’s lack of saliency and public misperceptions of governmental support undermined the impact of public opinion as a guiding principle for elected officials.

On Level II of Putnam’s two-level game, domestic players explicitly defined small win-sets for international negotiators to work with through the Byrd-Hagel Resolution of 1997. Senate unanimously passed the Byrd-Hagel Resolution to signal that that legislators would refuse to ratify any international treaty unless the agreement “also mandate[d] new specific scheduled commitments to limit or reduce greenhouse gas

¹²⁵ Kull, “Americans on the Global Warming Treaty.”

¹²⁶ Matthew Nisbet and Teresa Myers, “Twenty Years of Public Opinion About Global Warming,” *Public Opinion Quarterly*, Vol 71:3, Fall 2007, pg. 448.

¹²⁷ Nisbet Myers, pg. 450.

emissions for Developing Country Parties within the same compliance period.”¹²⁸

Ironically, many of the provisions within the Kyoto Protocol were supported and promoted by the U.S. delegation while under the Clinton Administration, which highlights the tensions between the domestic and international levels when they hold different policy preferences. The inconsistency in policy preferences across presidential leadership and Congress revealed drawbacks of the American political system on an international stage. Congress believed that exemption of developing nations, like China, would “result in serious harm to the United States economy, including significant job loss, trade disadvantages, [and] increased energy and consumer costs” as U.S. firms face higher compliance costs and production moves to countries with less stringent regulations.¹²⁹ Studies found that the United States “would have to spend over \$400 billion to comply” with the Kyoto Protocol, but would only reap 4 percent of the cost in monetized benefits.^{130,131} The implementation of Kyoto could almost double electricity prices, impose additional business expenses on the American economy, increase unemployment by 2.3 million U.S. jobs, and make U.S. firms less competitive compared to developing countries.¹³² Increased unemployment would also lower household income

¹²⁸ Senate Resolution 98, 105th Congress.

¹²⁹ *Ibid.*

¹³⁰ Cass Sunstein, “The World vs. the United States and China? The Complex Climate Change Incentives of the Leading Greenhouse Gas Emitters,” *UCLA Law Review*, 2008, pg. 1680.

¹³¹ Annex I signatories of the Kyoto Protocol face high compliance costs. The global cost of implementing the Kyoto Protocol is about \$700 billion in present value. Compliance could slow global GDP growth between 0.2 to 2.0 percent in 2010. See Jon Hovie, Tora Skodvin, and Steinar Adresen, “The Persistence of the Kyoto Protocol: Why Other Annex I Countries Move on Without the United States,” *Global Environmental Politics*, Vol. 3: 4, November 2003, pg. 3.

¹³² WEFA, Inc., “Global Warming: The High Cost of the Kyoto Protocol,” 1998.

by \$2,700 and decrease state tax revenues by \$93.1 billion.¹³³ In the globalized economy, mandates to reduce emissions would significantly hinder U.S. economic growth and weaken the nation's global influence.¹³⁴ The certainty of economic costs made Kyoto politically unpalatable for policymakers in Congress.

Not only would exempting developing nations from reduction targets harm the U.S. economy, Congress recognized that “exemption for Developing Country Parties is inconsistent with the need for global action on climate change and is environmentally flawed.”¹³⁵ Regardless of U.S. abatement efforts, the world cannot curb temperature rise if China does not reduce emissions, especially since China derives 70 percent of its energy from coal combustion and makes up about half of the world's coal consumption.¹³⁶ Complying signatories only produced about 20 percent of the world's emissions, so exempting developing nations dramatically decreased the efficacy of the Kyoto Protocol in cutting emissions and made the benefits diffuse and nearly negligible.

Upon coming into office in 2001, President Bush repudiated the Kyoto Protocol for similar reasons stated in the Byrd-Hagel Resolution. In a letter from President Bush to Senator Hagel, he agreed that the Kyoto Protocol would be “unfair” and “ineffective” because “it exempt[ed] 80 percent of the world,” including China, “from compliance, and would cause serious harm to the U.S. economy,” especially considering the uncertainty of climate science.¹³⁷ Since aggressive emissions reductions would impose additional costs

¹³³ *Ibid.*

¹³⁴ DeCanio and Fremstad, pg. 12.

¹³⁵ Senate Resolution 98, 105th Congress.

¹³⁶ U.S. Energy Information Administration, “China,” February 4, 2014, <http://www.eia.gov/countries/analysisbriefs/China/china.pdf>.

¹³⁷ Lisowski, pg. 107.

on the oil and gas industry, President Bush found the Kyoto Protocol inconsistent with his energy policy preferences and detrimental to his close relationship with the oil and gas industry. During his first presidential term, President Bush was hesitant to push through contentious policies in order to maintain political popularity, particularly catering to his conservative, pro-industry voter and donor base. President Bush held similar payoff expectations as the 105th Congress; supporting the Kyoto Protocol had clear, negative consequences on the U.S. economy and his political career.

Compliance with the Kyoto Protocol would subject the United States to clear and substantial economic costs, but diffuse and not immediate benefits. As a result of these potential economic costs—exacerbated by the lack of abatement commitment by China—politicians in the White House and on the Hill had little incentive to approve policies that can set back the economy. The United States expected little gains from climate change mitigation, since the effects of climate change impact developing nations far more than industrialized ones. As a Non-Annex I nation, China did not need to make any binding commitments and was able to free-ride as it continued to develop its economy without the burden of high abatement costs. Since China did not need to abate, the United States refused to commit to emissions reduction targets. The U.S. and Chinese attitude toward the Kyoto Protocol represented a Prisoner's Dilemma, where both players preferred asymmetrical abatement in hopes of higher economic payoffs. Ultimately, neither player agreed to binding GHG emissions reductions in the Kyoto Protocol.

While both nations acted in their national interest, their payoff assumptions may not have included the impact of their inaction on their bilateral relationship or the

multilateral agreement. U.S. behavior throughout Kyoto Protocol negotiations created tension between the two nations and negatively impacted U.S.-China relations. U.S. policymakers cited maintaining fair economic competition and gaining early buy-in from developing countries as key reasons for denying the ratification of the Kyoto Protocol.¹³⁸ The United States adopted a “we won’t move before China does” stance on collective climate action, highlighting the interdependency of climate policy on the multilateral level.^{139,140} However, China saw the U.S. requirements of developing nations as a direct attack and an attempt to stifle their development, which supported China’s victimization narrative. Chinese officials saw the repudiation of the Kyoto Protocol as a strategic move by the U.S. to escape the responsibilities it had promised to uphold under the Clinton Administration and grew the level of distrust between the two nations during the Bush Era. China believed any substantial efforts made toward collective climate action and emissions reductions mandate leadership from developed nations.¹⁴¹

The lack of U.S. leadership at Kyoto decreased the efficacy of the Kyoto Protocol, creating a self-fulfilling prophecy, and poisoned the atmosphere for future climate negotiations.¹⁴² Nations bound by Kyoto emit about 20 percent of global emissions and

¹³⁸ Paul Harris, “Common But Differentiated Responsibility: The Kyoto Protocol and United States Policy,” *New York University Environmental Law Journal*, 1999, Vol. 7, pg. 27.

¹³⁹ Harris, pg. 38.

¹⁴⁰ Jesse Jenkins, “Is the U.S.-China Climate Change Deal a Game-Changer? An Interview with MIT’s Valerie Karplus,” *Massachusetts Institute of Technology Energy Initiative*, December 10, 2014, accessed on April 19, 2015, <http://mitei.mit.edu/news/us-china-climate-change-deal-game-changer-interview-mits-valerie-karplus>.

¹⁴¹ Tangen, Heggelund, and Buen, “China’s Climate Change Positions: At a Turning Point” *Energy and Environment*, 2011, Vol 12, No 2, pg 237-252.

¹⁴² Some argue that despite U.S. withdrawal, the Kyoto Protocol symbolizes a step in the right direction. Nations can develop more ambitious targets moving forward. However, the lack of stringent targets and limited buy-in by key players also suggest that multilateral players have set a weak precedent for future

compliance would only lower emissions by 0.9 percent.¹⁴³ These projections do not meet the abatement levels necessary to effectively slow rising temperatures. U.S. withdrawal from Kyoto also led to a political leadership vacuum. While the European Union and other developed nations pushed forward with Kyoto, the United States has more political and economic influence across the globe and produces a larger carbon footprint. If the U.S. invests in abatement, other nations are more likely to follow. Any multilateral agreement needs the United States as a signatory and supporter to make a substantial impact on mitigating climate change. Level I outcomes at Kyoto demonstrated the importance of domestic policy preferences and the interdependency of climate action between the United States and China. However, the perception of costs and benefits did not incorporate the impact of their decision on external players and the global climate regime.

The Copenhagen Accord

Besides the Kyoto Protocol negotiations, discussions that formed the Copenhagen Accord at COP15 showcased similar dynamics of interdependency between China and the United States and the critical influence of domestic politics. At the beginning of the Copenhagen conference, both nations proposed voluntary emissions targets, which set a hopeful and optimistic tone for COP15. China committed to lowering emissions intensity by 40 to 45 percent below 2005 levels before 2020.¹⁴⁴ President Hu promoted three key

climate negotiations and nations should not expect large advancements of climate policy through multilateral cooperation.

¹⁴³ Hovie, Skodvin, and Adresen, pg. 4.

¹⁴⁴ The International Energy Agency criticized China's targets for being too lax, finding that China could reach their targets operating business as usual. Others have argued that these emissions projections include China's domestic climate policies in the business as usual case and do not give China enough credit for

guiding principles in taking collective climate action: 1) fulfilling common but differentiated responsibilities, 2) “achieving mutual benefit and win-win outcomes” through international climate efforts, and 3) promoting common economic development.¹⁴⁵ The United States announced its goal of reducing emissions within a range of 17 percent below 2005 levels by 2020 and 83 percent by 2050.¹⁴⁶ With specific numbers on the table, climate negotiators had high hopes for COP15 in defining clear emissions targets. However, increased turbulence and uncertainty within the U.S. domestic landscape and China’s uncooperative behavior at COP15 led to a weak climate agreement.

Despite the attendance of over a hundred world leaders in Copenhagen, the Accord largely depended upon President Obama and Chinese Premier Wen Jiabao to broker a climate deal, illustrating Sino-U.S. policy interdependence and elevating both nations’ role in collective climate action.¹⁴⁷ Compared to the political leadership involved during the Kyoto negotiations, a different U.S. leader, President Obama, worked with the

current abatement efforts. See Lisa Friedman, “China, U.S. Give Copenhagen Negotiators Some Targets,” *The New York Times*, November 30, 2009, accessed on April 19, 2015, <http://www.nytimes.com/cwire/2009/11/30/30climatewire-china-us-give-copenhagen-negotiators-some-ta-73618.html?pagewanted=all>

¹⁴⁵ Hu Jintao, Speech on Climate, September 22, 2009, <http://www.nytimes.com/2009/09/23/world/asia/23hu.text.html>.

¹⁴⁶ The U.S. target aligned with goals set in the 2009 American Clean Energy and Security Act, though this legislation remained stalled in Senate until 2010 and ultimately did not pass through Senate. Senator James Inhofe (R-OK), a known climate change skeptic, saw the U.S. target as overly ambitious and reaffirmed Senate’s historical opinion that “unilateral action by the United States is unacceptable, because it will harm [the U.S.] economy and have virtually no effect on climate change.” Congress held similar views on climate policy, but the change in presidential leadership shifted U.S. policy preferences dramatically. See John Broder, “Obama to Go to Copenhagen with Emissions Target,” *The New York Times*, November 25, 2009, accessed on April 19, 2015, <http://www.nytimes.com/2009/11/26/us/politics/26climate.html?pagewanted=all>.

¹⁴⁷ Anthony Faiola, Juliet Eilperin and John Pomfret, “Copenhagen Climate Deal Shows New World Order May Be Led by U.S., China,” *The Washington Post*, December 20, 2009.

same Chinese players present at Kyoto. While the Kyoto Protocol asked nothing of China, the nation's rapid development and rise to power raised expectations at Copenhagen. President Obama came into Copenhagen pushing for legally binding emissions targets so long as developing nations agreed to equitable reduction goals. By proposing policy that ensures participation from developing nations, President Obama formed win-sets that can gain "ratification" from Level II players. Increased pressure from their American counterparts and higher expectations placed China on the defensive at COP15.

Despite President Obama's initial leadership, the resulting Copenhagen Accord laid out no mandatory mitigation targets. The Accord requires Annex I nations to self-determine and announce national reduction targets for 2020 and asks Non-Annex I nations to submit action plans for reducing GHG emissions.¹⁴⁸ The less-than-ambitious Accord showed the limitations of climate change cooperation in the multilateral setting. Both the U.S. and China pointed at each other to explain the lack of collective action on climate change. While the U.S. showcased uncooperative conduct and withdrew from the Kyoto Protocol, China exhibited blocking behavior at COP15 and intended to minimize the chances of including emissions reduction commitments in a climate deal. Premier Wen Jiabo sent a vice foreign minister, He Yafei, to represent him at major meetings with other heads of states. Minister He had little decision-making power relative to the other participants at the meetings, but had the ability to block potentially harmful

¹⁴⁸ Peter Christoff, "Cold Climate in Copenhagen: China and the United States at COP15," *Environmental Politics*, July 2010, Vol. 19, No. 4, pg. 641.

agreements.¹⁴⁹ Premier Wen's absence from the final high-level negotiation sessions, including meetings with President Obama, exemplified China's uncooperative and even insulting behavior.¹⁵⁰ At a few points in the negotiation process, Minister He paused the meeting to call his superiors for consultation on particular components of the Accord, forcing some of the world's most powerful heads of states to wait.¹⁵¹ Not only did China reject explicit emissions reduction targets, it denied other nations from including targets in the Accord to preemptively weaken the climate regulation regime.¹⁵² The U.S. delegation strongly advocated for increased international accountability and verification of emissions reductions in order to gain congressional support. China strongly opposed mandatory outside verification and bargained for voluntary compliance to maintain control on the information leaving the nation.¹⁵³

According to Putnam's two-level game, states with centralized decision-makers on Level II have larger win-sets, which should lead to higher chances of pushing forward international agreements. China's behavior seems incongruent with their ambitious domestic climate policies. However, China's focus on economic growth, as emphasized by President Hu in his opening statement, and on maintaining close control of domestic processes made Chinese delegates uncooperative in the multilateral context. The CPC did not want to be held accountable by external parties or to increase the transparency of central government operations through international verification processes. Since China

¹⁴⁹ Christoff, pg. 639.

¹⁵⁰ Christoff, pg. 647.

¹⁵¹ Mark Lynas, "How Do I Know China Wrecked the Copenhagen Deal? I Was in the Room," *Guardian*, December 22, 2009.

¹⁵² *Ibid.*

¹⁵³ Faiola, Eilperin and Pomfret, "Copenhagen Climate Deal Shows New World Order May Be Led by U.S., China."

already started to address its air quality issue domestically, the nation had little incentive to bind itself to unnecessary, external obligations. Even though China took unilateral actions to improve air quality, the nation saw little benefit and high risk to agreeing to mandatory emissions reduction targets or any external checks.

While Level I players from the United States intended to advance ambitious climate policies at Copenhagen, the Great Recession exacerbated concerns about economic recovery and drew energy away from climate negotiations. The post-recession economy left climate policy relatively low on the U.S. policy agenda for the general public and for Congress.¹⁵⁴ While President Obama deployed more cooperative approaches to climate negotiations and toward China compared to the Bush Administration, the financial crisis took saliency and political momentum away from the climate issue.¹⁵⁵ Ratifying or supporting an international agreement that could hurt the job market was considered political suicide for U.S. politicians, especially when public opinion did not place a premium on environmental protection policy immediately during the Great Recession.

The poor timing of congressional action on cap-and-trade legislation also posed a challenge for Level I players from the United States. President Obama faced uncertainty on how Senate will vote on the cap-and-trade bill that passed through the House of Representatives. As a result of such uncertainty, Level I negotiators risked proposing international climate policy too lax to push Congress for ambitious legislative action or developing an international agreement too aggressive for legislators to accept, which

¹⁵⁴ Christoff, pg. 654.

¹⁵⁵ Christoff, pg. 638.

would receive backlash and end in failure similar to the Kyoto Protocol.¹⁵⁶ Even though President Obama had a lot of momentum coming into COP15, uncertainty about the passage of ACES through the Senate and the recent recession made it difficult for the U.S. delegation to make hard promises on abatement.

Domestic constraints and tensions within the Sino-U.S. relationship explicate the lackluster political outcomes from both Kyoto and Copenhagen. These combination of barriers showcased clear resemblance between challenges at Kyoto and Copenhagen. Both nations perceived payoff assumptions in a Prisoner's Dilemma. The impacts of lackluster U.S.-China leadership at Copenhagen resonated with those at Kyoto. At COP15, a climate leadership vacuum induced cautiousness from other nations instead of collective efforts to curb climate change.¹⁵⁷

These case studies analyze U.S.-China climate policy through the lens of Putnam's two-level game. U.S. and Chinese behavior on the multilateral stage demonstrate that both nations prioritized economic growth over environmental due to the clarity of costs and diffuseness benefits associated with climate policy. The underlying geopolitical competition between the United States and China also motivated both nations to prioritize their economic strength over GHG emissions reductions during these multilateral negotiations.¹⁵⁸ Since multilateral climate policies depend on the two nations' participation and leadership, the global climate regime remains weak. Outcomes

¹⁵⁶ Nigel Purvis and Andrew Stevenson, "U.S. Leadership in Copenhagen," *Resources for the Future*, November 2009, pg. 1 – 2.

¹⁵⁷ Christoff, pg. 653 – 654.

¹⁵⁸ Christoff, pg. 644.

from the Kyoto and Copenhagen conferences do not legally bind either nation from abatement and correlate with the Nash Equilibrium in the Prisoner's Dilemma model.

CHAPTER FIVE:

Bilateral Collaboration on Climate Change

In Putnam's two-level game, Putnam does not explicitly differentiate between bilateral and multilateral negotiations. However, policy outcomes involving China and the United States on the multilateral stage diverges greatly from those on the bilateral level. The United States and China have engaged in numerous bilateral programs to promote climate change adaptation and mitigation, which starkly contrasts with the stalemate during multilateral climate talks. The friendlier, more collaborative face of the U.S.-China relationship reveals itself in the bilateral context far more than in a multilateral environment. Policy outcomes on the bilateral level suggest perceived payoffs associated with the Coordination Game, instead of the Prisoner's Dilemma. Compared to multilateral agreements, bilateral negotiations allow for more overlapping win-sets on specific policy areas and drastically reduce the risk of free-riding. More recently, executive political leadership of both nations have aligned on climate policy goals and developed closer bilateral ties. Bilateral collaboration serves as a politically expedient policy vehicle to tackle climate change. In pursuing bilateral policies, unintended consequences have resulted, including trade disputes and the lack of follow through on joint programs. With these barriers to collaboration in mind, effective U.S.-

China climate collaboration can positively impact their bilateral relationship and influence multilateral climate agreements.

U.S.-China Joint Initiatives

Prior to 2009, China and the United States engaged in a number of small partnerships to forward mutual energy interests and to reduce GHG emissions. For instance, the U.S.-China Forum on Environment and Development launched in 1997 and provided a platform to advance sustainable development and to cooperate on urban air quality, renewable energy, and rural electrification.¹⁵⁹ The United States and China created the Ten Year Energy and Environment Cooperation Framework (TYF) in 2008 during an annual Strategic Economic Dialogue (SED) meeting. The TYF established five joint task forces to share best practices and foster innovation regarding clean energy, energy efficiency, water quality, air pollution, and the transportation sector.^{160,161} These forms of collaboration grew in size and ambitions under President Obama and President Xi's leadership.

When President Obama came into office, the number of joint climate programs with China increased exponentially; 2009 marked the creation of the largest number of

¹⁵⁹ Joanna Lewis, "The State of U.S.-China Relations on Climate Change: Examining the Bilateral and Multilateral Relationship," *China Environment Series*, No. 11, Woodrow Wilson International Center for Scholars, December 2010, pg 17.

¹⁶⁰ U.S. Department of State, "U.S.-China Ten-Year Framework for Cooperation on Energy and Environment."

¹⁶¹ President Bush did not actively support climate policies at home and viewed China more as an adversary than friend. President Bush launched the SED with President Hu in 2006 to promote the economic development of both nations, complementing his policy agenda on economic growth and highlighting the economic interdependency between the two nations. The SED created a forum for cabinet-level officials from both nations to forward overlapping economic interests, which included addressing climate change and both nations' energy systems, and led to the creation of the TYF. See Secretary Henry Paulson Jr., "Meeting the Challenge: A Partnership on Energy and the Environment," *Embassy of the United States to China*, April 3, 2008.

joint climate and energy initiatives in Sino-U.S. history. President Obama expanded the SED into the China-U.S. Strategic and Economic Dialogue (S&ED) in 2009 and drastically grew the breadth of bilateral cooperation with China. At these S&ED meetings, China and the United States developed a range of cross-agency programs designed to foster partnership in tackling climate and energy issues. The 2009 Memorandum of Understanding to Enhance Cooperation on Climate Change, Energy, and the Environment reaffirmed mutual environmental goals between the U.S. Department of Energy, the U.S. Department of State, and China's NRDC. The EPA partnered with the NRDC in a five-year agreement to address climate adaptation in the Memorandum of Cooperation to Build Capacity to Address Climate Change. Additional examples of U.S.-China bilateral climate collaboration developed in 2009 and 2010 include the Renewable Energy Partnership, the Clean Energy Research Center, the Energy Cooperation Program, and the Renewable Energy Forums.¹⁶² These joint initiatives promote knowledge and resource sharing among various U.S. and Chinese agencies to accelerate renewable energy deployment and GHG emissions reductions.

President Xi renewed the momentum for U.S.-China collaboration once he succeeded President Hu. According to Orville Schell, the director of the Center on U.S.-China Relations at the Asia Society, "Xi Jinping is a very tough, muscular, nationalist leader whose toolbox is taken from earlier Mao periods."¹⁶³ President Xi, the son of a revolutionary hero, exhibits more bold and confident characteristics compared to the

¹⁶² Lewis, "The State of U.S.-China Relations on Climate Change," pg 17.

¹⁶³ James West, "Here's Why China Cares More about Climate Change Than Congress Does," *Mother Jones*, November 13, 2014, accessed on March 20, 2015, <http://www.motherjones.com/environment/2014/11/china-obama-climate-deal-pollution-crisis-politics>.

formal and reserved Hu Jintao. In Xi Jinping's speech after his leadership appointment, he stated:

[The Party has the responsibility] to unite and lead people of the entire party... while accepting the baton of history and continuing to work for realizing the great revival of the Chinese nation in order to let the Chinese nation stand more firmly and powerfully among all nations around the world and make a greater contribution to mankind.¹⁶⁴

This statement captures his ambitious policy agenda and his desire to realize the Chinese Dream, which includes empowering the Chinese people with higher standards of living and expanding China's role as a global superpower. President Xi views climate leadership as a pathway toward both components of the Chinese Dream. In 2013, President Xi and President Obama set up the U.S-China Working Group on Climate Change, which focuses on five initiatives: 1) raising fuel efficiency standards to reduce heavy duty truck emissions, 2) developing carbon capture technologies, 3) increasing energy efficiency in buildings, 4) improving audit and reporting for GHG emissions, and 5) promoting smart grid deployment.¹⁶⁵ Notably, this bilateral initiative includes cooperation on improving reporting processes, even though the two nations disagreed on the international accountability and voluntary clause at Copenhagen. These initiatives exhibit the expediency of bilateral engagements as a policy tool for climate action. Involving two nations has relatively lower transactions costs and allow for both players to retain more control over shaping the policies.

In June 2013, President Obama and President Xi agreed to collaborate on phasing out the production and consumption of hydrofluorocarbons (HFCs) in order to decrease

¹⁶⁴ President Xi Jinping, Full Text of Speech by New Communist Party General Secretary.

¹⁶⁵ U.S. Department of State, "U.S.-China Climate Change Working Group Fact Sheet," July 10, 2013.

ozone depletion and to reduce the impacts of climate change.¹⁶⁶ This agreement uses the framework and guidelines presented in the Montreal Protocol, which has been signed by every country and successfully helped society phase out other ozone-depleting substances.¹⁶⁷ President Obama and President Xi hope that U.S.-China joint leadership in reducing HFC emissions can result in large-scale multilateral efforts to phase out HFCs from the environment. The United States and China can deploy a similar leadership strategy for future multilateral negotiations and use bilateral collaboration as the first step to reach collective action in reducing other GHG emissions. Granted, HFCs only represent a small portion of GHGs with clear harms on the environment and its phase-down presents less risk in impacting the economy compared to reductions in more prevalent pollutants. Developing bilateral and multilateral agreements to reduce CO₂ or other common pollutants have proven to be far more politically sensitive and difficult.

At the Asia Pacific Economic Cooperation (APEC) summit in November 2014, President Obama and President Xi announced a bilateral climate deal targeted toward GHG emissions reduction. Shifting national interests and more environmentally-focused political leaders helped broker this deal, alongside months of negotiation prior to APEC.¹⁶⁸ In this climate deal, the United States pledges to reduce emissions by 26 to 28

¹⁶⁶ U.S. White House Office of the Press Secretary, "United States and China Agree to Work Together on Phase Down of HFCs," June 8, 2013.

¹⁶⁷ *Ibid.*

¹⁶⁸ President Obama sent a formal proposal to President Xi in the spring of 2014 to set joint reduction targets. Climate negotiations developed at the September 2014 UN climate summit in New York, when President Obama met with Vice Premier Zhang Gaoli, who focuses on climate and energy issues. In October, senior presidential advisor John Podesta travelled to Beijing to continue negotiations, which were finalized during President Obama's visit to China for APEC. See David Jackson, "Obama Clears the Air on Climate Change Deal with China," *USA Today*, November 12, 2014, accessed on March 24, 2015,

percent below 2005 levels by 2025.¹⁶⁹ Hitting the new climate deal target means the United States needs to speed up emission reductions by two-fold starting in 2020.¹⁷⁰ China agreed to reach its CO₂ emissions peak by 2030 and to grow renewable sources to at least 20 percent of the nation's energy mix.¹⁷¹ Currently, about 10 percent of China's energy comes from renewable sources.¹⁷² China will need to add 800 to 1,000 gigawatts of capacity from renewable sources.¹⁷³

On a bilateral level, China and the United States exhibited behaviors suggesting that decision-makers subscribed to payoffs from the Coordination Game instead of the Prisoner's Dilemma. The players perceived higher payoffs from bilateral abatement compared to asymmetrical abatement. The opposite occurred during multilateral negotiations, which often ended in stalemate and ineffective policy outcomes. As the certainty of climate change and its negative impacts increase, these nations have increased incentives to take part in climate mitigation efforts to avoid climate catastrophe.

The political will of executive leaders, changing public preferences, and the lower risk of free-riding also explain why bilateral agreements seem more politically expedient than multilateral ones. The timing and pace of development in bilateral programs since

<http://www.usatoday.com/story/news/nation/2014/11/12/obama-china-xi-jinping-climate-change-agreement-coal/18901537/>.

¹⁶⁹ U.S. White House Office of the Press Secretary, "U.S.-China Joint Announcement on Climate Change," November 11, 2014.

¹⁷⁰ The Economist, "Dealing with Denial," November 15, 2014, accessed on March 24, 2015, <http://www.economist.com/news/united-states/21632508-america-concessions-are-more-real-chinas-dealing-denial>.

¹⁷¹ U.S. White House Office of the Press Secretary, "U.S.-China Joint Announcement on Climate Change."

¹⁷² Edward Wong, "China's Climate Change Plan Raises Questions," *New York Times*, November 12, 2014, accessed on March 20, 2015, http://www.nytimes.com/2014/11/13/world/asia/climate-change-china-xi-jinping-obama-apec.html?_r=2.

¹⁷³ *Ibid.*

2009 highlight the importance of presidential leadership. President Obama brought the issue of climate change and engagement with China to the forefront of the national agenda. Even though domestic politics barred Congress from enacting legislation to address climate issues, President Obama used his executive powers to push forward bilateral agreements, acting with less caution and more ambition in his second term. Partnering directly with China and setting joint emissions reduction goals make it harder for future administrations to unravel the climate deal for the sake of maintaining political capital and stable foreign relations.¹⁷⁴ This safety mechanism allows President Obama to leave a climate legacy. President Xi's leadership also advanced climate policy. The ambitious leader wants to present China and the United States as equal partners and assert a renewed and revitalized image of China. As a nation that feels historically victimized by the West, partnering on climate policies symbolizes equalization between China and the United States. At the close of the APEC Summit, President Xi stated that "President Obama and I believe that when China and the United States work together, we can become an anchor of world stability and a propeller of world peace."¹⁷⁵ This statement illustrates China's national interest of becoming the next global superpower, but also highlights the role of U.S. partnership in supporting China's rise and the impact made by the two nations. His aspirations for China as a global superpower—a term no longer strictly characterized by economic strength, but also political influence—motivated President Xi to push forward a historical climate agreement with the United States.

¹⁷⁴ Bader, pg. 62.

¹⁷⁵ Pauhala, "The APEC Summit Closes with a 'Historic' Climate Deal."

Public preferences in both nations demanded increased government action on climate change and air pollution. As previously discussed in Chapter Three, 69 percent of Americans surveyed in 2010 believed that the United States should make a “large or medium-scale effort to reduce global warming even if it incurs large or moderate economic costs.”¹⁷⁶ The American public’s concern toward climate change grew dramatically as the U.S. economy recovered after 2008.¹⁷⁷ China’s annual upsurge in environmental protests and increased international press coverage of poor environmental conditions further motivated President Xi to forward climate action. Both executive leaders saw clear benefits in crafting this climate deal, including improving bilateral relationships, appeasing public desires for government action on climate change, and leaving a presidential legacy.

Negotiations limited to two nations eliminate the free-rider effect that plagues multilateral agreements, especially in repeated games when both sides know they will come into contact again. This mechanism of high-certainty in repeated encounters encourages both countries to comply with bilateral agreements and are therefore more likely to agree to terms in the first place. The United States and China have it in their best interest to hold each other accountable once they agree on a deal to avoid asymmetrical abatement. The amount of media and political attention this climate deal has received, in addition to the likelihood of future interactions between the two nations, have created a

¹⁷⁶ Yale Project on Climate Change and Communication, “American Opinion on Climate Change Warms Up.”

¹⁷⁷ The growing prevalence of extreme weather events around the world, including Hurricane Sandy in 2012 and the current drought in California, increased the saliency of climate issues. See Joe Romm, “Global Warming Linked to More Extreme Weather and Weaker Jet Stream,” *Think Progress*, January 15, 2015, accessed on April 21, 2015, <http://thinkprogress.org/climate/2015/01/15/3612054/global-warming-extreme-weather/>.

high stakes situation to deter defection. If either nation fails to deliver on their promises, they will suffer the loss of political capital abroad and tarnish the growing trust between the two nations. Even if the deal holds no legal weight, each nation has an interest in meeting emissions reduction goals and perceives higher payoffs from investing in abatement. Changed public preferences, pro-climate policy leaders, and the prospects of avoiding climate catastrophe cumulate into these higher payoff assumptions, especially when both nations act together. Partnership between these global leaders are not only necessary to effectively curbing GHG emissions, U.S.-China collaboration can also lead to spillover effects on the multilateral stage and encourage more nations to abate.

Challenges & Drawbacks of Bilateral Collaboration

Once Level I players agree on a deal, Putnam emphasizes the need for domestic political support to endorse and implement any international agreement. While the climate deal does not mandate formal ratification, its success hinges on congressional actions. Since the executive branch perceives different risks and benefits compared to Congress, these two groups hold opposing views on climate action. Many Republican leaders criticized the agreement for giving China too many concessions and disproportionately distributing cost burdens, which can harm U.S. growth. House Speaker John Boehner (R-OH) believes that the climate deal “is yet another sign that the President intends to double down on his job-crushing policies no matter how devastating the impact for America’s heartland and the country as a whole.”¹⁷⁸ Senate Majority leader, Mitch McConnell (R-KY), expressed distress in requiring “the Chinese to do nothing at all for

¹⁷⁸ Jackson, “Obama Clears the Air on Climate Change Deal with China.”

16 years, while these carbon emission regulations [create] havoc in [his] state and other states across the country.”¹⁷⁹ Senator McConnell represents a coal-dependent state and ran on the platform against the administration’s “war on coal.” He has clear incentives to speak out against the climate deal that can harm his constituents. This narrative drives the debate in Congress on how to block federal agencies from acting on certain executive orders. While the 2014 climate deal is not legally binding, the lack of support from Level II actors poses many challenges in reaching U.S. emissions targets. Congress has threatened to delegitimize President Obama’s executive powers through exercising the power of the purse and blocking the enforcement of federal emissions regulations. The Republican Congress can hinder the EPA’s ability to regulate GHGs effectively through funding cuts and set back the nation’s ability to reach these ambitious targets.

While some Republican Party leaders claim the climate deal gives China a free pass until 2030, the climate agreement actually necessitates China to implement aggressive policies to peak on carbon emissions by 2030, considering their movement along the development curve. China has already taken many unilateral steps to curb inner city pollution and decrease emissions. A 2014 study by the Massachusetts Institute of Technology found that Chinese emissions can peak between 2025 and 2035 only if the nation continued to implement stringent emissions reduction measures.¹⁸⁰ The emission goals between U.S. and China objectively differ because they take the development

¹⁷⁹ Ed O’Keefe, David Nakamura and Steven Mufson, “GOP Congressional Leaders Denounce U.S. – China Deal on Climate Change,” *The Washington Post*, November 12, 2014, accessed on April 21, 2015, http://www.washingtonpost.com/politics/gop-congressional-leaders-denounce-us-china-deal-on-climate-change/2014/11/12/ff2b84e0-6a8d-11e4-a31c-77759fc1eacc_story.html.

¹⁸⁰ Wong, “China’s Climate Change Plan Raises Questions.”

context of each nation into consideration and try to keep cost burdens equitable. China's economic prosperity is far more dependent on carbon-intensive processes compared to that of the United States.¹⁸¹ The contradiction between Republican rhetoric and the reality of the climate deal showcase how politically charged and challenging bilateral cooperation can be in a hostile domestic political environment. In contrast to their Republican counterparts, Democratic leadership has largely supported the agreement and considered it the right start to taking climate action. However, Republicans won a majority in both houses of Congress in 2014 and can drive most of the policy conversations on the Hill. Opposing reactions to the climate deal reflect the persistent partisan divide on the climate issue. U.S. political institutions set intentionally high barriers for authorizing legislation and essentially mandate compromise across party lines. However, the Founding Fathers did not anticipate this degree of partisanship in Congress, which has revealed drawbacks and social inefficiencies within the U.S. political system. Despite the breakthrough of the climate deal between the United States and China, Level II actors and domestic politics still present a large barrier to achieving emissions targets. Unlike these partisan conflicts in the United States, China's one-party state allows the CPC to dictate policies and bilateral agreements with little public criticism from party leaders.

Besides challenges facing the most recent climate deal, the lattice of bilateral initiatives across U.S. and Chinese agencies encounter other barriers to effective

¹⁸¹ Bob Sussman, "The U.S.-China Climate Deal: Not a Free Ride for the Chinese," *The Brookings Institute*, November 25, 2014, accessed on April 19, 2015, <http://www.brookings.edu/blogs/planetpolicy/posts/2014/11/25-us-china-climate-deal-sussman>.

implementation, including the lack of funding or follow-through and residual mutual distrust perpetuated by confrontational competition.¹⁸² Both the U.S.-China Clean Energy Center and the Renewable Energy Partnership created in 2009 used funds from existing sources with no clear additional forms of financial support.¹⁸³ In other words, more programs are pulling from the same pool of funding, which is not financially sustainable. These barriers have hindered successful knowledge sharing for renewable energy development and GHG emissions reductions. In some cases, the down-sizing or cancellation of certain partnerships by the United States have increased distrust in the relationship and generated reluctance to develop future climate partnerships.¹⁸⁴ These implementation issues highlight the impact of political institutions on international policies. Even though the executive branch pursued certain cooperative initiatives, the lack of funding appropriated by Congress for these programs can render them ineffective and harm the U.S.-China relationship.

Adversarial trade practices in the renewable energy industry have grown distrust and additional barriers to cooperation on clean energy deployment. While both nations coordinate on renewable energy research and development, they have fought over unfair competition within the industry. China's state-sponsored enterprises produced solar panels and exported them to the U.S. at lower-than-cost prices, which drove many American firms into bankruptcy and made it difficult for the American manufacturing industry to compete. In June 2014, the U.S. Commerce Department found that Chinese

¹⁸² Lewis, "The State of U.S.-China Relations on Climate Change," pg. 17 – 18.

¹⁸³ *Ibid.*

¹⁸⁴ *Ibid.*

solar panel producers benefited unfairly from government subsidies and were dumping solar panels into the U.S. market.^{185,186} The Commerce Department set duties on Chinese solar panel imports from 11 percent to 55 percent in attempts to increase the fairness of international trade.¹⁸⁷ These tariffs may threaten the development of the renewable energy sector, since they drive up the price of solar panels for American consumers and companies. Increased prices lowers solar adoption rates and hinders the climate mitigation agenda. Similar trade tensions occurred regarding the wind turbine industry. Before 2009, China only allowed domestic wind turbine installations that utilized largely locally manufactured parts, which restricted many foreign firms from competing in the growing Chinese market.¹⁸⁸ China opened up the wind turbine market to U.S. manufacturers after the United States filed a World Trade Organization dispute in 2010 against unfair government subsidization within the industry.¹⁸⁹ Trade disputes in both the solar and wind industry highlight the nature of the Sino-U.S. relationship as cooperative competitors. Both nations predict net benefit from engaging in bilateral collaboration on climate action, but they should recognize how a hostile domestic environment and adversarial competition could hinder trust-building and block the implementation of bilateral climate initiatives.

¹⁸⁵ Diane Cardwell and Keith Bradsher, "Solar Industry Is Rebalanced by U.S. Pressure on China," *The New York Times*, July 25, 2014, accessed on February 11, 2015, http://www.nytimes.com/2014/07/26/business/energy-environment/solar-industry-is-rebalanced-by-us-pressure-on-china.html?_r=0.

¹⁸⁶ Besides taking issue with the dumping of Chinese solar panels, the United States also criticizes China for their unfair, uncompetitive monetary policy that devalues the RMB in favor of China's export-driven economy.

¹⁸⁷ Cardwell and Bradsher, "Solar Industry Is Rebalanced by U.S. Pressure on China."

¹⁸⁸ Lewis, "The State of U.S.-China Relations on Climate Change," pg. 18.

¹⁸⁹ *Ibid.*

Why Sino-U.S. Climate Collaboration Matters

Even considering the political restraints and barriers facing bilateral cooperation, President Obama and President Xi's commitment to collaborating on climate action marks a historical turning point in climate policy and has substantial, tactical benefits on U.S.-China relations and the multilateral climate regime. China and the United States have conflicted and competed on many social, political, and economic issues, which created an unlikely environment for strong bilateral Sino-U.S. relations.¹⁹⁰ Climate collaboration serves as a platform for trust building and can lay the foundation for future cooperation on other overlapping interests. Wang Tao, a scholar at the Carnegie-Tsinghua Center for Global Policy, believes that "successful collaboration on energy and climate matters may hold the key to unlocking the tight knot in wider U.S.-China diplomatic relations."¹⁹¹ Working together on overlapping interests, while holding off on more sensitive topics like Taiwan, human rights violations, and trade agreements,¹⁹² can build mutual assurance and increases the likelihood of successful bilateral engagements in the future.

Not only does the climate deal have immense consequences on the Sino-U.S. relationship, the leadership shown by both nations affects the multilateral landscape. During these recent climate negotiations, Secretary of State John Kerry emphasized the impact that U.S. and Chinese leadership will have on shaping a global climate agreement:

¹⁹⁰ Pauhala, "The APEC Summit Closes with a 'Historic' Climate Deal."

¹⁹¹ Wang Tao, "Energy and Climate Collaboration Key to U.S.-China Relations?" *The Diplomat*, August 8, 2014, accessed on April 18, 2015, <http://thediplomat.com/2014/08/energy-and-climate-collaboration-key-to-u-s-china-relations/>.

¹⁹² The United States is actively engaged in negotiations about the Trans Pacific Partnership, which excludes China, and has created additional tensions between the two nations.

“I want to underscore that when [China and the United States] make a decision...it ripples beyond our borders.”¹⁹³ Increased bilateral action can influence multilateral action. The high stakes collaboration between the United States and China symbolize the coming together of developed and developing nations to work on climate change policy. With their participation, cooperation, and leadership, other nations have the confidence to advance more climate policies and develop a stronger global climate regime.

At COP20 in Lima, international negotiators rode the momentum from the recent U.S.-China climate deal and agreed to shift away from characterizing nations as either developed or developing in future climate talks when determining abatement responsibilities.¹⁹⁴ The Lima Call for Climate Action outlined that national reduction goals should be based on “common but differentiated responsibilities and respective capabilities in light of different national circumstances,” including the nation’s capacity and resources available to implement stringent goals.¹⁹⁵ Nations should share responsibilities for climate mitigation, but these responsibilities do not depend strictly on Annex I categorizations as they had before. 20 years after drafting the Kyoto Protocol,

¹⁹³ Suzanne Goldenberg, “U.S. and China to Extend Cooperation in Effort to Curb Climate Change,” *The Guardian*, July 10, 2013, accessed on March 19, 2015, <http://www.theguardian.com/environment/2013/jul/10/america-china-cooperation-reduce-climate-change>.

¹⁹⁴ Other notable successes at Lima include fundraising for the Green Climate Fund (GCF), a financial resource to transfer capital from developed to developing nations for climate mitigation and adaptation programs. The GCF received support from 19 nations, including the United States, Australia, Belgium, and Peru. Financial pledges exceeded the initial target of \$10 billion. See Gwynne Taraska and Jesse Vogel, “Outcomes of the Lima Climate Negotiations: Essential Steps Toward an International Climate Agreement,” *American Progress*, December 18, 2014, accessed on March 20, 2015, <https://www.americanprogress.org/issues/green/news/2014/12/18/103534/outcomes-of-the-lima-climate-negotiations-essential-steps-toward-an-international-climate-agreement/>.

¹⁹⁵ Michael Jacobs, “Lima Deal Represents a Fundamental Change in Global Climate Regime,” *The Guardian*, December 15, 2014, accessed on April 16, 2015, <http://www.theguardian.com/environment/2014/dec/15/lima-deal-represents-a-fundamental-change-in-global-climate-regime>.

developing nations like China and India look very different from their old selves. According to Christiana Figueres, the Executive Secretary of the UNFCCC, this shift in perspective “is a very important breakthrough that [will open] the way [toward] a Paris agreement” at COP21 in 2015.¹⁹⁶ Using the guidelines in the Call for Climate Action, countries agreed to submit their Intended Nationally Determined Contributions (INDCs), or post-2020 emissions reduction goals, in preparation for COP21.¹⁹⁷ Environmentalists criticized Lima outcomes for allowing nations to decide their own emissions reduction targets. However, these stakeholders focused on unrealistic expectations of setting stringent standards immediately and did not acknowledge the long-term impact of such a narrative shift.¹⁹⁸ The Call for Action symbolically ends the division between developed and developing nations that has historically created stalemates in past multilateral climate negotiations. Removing the usual divide between developed and developing nations could allow additional nations to perceive higher payoffs from collective action than payoffs from non-abatement or asymmetrical abatement on the multilateral level. This new approach to multilateral climate agreements can ameliorate past tensions between the United States and China, and other developed and developing nations. While one cannot attribute the advancements at Lima completely to the 2014 Sino-U.S. climate deal,

¹⁹⁶ Matt McGrath, “UN Climate Deal in Peru Ends North-South Split,” *BBC*, December 14, 2014, accessed on April 15, 2015, <http://www.bbc.com/news/science-environment-30473085>.

¹⁹⁷ In March 2015, the United States submitted its INDCs and plan to reach emissions reduction commitments through cutting vehicle emissions, decarbonizing the energy industry, increasing energy efficiency, and phasing out HFCs. See David Waskow and Kristin Meek, “U.S. Climate Commitment Should Spur Other Countries to Act,” *World Resources Institute*, April 1, 2015, accessed April 16, 2015, <http://wri.org/blog/2015/04/us-climate-commitment-should-spur-other-countries-act>.

¹⁹⁸ Robert Stavins, “Assessing the Outcome of the Lima Climate Talks,” *Harvard Kennedy School Belfer Center for Science and International Affairs*, December 14, 2014, accessed on April 15, 2015, <http://www.robertstavinsblog.org/2014/12/14/assessing-the-outcome-of-the-lima-climate-talks/>.

the bilateral agreement surely gave international negotiators the confidence and encouragement to push the boundaries and status quo of multilateral climate talks.

Until recently, other nations had little confidence in the United States or China for committing to reduction targets. Rhetoric from President Xi and President Obama confirm U.S.-China climate leadership moving forward. Leaders from both sides have expressed explicit interest in leading multilateral climate negotiations in Paris this winter. In the Joint Press Conference after the climate deal announcement, President Obama affirmed the two nations' "special responsibility to lead the global effort against climate change," since the two countries have "the world's two largest economies, energy consumers and emitters of greenhouse gases."¹⁹⁹ President Xi announced that the two leaders "agreed to make sure that international climate change negotiations will reach an agreement as scheduled at the Paris conference in 2015, and [they] agreed to deepen practical cooperation on clean energy, environment protection, and other areas."²⁰⁰ These statements express the Chinese and U.S. commitment to taking coordinated leadership on climate action. Notably, the United States will remain constrained by a Republican Senate, which suggests that Level I players can only agree to a nonbinding international accord instead of a treaty at COP21. This restriction continues to illustrate the role of Level II players and the need to depolarize the increasingly partisan divide over climate policies in the United States. In the meantime, the executive leadership in both the United

¹⁹⁹ U.S. White House Office of the Press Secretary, "Remarks by President Obama and President Xi Jinping in Joint Press Conference," *White House*, November 12, 2014, accessed on February 14, 2015, <http://www.whitehouse.gov/the-press-office/2014/11/12/remarks-president-obama-and-president-xi-jinping-joint-press-conference>.

²⁰⁰ *Ibid.*

States and China, driven by a more environmentally-conscious public, will endeavor to lead a new chapter in the global climate regime.

CONCLUSION

As anthropogenic emissions rise at an unsustainable rate, the Earth's temperature increases and the impacts of climate change manifest through rising sea levels and extreme weather events. The risks of inaction have surmounted and push nations toward unilateral and collective action. China and the United States hold unique positions to lead the developed and developing world in mitigating and adapting to climate change. Their partnership and lack thereof on the bilateral and multilateral scale have immense influence on the future of the global climate regime. U.S.-China inaction blocks and deters other nations from engaging in an effective multilateral agreement, while U.S.-China climate leadership can shift perceptions around the benefits of cooperative climate action and create a ripple effect that encourages other nations to invest in abatement.

Sino-U.S. interactions in climate policy reflect the broader relationship between the two nations: they have an ambiguously interdependent relationship with fluctuating perceptions of benefit and harm, antagonism and friendship. China and the United States experienced adversarial encounters in the multilateral context and far friendlier exchanges on the bilateral level. Putnam's two-level game and different expectations of costs and benefits by policymakers reveal why the Sino-U.S. relationship resembled the Prisoner's Dilemma payoff matrix on the multilateral scale and the Coordination Game

payoff matrix in the bilateral context. Assumptions around the clear costs of free-riders and asymmetrical abatement motivated such blocking behavior during the Kyoto and Copenhagen negotiations. Changes in executive leadership and their policy preferences since 2009 dramatically increased opportunities for climate diplomacy, especially on the bilateral level, and explain the increase in joint government programs. While bilateral negotiations are more politically expedient among Level I actors, pushback from Level II actors within the United States emphasize the binding influence that domestic politics and the political institution have on international climate policy. The cost-benefit matrix captures a high-level view of these complex dynamics between the United States and China.

Moving forward, the United States and China should focus on the effective implementation of domestic emissions reduction programs in order to reach their abatement goals and to give other nations the confidence to take collective action. Both nations face implementation barriers. In the United States, the executive branch must wrestle with an uncooperative and hostile Congress. China's one-party system excuses the CPC from these issues, and the Party prioritized environmental protection in its policy agenda. Despite the national focus on improving China's environment, the implementation of emissions reduction policies remains weak due to the principal-agent issue and the misalignment of central versus local incentives. The Party will struggle to implement outcome-driven policies. Misaligned incentives and the principal-agent problem have plagued the Chinese bureaucracy, leading to a disproportionate focus on policy inputs over outcomes. In spite of these challenges, the recent bilateral agreement

encourages both nations to hold one another accountable and to support each other in their abatement targets, since evenly paced abatement benefits both nations. The implementation process presents an additional opportunity to build mutual trust and to strengthen the Sino-U.S. relationship.

Sino-U.S. climate collaboration plays a critical role in moving the needle on climate mitigation and adaptation. Judging by the constructive outcomes from the Lima conference, China and the United States can foster significant advancements in the global climate regime during COP21. As Sino-U.S. climate collaboration matures, nations around the world will begin to change their traditional perceptions around the costs and benefits of abatement. In an optimal scenario, increased engagement and cooperation between the United States and China translate into stronger multilateral action and more stringent emissions reduction policies that contribute to slowing the rise of global temperatures to below 2 degrees Celsius. Through this climate leadership mechanism, nations can collectively conserve the Earth's resources, protect the Planet's atmosphere, and invest in the livelihood of future generations.

“While we may not live to see the full realization of our ambition, we will have the satisfaction of knowing that the world we leave our children will be better off for what we did.”

- *Barack Obama, President of the United States (2008 – 2016)*

BIBLIOGRAPHY

- “A Major Breakthrough on Climate Change.” *New York Times*. November 12, 2014. Accessed on March 20, 2015, <http://www.nytimes.com/2014/11/13/opinion/climate-change-breakthrough-in-beijing.html>.
- “A Rising China.” *Truman National Security Project*. May 2012. Accessed on February 16, 2015. <http://trumanproject.org/wp-content/uploads/2012/05/Truman.Briefing.Book-ARisingChina.pdf>.
- Agrawala, S. and S. Andresen. “U.S. Climate Policy: Evolution and Future Prospects.” *Energy and Environment*. Summer 2001. Vol. 9.
- Bader, Jeffrey A. *Obama and China’s Rise: An Insider’s Account of America’s Asia Strategy*, Brookings Institution Press. Washington, D.C. 2012.
- Barnes, Hannah . “How Many Climate Migrants Will There Be?” *BBC*. September 2, 2013. Accessed on April 20, 2015. <http://www.bbc.com/news/magazine-23899195>.
- Broder, John. “Obama to Go to Copenhagen with Emissions Target.” *New York Times*. November 25, 2009. Accessed on April 19, 2015. <http://www.nytimes.com/2009/11/26/us/politics/26climate.html?pagewanted=all>.
- Burbank, Luke. “Bush Views Shift on Climate Change.” *NPR*. February 1, 2007. Accessed on April 16, 2015. <http://www.npr.org/templates/story/story.php?storyId=7115660>
- Cardwell, Diane and Keith Bradsher. “Solar Industry Is Rebalanced by U.S. Pressure on China.” *New York Times*. July 25, 2014. Accessed on February 11, 2015. http://www.nytimes.com/2014/07/26/business/energy-environment/solar-industry-is-rebalanced-by-us-pressure-on-china.html?_r=0
- Cardwell, Diane and Keith Bradsher. “U.S. Will Place Tariffs on Chinese Solar Panels.”

New York Times. October 10, 2012. Accessed on February 11, 2015.
<http://www.nytimes.com/2012/10/11/business/global/us-sets-tariffs-on-chinese-solar-panels.html>.

Chang, Alice. "The Politics and Future of Carbon Cap-and-Trade: Lessons from the European Union, Australia, and the United States." *The Journal of MacroTrends in Energy and Sustainability*. Vol. 1:1. 2013.

"China Balance of Trade." *Trading Economics*. Accessed on February 14, 2015.
<http://www.tradingeconomics.com/china/balance-of-trade>.

"China Overtakes U.S. in Greenhouse Gas Emissions." *New York Times*. June 20, 2007. Accessed on February 3, 2015.
http://www.nytimes.com/2007/06/20/business/worldbusiness/20iht-emit.1.6227564.html?_r=0.

"China Surpasses U.S. as World's Largest Economy Based on Key Measure." *Reuters*. October 8, 2014. Accessed on February 5, 2015. <http://rt.com/business/194264-china-surpass-us-gdp/>.

Christoff, Peter. "Cold Climate in Copenhagen: China and the United States at COP15." *Environmental Politics*. July 2010, Vol. 19: 4.

Cohen, Warren. *America's Response to China: A History of Sino-American Relations*. Columbia University Press. New York. 2010.

Cohen, Warren. "The United States and China During the Cold War." *The Gilder Lehrman Institute of American History*. <http://www.gilderlehrman.org/history-by-era/seventies/essays/united-states-and-china-during-cold-war>.

"Climate Change: Basic Information." *Environmental Protection Agency*. Accessed on February 3, 2015. <http://www.epa.gov/climatechange/basics/>.

Cooper, Helene and Mark Landler. "Obama Pushes Hu on Rights But Stresses Ties to China." *New York Times*. January 19, 2011, Accessed on April 19, 2015.
http://www.nytimes.com/2011/01/20/world/asia/20prexy.html?_r=0.

"CPI Study Finds China Made Solid Progress Towards 11th FYP Energy Intensity Targets But May Face Challenges in Meeting 12th FYP Targets." *Climate Policy Initiative*. February 2011. Accessed on April 19, 2015.
<http://climatepolicyinitiative.org/press-release/cpi-study-finds-china-made-solid-progress-towards-11th-fyp-energy-intensity-targets-but-may-face-challenges-in-meeting-12th-fyp-targets/>.

- DeCanio, Stephen and Anders Fremstad. "Game Theory and Climate Diplomacy." *Economics for Equity & Environment*. October 2010.
- Dugan, Andrew. "Americans Choose the Environment over Energy Development." *Gallup*. April 13, 2015. Accessed on April 15, 2015. http://www.gallup.com/poll/182402/americans-choose-environment-energy-development.aspx?utm_source=Politics&utm_medium=newsfeed&utm_campaign=tiles.
- Eilperin, Julia and Steven Mufson. "Everything You Need to Know about the EPA's Proposed Rule on Coal Plants." *The Washington Post*. June 2, 2014. Accessed on April 16, 2015. http://www.washingtonpost.com/national/health-science/epa-will-propose-a-rule-to-cut-emissions-from-existing-coal-plants-by-up-to-30-percent/2014/06/02/f37f0a10-e81d-11e3-afc6-a1dd9407abcf_story.html.
- Epstein, Gady and Robyn Meredith. "U.S. Companies that Invest Big in China." *Forbes*. July 5, 2010. Accessed on April 23, 2015. <http://www.forbes.com/2010/07/05/us-investments-china-markets-emerging-markets-fdi.html>.
- Executive Office of the President. "The President's Climate Action Plan." *June 2013*.
- Faiola, Anthony, Juliet Eilperin and John Pomfret. "Copenhagen Climate Deal Shows New World Order May Be Led by U.S., China." *The Washington Post*. December 20, 2009.
- Figueres, Christina. "Environmental Issues: Time to Abandon Blame-Games and Become Proactive." *The Economic Times*. December 15, 2012. Accessed on April 20, 2015. http://articles.economictimes.indiatimes.com/2012-12-15/news/35836633_1_emission-reduction-targets-global-greenhouse-gas-emissions-climate-change.
- Flories, Reena. "Obama: 'No Greater Threat' Than Climate Change." *CBS News*. April 18, 2015. Accessed on April 19, 2015. <http://www.cbsnews.com/news/obama-warns-no-greater-threat-climate-change/>.
- Friedman, Lisa. "China, U.S. Give Copenhagen Negotiators Some Targets." *New York Times*. November 30, 2009. Accessed on April 19, 2015. <http://www.nytimes.com/cwire/2009/11/30/30climatewire-china-us-give-copenhagen-negotiators-some-ta-73618.html?pagewanted=all>
- Galbraith, Kate. "Don't Get Caught Up in the Air Pollution Hype." *Foreign Policy*.

March 4, 2014. Accessed on April 18, 2015.
<http://foreignpolicy.com/2015/03/04/china-pollution-emissions-india-climate-change/>.

Gallucci, Maria and Paul Horn. "For U.S. and China, World's Biggest Climate Polluters, It's Still Business as Usual." *Inside Climate News*. February 3, 2014. Accessed on February 5, 2015. <http://insideclimatenews.org/news/20130129/united-states-china-carbon-greenhouse-gas-emissions-renewable-energy-coal-plants-pollution-global-warming-climate>.

Gillis, Justin. "U.N. Climate Panel Endorses Ceiling on Global Emissions." *New York Times*. September 27, 2013. Accessed October 21, 2013.
<http://www.nytimes.com/2013/09/28/science/global-climate-changereport.html?pagewanted=1>.

"Global Greenhouse Gas Emissions Data." *Environmental Protection Agency*.
<http://www.epa.gov/climatechange/ghgemissions/global.html>.

Goldenberg, Suzanne. "U.S. and China to Extend Cooperation in Effort to Curb Climate Change." *The Guardian*. July 10, 2013. Accessed on March 19, 2015.
<http://www.theguardian.com/environment/2013/jul/10/america-china-cooperation-reduce-climate-change>.

Harris, Paul. "Common But Differentiated Responsibility: The Kyoto Protocol and United States Policy." *New York University Environmental Law Journal*. 1999. Vol. 7.

Hoel, Michael. "Global Environmental Problems: The Effects of Unilateral Actions Taken by One Country." *Journal of Environmental Economics and Management*. 1991. Vol. 20:1.

Hovie, Jon, Tora Skodvin, and Steinar Adresen. "The Persistence of the Kyoto Protocol: Why Other Annex I Countries Move on Without the United States." *Global Environmental Politics*, Vol. 3: 4. November 2003.

Indyk, Martin, Kenneth Lieberthal, and Michael O'Hanlon. *Bending History: Barack Obama's Foreign Policy*. Brookings Institution Press. Washington DC. 2012.

Intergovernmental Panel on Climate Change (IPCC). "IPCC Fourth Assessment Report: Climate Change 2007: Working Group I: The Physical Science Basis." 2007. Accessed on February 2, 2015.
http://www.ipcc.ch/publications_and_data/ar4/wg1/en/spmssp-human-and.html.

- Jackson, David. "Obama Clears the Air on Climate Change Deal with China." *USA Today*. November 12, 2014. Accessed on March 24, 2015. <http://www.usatoday.com/story/news/nation/2014/11/12/obama-china-xi-jinping-climate-change-agreement-coal/18901537/>.
- Jacobs, Michael. "Lima Deal Represents a Fundamental Change in Global Climate Regime." *The Guardian*. December 15, 2014. Accessed on April 16, 2015. <http://www.theguardian.com/environment/2014/dec/15/lima-deal-represents-a-fundamental-change-in-global-climate-regime>.
- Jakes, Susan. "Will Xi Jinping Differ from His Predecessors?" *Asia Society*. January 18, 2013. Accessed on April 16, 2015. <http://asiasociety.org/blog/asia/videos-will-xi-jinping-differ-his-predecessors>.
- Jenkins, Jesse. "Is the U.S.-China Climate Change Deal a Game-Changer? An Interview with MIT's Valerie Karplus." *Massachusetts Institute of Technology Energy Initiative*. December 10, 2014. Accessed on April 19, 2015. <http://mitei.mit.edu/news/us-china-climate-change-deal-game-changer-interview-mits-valerie-karplus>.
- Jones, Jeffrey M. "Americans Increasingly Prioritize Economy over Environment." *Gallup*. March 17, 2011. Accessed November 17, 2013. <http://www.gallup.com/poll/1615/environment.aspx>.
- Karon, Tony. "Bush China Policy Defaults to Engagement." *TIME*. July 31, 2001. Accessed on April 19, 2015. <http://content.time.com/time/world/article/0,8599,169585,00.html>.
- Kliman, Daniel. "Is China the Fastest-Rising Power in History?" *Foreign Policy*. May 16, 2014. Accessed on February 14, 2015. <http://foreignpolicy.com/2014/05/16/is-china-the-fastest-rising-power-in-history/>.
- Kostka, Genia. "Barriers to the Implementation of Environmental Policies at the Local Level in China." *World Bank*. Development Research Group: Environment and Energy Team. August 2014.
- Kull, Steven. "Americans on the Global Warming Treaty." *Program on International Policy Attitudes (PIPA)*. February 4, 2000.
- "Kyoto Protocol." *United Nations Framework Convention on Climate Change*. Accessed on February 23, 2015. http://unfccc.int/kyoto_protocol/items/2830.php.
- Leiserowitz, A., et al. "Politics & Global Warming." *Yale University and George Mason*

University. Spring 2014. New Haven, CT: Yale Project on Climate Change Communication.

Lieberthal, Kenneth and David Sandalow. "Overcoming Obstacles to U.S.-China Cooperation on Climate Change." *The Brookings Institute*. January 2009.

Lewis, Joanna. "Energy and Climate Goals of China's 12th Five-Year Plan." *Center for Climate and Energy Solutions*. March 2011.
<http://www.c2es.org/international/key-country-policies/china/energy-climate-goals-twelfth-five-year-plan>.

Lewis, Joanna. "The State of U.S.-China Relations on Climate Change: Examining the Bilateral and Multilateral Relationship." *China Environment Series*. Woodrow Wilson International Center for Scholars. December 2010.

Lewis, John. "The Contradictions of Bush's China Policy." *New York Times*. June 2, 2001. Accessed on April 19, 2015.
<http://www.nytimes.com/2001/06/02/opinion/the-contradictions-of-bush-s-china-policy.html>.

Lisowski, Michael. "Playing the Two-Level Game: U.S. President Bush's Decision to Repudiate the Kyoto Protocol." *Environmental Politic*. 2002. Vol. 11: 4.

Lynas, Mark. "How Do I Know China Wrecked the Copenhagen Deal? I Was in the Room." *Guardian*. December 22, 2009.

Lynch, Patrick. "Secrets from the Past Point to Rapid Climate Change in the Future." *NASA Global Climate Change*. December 15, 2011. Accessed on April 20, 2015,
<http://climate.nasa.gov/news/649/>.

Mackinder, Evan. "Pro-Environment Groups Outmatched, Outspent in Battle over Climate Change Legislation." *OpenSecrets.org*. August 23, 2010. Accessed on April 22, 2015, <http://www.opensecrets.org/news/2010/08/pro-environment-groups-were-outmatc/>.

Manne, Alan and Richard Richels. "The Kyoto Protocol: A Cost-Effective Strategy for Meeting Environmental Objectives?" *Efficiency and Equity of Climate Change Policy*. 1999.

Martin, Richard. "China's Great Coal Migration." *Fortune*. July 11, 2014. Accessed on March 8, 2015. <http://fortune.com/2014/07/11/coal-china/>.

- Mathews, John. "Falling Oil Prices Unlikely to Influence China's Renewable Energy Investment Strategies." *Clean Technical*. January 28, 2015. Accessed on March 5, 2015. <http://cleantechnica.com/2015/01/28/falling-oil-prices-unlikely-influence-chinas-renewable-energy-investment-strategies/>.
- McCarthy, Tom. "Meet the Republicans in Congress who Don't Believe Climate Change Is Real." *The Guardian*. November 17, 2014. Accessed on April 20, 2015. <http://www.theguardian.com/environment/2014/nov/17/climate-change-denial-scepticism-republicans-congress>.
- McCrone, Angus, Ethan Zindler, and Nathaniel Bullard. "Clean Energy Investment Falls for Second Year." *Bloomberg New Energy Finance*. January 14, 2014. Accessed on March 8, 2015, <http://about.bnef.com/press-releases/clean-energy-investment-falls-for-second-year/>.
- McGrath, Matt. "UN Climate Deal in Peru Ends North-South Split." *BBC*. December 14, 2014. Accessed on April 15, 2015. <http://www.bbc.com/news/science-environment-30473085>.
- Mellor, Jonathan. "Game Theory Offers Lessons in Collective Action and Climate Change." *Yale Climate & Energy Institute*. January 23, 2014. Accessed on February 21, 2015. <http://climate.yale.edu/news/game-theory-offers-lessons-collective-action-and-climate-change>.
- Miller, John. "How Effective Are U.S. Renewable Power Policies?" *The Energy Collective*. December 3, 2013. Accessed on March 8, 2015. <http://theenergycollective.com/jemillerep/311406/how-effective-are-us-renewable-power-policies>.
- National Renewable Energy Laboratory. "Renewable Portfolio Standards." Accessed on April 24, 2015. <http://www.seia.org/policy/finance-tax/solar-investment-tax-credit>.
- Neuhauser, Alan. "Obama Charges Ahead on Climate Change Policy." *U.S. News*. August 27, 2014. Accessed on April 16, 2015. <http://www.usnews.com/news/articles/2014/08/27/obama-charges-ahead-on-climate-change-policy>.
- Nisbet, Matthew and Teresa Myers. "Twenty Years of Public Opinion About Global Warming." *Public Opinion Quarterly*. Vol 71:3. Fall 2007. pg. 444 – 470.
- OpenCongress. "H.R. 2454 – American Clean Energy and Security Act of 2009."

<https://www.opencongress.org/bill/hr2454-111/show>.

- O’Keefe, Ed, David Nakamura and Steven Mufson. “GOP Congressional Leaders Denounce U.S. –China Deal on Climate Change.” *The Washington Post*. November 12, 2014. Accessed on April 21, 2015.
http://www.washingtonpost.com/politics/gop-congressional-leaders-denounce-us-china-deal-on-climate-change/2014/11/12/ff2b84e0-6a8d-11e4-a31c-77759fc1eacc_story.html.
- Palmer, Brian. “If Currency Manipulation Is So Great for Exports, Why Don’t We Do It?” *Slate*. October 17, 2012. Accessed on February 16, 2015.
http://www.slate.com/articles/news_and_politics/explainer/2012/10/china_currency_manipulation_how_does_it_harm_the_u_s_and_what_can_we_do.html.
- Park, Madison. “Obama: No Greater Threat to Future Than Climate Change.” *CNN*. January 21, 2015. Accessed January 23, 2015.
<http://edition.cnn.com/2015/01/21/us/climate-change-us-obama/>.
- Pauhala, Emily. “The APEC Summit Closes with a ‘Historic’ Climate Deal between the U.S. and China.” *TIME*. November 12, 2014. Accessed on March 24, 2015.
<http://time.com/3577820/apec-climate-change-barack-obama-xi-jinping-greenhouse-gas/>.
- Perkowski, Jack. “China Leads in Renewable Investment - Again!” *Forbes*, June 17, 2014. Accessed on March 5, 2015.
<http://www.forbes.com/sites/jackperkowski/2014/06/17/china-leads-in-renewable-investment-again/>.
- Pew Center on Global Climate Change. “Targets and Actions under the Copenhagen Accord.” <http://www.c2es.org/docUploads/targets-and-actions-copenhagen-accord-05-24-2010.pdf>.
- Pew Center on Global Climate Change and Asia Society. “A Roadmap for U.S.-China Cooperation on Energy and Climate Change.” January 2009.
- President Bill Clinton. “Address at National Geographic Society.” Oct. 22, 1997.
<http://www.presidency.ucsb.edu/ws/?pid=53442>.
- President George W. Bush. “President Bush Discusses Global Climate Change.” June 11, 2001. <http://georgewbush-whitehouse.archives.gov/news/releases/2001/06/20010611-2.html>.
- President Hu Jintao. Speech on Climate. September 22, 2009.

<http://www.nytimes.com/2009/09/23/world/asia/23hu.text.html>.

President Xi Jinping. Full Text of Speech by New Communist Party General Secretary Xi Jinping at the Politburo Standing Committee Members' Meeting with the Press at the Great Hall of the People in Beijing. *BBC*. November 15, 2012. Accessed on March 23, 2015. <http://www.bbc.com/news/world-asia-china-20338586>.

Purvis, Nigel and Andrew Stevenson. "U.S. Leadership in Copenhagen." *Resources for the Future*. November 2009.

Putnam, Robert D. "Diplomacy and Domestic Politics: the Logic of Two-Level Games." *International Organization* (Summer 1988). Vol. 42: 3.

Rapoza, Kenneth. "China Cuts U.S. Debt Holdings Again." *Forbes*. August 8, 2014. Accessed on February 16, 2015. <http://www.forbes.com/sites/kenrapoza/2014/08/18/china-cuts-u-s-debt-holdings-again/>.

Rehmeyer, Julie. "Game Theory Suggests Current Climate Negotiations Won't Avert Catastrophe." *Science News*. October 29, 2012. Accessed on February 21, 2015. <http://climate.yale.edu/news/game-theory-offers-lessons-collective-action-and-climate-change>.

Romm, Joe. "Global Warming Linked to More Extreme Weather and Weaker Jet Stream." *Think Progress*. January 15, 2015. Accessed on April 21, 2015. <http://thinkprogress.org/climate/2015/01/15/3612054/global-warming-extreme-weather/>.

Roy, J. Stapleton. "Opening Statement at the Senate Foreign Relations Committee Hearing on U.S.-China Relations." *Wilson Center*. June 26, 2014. Accessed on February 16, 2016, <http://www.wilsoncenter.org/article/the-future-us-china-relations>.

Royden, Amy. "U.S. Climate Change Policy under President Clinton: A Look Back." *Golden Gate University Law Review*. Vol. 32: 4. September 28, 2010.

Secretary Henry Paulson Jr. "Meeting the Challenge: A Partnership on Energy and the Environment." *Embassy of the United States to China*. April 3, 2008.

Senate Resolution 98, 105th Congress.

Senator Jon Tester, et al. Letter to Vice President Joe Biden on Solar Dispute. *U.S.*

Congress. April 9, 2014.

Schell, Orville. "China's Victimization Syndrome." *Project Syndicate*. April 22, 2005. Accessed on April 19, 2015. <http://www.project-syndicate.org/commentary/china-s-victimization-syndrome>.

Schoen, Luke. "Why Is China Taking Action on Clean Energy and Climate Change." *ChinaFAQs*. May 2013.

Shusman, Bernard. "U.S. Experts See Growing Desire to Curb Outsourcing to China." *Voice of America*. April 28, 2014. Accessed on February 16, 2015. <http://www.voanews.com/content/us-experts-see-growing-desire-to-curb-outsourcing-to-china/1903083.html>.

"Solar Investment Tax Credit." *Solar Energy Industries Association*. Accessed on March 8, 2015. <http://www.seia.org/policy/finance-tax/solar-investment-tax-credit>.

Sperling, Elliot. "Human Rights Violations in Tibet." *Human Rights Watch*. June 14, 2000. Accessed on February 16, 2015. <http://www.hrw.org/news/2000/06/12/human-rights-violations-tibet>.

Stanway, David. "China's Solar Power Capacity Rises 60 Percent to 28 GW in 2014." *Reuters*. February 16, 2015. Accessed on March 5, 2015. <http://af.reuters.com/article/commoditiesNews/idAFL4N0VQ1XS20150216>.

"Status of Ratification of the Kyoto Protocol." *United Nations Framework Convention on Climate Change*. Accessed on February 26, 2015. http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php.

Stavins, Robert. "Assessing the Outcome of the Lima Climate Talks." *Harvard Kennedy School Belfer Center for Science and International Affairs*. December 14, 2014. Accessed on April 15, 2015. <http://www.robertstavinsblog.org/2014/12/14/assessing-the-outcome-of-the-lima-climate-talks/>.

Sunstein, Cass. "The World vs. the United States and China? The Complex Climate Change Incentives of the Leading Greenhouse Gas Emitters." *UCLA Law Review*. 2008.

Sussman, Bob. "The U.S.-China Climate Deal: Not a Free Ride for the Chinese." *The Brookings Institute*. November 25, 2014. Accessed on April 19, 2015. <http://www.brookings.edu/blogs/planetpolicy/posts/2014/11/25-us-china-climate-deal-sussman>.

- Tangen, Heggelund, and Buen. "China's Climate Change Positions: At a Turning Point." *Energy and Environment*. 2011. Vol 12:2.
- Tao, Wang. "Energy and Climate Collaboration Key to U.S.-China Relations?" *The Diplomat*. August 8, 2014. Accessed on April 18, 2015.
<http://thediplomat.com/2014/08/energy-and-climate-collaboration-key-to-u-s-china-relations/>.
- Taraska, Gwynne and Jesse Vogel. "Outcomes of the Lima Climate Negotiations: Essential Steps Toward an International Climate Agreement." *American Progress*. December 18, 2014. Accessed on March 20, 2015.
<https://www.americanprogress.org/issues/green/news/2014/12/18/103534/outcomes-of-the-lima-climate-negotiations-essential-steps-toward-an-international-climate-agreement/>.
- The Climate Group. "Delivering Low Carbon Growth: A Guide to China's 12th Five Year Plan." *HSBC Climate Change Centre of Excellence*. March 2011.
- The Economist. "Dealing with Denial." November 15, 2014. Accessed on March 24, 2015. <http://www.economist.com/news/united-states/21632508-americas-concessions-are-more-real-chinas-dealing-denial>.
- The National Development and Reform Commission. "China's Policies and Actions for Addressing Climate Change." *The People's Republic of China*. 2013.
- "Trade in Goods with China." *Census.gov*. Accessed on February 16, 2015.
<https://www.census.gov/foreign-trade/balance/c5700.html>.
- Union of Concerned Scientists. "Production Tax Credit for Renewable Energy." Accessed on April 23, 2015. http://www.ucsusa.org/clean_energy/smart-energy-solutions/increase-renewables/production-tax-credit-for.html#.VTpvmvFViko.
- "U.S-China Trade Facts." *Office of the United States Trade Representative*,
<https://ustr.gov/countries-regions/china-mongolia-taiwan/peoples-republic-china>.
- U.S. Department of State. "U.S.-China Climate Change Working Group Fact Sheet." July 10, 2013.
- U.S. Department of State. "U.S.-China Ten-Year Framework for Cooperation on Energy and Environment."
- U.S. Energy Information Administration. "China." February 4, 2014.

<http://www.eia.gov/countries/analysisbriefs/China/china.pdf>.

U.S. Environmental Protection Agency. "Climate Change."

<http://www.epa.gov/climatechange/>.

U.S. Environmental Protection Agency. "Regulatory Initiatives."

<http://www.epa.gov/climatechange/EPAactivities/regulatory-initiatives.html>.

U.S. White House Office of the Press Secretary. "Remarks by President Obama and President Xi Jinping in Joint Press Conference." November 12, 2014. Accessed on February 14, 2015.

U.S. White House Office of the Press Secretary. "United States and China Agree to Work Together on Phase Down of HFCs." June 8, 2013.

U.S. White House Office of the Press Secretary. "U.S.-China Joint Announcement on Climate Change." November 11, 2014.

Vines, Stephen. "How Will China Deal with Growing Anger over Pollution?" *Al Jazeera*. August 1, 2014. Accessed on March 7, 2015.

<http://www.aljazeera.com/indepth/opinion/2014/07/china-pollution-protests-2014729105632310682.html>.

Waskow, David and Kristin Meek. "U.S. Climate Commitment Should Spur Other Countries to Act." *World Resources Institute*. April 1, 2015. Accessed April 16, 2015. <http://wri.org/blog/2015/04/us-climate-commitment-should-spur-other-countries-act>.

WEFA, Inc. "Global Warming: The High Cost of the Kyoto Protocol." 1998.

Weiss, Daniel. "Anatomy of a Senate Climate Bill Death." *Think Progress*. October 12, 2010. Accessed November 22, 2013.

<http://thinkprogress.org/climate/2010/10/12/206855/anatomy-of-a-senate-climate-bill-death/>.

West, James. "Here's Why China Cares More about Climate Change Than Congress Does." *Mother Jones*, November 13, 2014. Accessed on March 20, 2015.

<http://www.motherjones.com/environment/2014/11/china-obama-climate-deal-pollution-crisis-politics>.

Williams, Lisa. "China's Climate Policies: Actors and Drivers." *Lowy Institute for International Policy*. July 24, 2014.

- Wong, Edward. "China Announced 12.2% Increase in Military Budget." *New York Times*. March 5, 2014. Accessed on February 14, 2015. http://www.nytimes.com/2014/03/06/world/asia/china-military-budget.html?_r=0.
- Wong, Edward. "China's Climate Change Plan Raises Questions." *New York Times*. November 12, 2014. Accessed on March 20, 2015. http://www.nytimes.com/2014/11/13/world/asia/climate-change-china-xi-jinping-obama-apec.html?_r=2.
- Xu, Beina. "China's Environmental Crisis." *Council on Foreign Relations*. April 25, 2014. <http://www.cfr.org/china/chinas-environmental-crisis/p12608>.
- Xuetong, Yan. "The Rise of China and its Power Status." *Chinese Journal of International Politics*. Vol. 1, 2006, pg. 5 – 33.
- Yale Project on Climate Change and Communication. "American Opinion on Climate Change Warms Up." *Yale School of Forestry & Environmental Studies*. 2010. Accessed on April 15, 2015. <http://environment.yale.edu/climate-communication/article/american-opinion-on-climate-change-warms-up>.