

**TESTIMONY OF KEVIN KENNEDY, Ph.D.**

**DEPUTY DIRECTOR, U.S. CLIMATE INITIATIVE, WORLD RESOURCES INSTITUTE**

**HEARING BEFORE THE U.S. HOUSE ENERGY AND COMMERCE COMMITTEE**

**SUBCOMMITTEE ON ENERGY:**

**“THE SHIFTING GEOPOLITICS OF OIL AND GAS”**

**JUNE 26, 2018**

## Summary

The energy landscape in the United States today includes more than developments in the oil and gas industry. Many states, cities and businesses across the country see great economic potential in the possibility of a true clean energy transformation. A few examples include:

- Texas has been a leader in the move toward renewables, starting with the 2005 approval (by the legislature and then-Governor Rick Perry) of a \$7 billion investment in Competitive Renewable Energy Zones that has helped turn Texas into the national leader in wind energy.
- The economic potential of wind energy has lead Iowa, Kansas, Oklahoma and South Dakota to have more than 30 percent of their electricity generated from renewable resources.
- Georgetown, Texas, Mayor Dale Ross has lead his city to 100 percent renewables, noting that “[o]ne of the most important benefits of being 100 percent renewable is the potential for economic development. Many companies, especially those in the high-tech sector, are looking to increase green sources of power for both office and manufacturing facilities.”
- Automakers are betting on the emerging electric vehicle (EV) market, with Ford planning double its investment in the next five years and General Motors working towards an all-electric, zero tail-pipe emissions future with 20 new EV models to be available globally by the early 2020s.

While states, cites and businesses are stepping up on clean energy, Congress and the administration could and should be providing meaningful support for these efforts through increased clean energy research and development, incentives for deployment of clean energy technologies, investment in infrastructure for clean energy deployment and support for a carbon tax. Doing so would help companies and local communities across the country take advantage of the economic development opportunities that a clean energy transformation offers.

## **Introduction**

My name is Kevin Kennedy, and I am the deputy director of the U.S. Climate Initiative at the World Resources Institute (WRI). The World Resources Institute is a non-profit, non-partisan environmental think tank that goes beyond research to provide practical solutions to the world's most urgent environment and development challenges. We work in partnership with scientists, businesses, governments, and non-governmental organizations across the globe to provide information, tools and analysis to address problems like climate change, the degradation of ecosystems and their capacity to provide for human well-being.

## **Stepping up on clean energy and climate action**

The United States has seen significant progress on the development and deployment of clean energy and improving the efficiency of our energy use. Much of the progress has resulted from the leadership of states, cities and businesses, often with the support and cooperation of the federal government, in developing renewable resources, setting and enforcing building and efficiency standards and more.

When President Trump announced his intent to withdraw from the international Paris Agreement last June, some feared that this progress might slow down. The Paris announcement, though, catalyzed a groundswell of continued and expanded commitment to climate action from states, cities, businesses, universities and individuals, all across the United States. Within days, over 1,200 leaders joined together to say, "We Are Still In" and committed to continue to support climate action to meet the Paris Agreement, and as of this weekend the declaration has been supported by over 2,800 leaders.<sup>1</sup>

WRI, along with the Rocky Mountain Institute and the University of Maryland's Center for Global Sustainability, has been leading analysis for the America's Pledge initiative. This initiative, launched in

---

<sup>1</sup> For more information on We Are Still In, see <https://www.wearestillin.com/>. The press release from the initial announcement in June 2017 can be found at <https://www.wearestillin.com/news/leaders-us-economy-say-we-are-still-paris-climate-agreement>.

July 2017 by former New York Mayor Michael Bloomberg and California Governor Edmund G. (Jerry) Brown, aims to document the full range of actions being taken across American society, what more can be done, and to assess what these actions mean for our country's greenhouse gas emissions. The America's Pledge Phase 1 report, released last November, shows that leaders representing 159 million Americans and more than half of the U.S. economy have committed to act to reduce greenhouse gas emissions.<sup>2</sup> These leaders recognize that acting to support clean energy and address climate change can go hand in hand with economic growth and job creation.

The 271 cities and counties that said they remain committed, or are "still in," include Chicago, Dallas County and Houston, which is the single largest municipal buyer of green power in the country.<sup>3</sup> Governors from 16 states and Puerto Rico, including Maryland, Colorado and North Carolina, have also seized this issue as a priority and declared their commitment. Furthermore, it is likely that states accounting for 35% of the U.S. economy will have a price on carbon emissions by the end of 2018.<sup>4</sup>

In addition, 345 institutions of higher education, from Kalamazoo College to the University of South Carolina, have also joined in.

Businesses are harnessing this momentum as well. Seventy-five companies with headquarters in the United States are among the 422 companies globally that have made commitments to establish a science-based greenhouse gas emission target under the Science Based Targets initiative.<sup>5</sup> Their targets are science based if they are in line with the level of decarbonization required to keep global temperature increase below 2 degrees Celsius. Companies taking on these targets, like Owens-Illinois, a Fortune 500 company headquartered in Ohio and Applied Optoelectronics, a Texas-based fiber-optics

---

<sup>2</sup> <https://www.bbhub.io/dotorg/sites/28/2017/11/AmericasPledgePhaseOneReportWeb.pdf>

<sup>3</sup> <http://www.houstontx.gov/mayor/press/city-expanding-renewable-energy.html>

<sup>4</sup> These states are California and the nine states currently in the Regional Greenhouse Gas Initiative (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island and Vermont), along with New Jersey and Virginia, which are taking steps to join RGGI.

<sup>5</sup> <http://sciencebasedtargets.org/>

manufacturer, are doing so because they are looking to be leaders in the innovation that will build the low-carbon economy of the future. Companies ranging from McDonald's to Adobe to NRG Energy have not only committed to action, but have already set an official science-based target, putting them on track to becoming thriving members of the low-carbon economy.

Moreover, businesses have shown that they are willing to act with their wallets in an emphatic shift to clean energy – because it makes sense for them financially. In 2017 alone, large corporate buyers like Google, Kimberly-Clark and General Motors announced contracts for nearly 2.9 gigawatts of renewable energy, marking an 80% increase over similar purchases in 2016.<sup>6</sup> This momentum has continued in 2018, with almost 2.5 gigawatts of contracts already announced this year.

**In 2017 alone, large corporate buyers like Google, Kimberly-Clark and General Motors announced contracts for nearly 2.9 gigawatts of renewable energy, marking an 80% increase over similar purchases in 2016. This momentum has continued in 2018, with almost 2.5 gigawatts of announced contracts already this year.**

### **Shifting to clean energy across the economy**

The Paris Agreement withdrawal announcement had a galvanizing effect, but the reality is that market forces have been moving in such a direction that many of these states, cities and businesses had already realized that pivoting towards efficient use of clean energy resources could work to their benefit. We've been seeing this shift across sectors of the economy. In the following paragraphs, I will provide a few examples of the continuing progress in decarbonizing the economy, from electric power, energy efficiency and the auto market.

---

<sup>6</sup> <http://businessrenewables.org/corporate-transactions/>

## Renewables

Renewable energy offers a tapestry of examples from coast to coast, with some states and cities using policy to guide their actions, and others simply tapping the economic potential of developing renewable resources as technology costs fall. It's often a blend of the two, and in any case, states have typically benefitted from job creation and economic development, as well as happier ratepayers.

In many places around the country, this has been happening in bipartisan fashion. In 2016, Illinois found bipartisan common ground when they updated their Renewable Portfolio Standard (RPS), which mandates a certain percentage of energy be generated by different types of clean energy. After a comprehensive stakeholder engagement process, the bill passed the legislature with votes from both parties, and was signed into law by a Republican governor.<sup>7</sup> Now, Illinois ranks 6th in the nation in terms of total wind energy generation, with plenty of additional growth slated to occur thanks to that update of the RPS that was included in the 2016 Future Energy Jobs Act signed by Governor Bruce Rauner. The act aims for 25% renewable energy by 2025, with a carve-out requiring a minimum of 75% of this be met by wind and solar. It also sets aside \$750 million for job training programs in the clean energy economy. All told it is expected to spur tens of thousands of jobs connected to improvements in energy efficiency and renewable energy in Illinois—jobs like solar installers and efficiency auditors.<sup>8</sup> It's estimated that this package will spur an additional \$12 to \$15 billion in new private investment *and* lower ratepayers' bills, all while reducing CO<sub>2</sub> emissions by more than 33 million metric tons annually by 2030.<sup>9</sup>

In Michigan, utilities have stepped up, recently announcing a goal of at least 50% clean energy in Michigan by 2030 (half through renewables and half through energy efficiency).<sup>10</sup> Meanwhile, the

---

<sup>7</sup> <https://www.vox.com/energy-and-environment/2016/12/8/13852856/illinois-energy-bill>

<sup>8</sup> <https://citizensutilityboard.org/future-energy-jobs-act/>

<sup>9</sup> <http://blogs.edf.org/energyexchange/2016/12/07/illinois-future-energy-jobs-bill-shows-states-are-taking-the-lead-to-build-the-clean-energy-economy/>

<sup>10</sup> <https://www.detroitnews.com/story/news/michigan/2018/05/18/michigan-dte-consumers-renewable-goal/35058065/>

Renewable Energy Standard in Michigan drove an estimated \$3 billion of in-state investments through 2014—a similar story to the Renewable Portfolio Standard in Ohio, where Governor Kasich vetoed a bill to weaken it. Keeping the Renewable Portfolio Standard intact was an easy choice for Kasich, as all he had to do is look at the positive economic and jobs impacts. The bill would have “amount[ed] to self-inflicted damage to both our state’s near- and long-term economic competitiveness,” he concluded.<sup>11</sup>

It’s not just the Governor that is shifting the way energy is procured in Ohio. AEP Ohio, one of state’s traditionally coal-heavy utility companies, has committed to add more than 900 megawatts of wind and solar as part of their strategy for reducing their carbon footprint.<sup>12</sup> In fact, last October AEP Ohio put out an RFP for 400 megawatts of solar in-state, with an expressed preference for projects in Appalachian Ohio that would create permanent regional jobs and include a commitment to hire veterans.<sup>13</sup>

**AEP Ohio, one of state’s traditionally coal-heavy utility companies, has committed to add more than 900 megawatts of wind and solar as part of their strategy for reducing their carbon footprint. In fact, last October AEP Ohio put out an RFP for 400 megawatts of solar in-state, with an expressed preference for projects in Appalachian Ohio that would create permanent regional jobs and include a commitment to hire veterans.**

One state that has successfully brought together a range of approaches to drive change in the power sector is New Jersey. Early this year, Governor Phil Murphy signed a legislature-approved package to boost the state’s Renewable Energy Standard to 50% by 2030, increase the solar requirement and double the net metering cap, and announced the largest offshore wind pledge in the U.S. This is already paying off, as a Danish company has already opened an office in Atlantic City to oversee their three

---

<sup>11</sup> <https://www.vox.com/energy-and-environment/2016/12/27/14094192/ohio-john-kasich-clean-energy-standards-veto>

<sup>12</sup> <https://www.aepohio.com/info/news/viewRelease.aspx?releaseID=2583>

<sup>13</sup> <https://www.aepohio.com/b2b/rfp/2017SolarEnergy/>

gigawatts offshore wind project, which is expected create 1,000 jobs annually for the construction period, with 100 jobs being permanent.<sup>14</sup> Last month, the state set a strong battery storage goal of two gigawatts by 2030, one of the most aggressive in the country, which exemplifies a trend we're seeing around the nation.<sup>15</sup>

Even the technologies that were once thought of as “fringe,” such as offshore wind and battery storage, are riding the wave of a market shift towards renewables. For offshore wind, a perfect storm of technological, policy and market factors have caused the cost of the technology to plummet, and it is expected to further drop 17% by 2020 (from a 2018 baseline), and 44% by 2025.<sup>16</sup> Prices for solar power are also dropping. Earlier this month, a solar contract in Nevada may have set a new cost record for solar at 2.3 cents per KWh.<sup>17</sup> Meanwhile, battery prices have dropped 80% between 2010 and 2017, and are projected to keep falling.<sup>18</sup>

We're seeing a sweeping trend of cheaper renewables providing opportunities for states that are not looking to act on climate change to benefit from a cleaner power source simply because it makes economic sense.

---

<sup>14</sup> [http://www.pressofatlanticcity.com/news/breaking/orsted-celebrates-a-c-office-gets-first-federal-permit-for/article\\_b0b6c8d3-3039-5543-9a8b-60f55463b1bc.html](http://www.pressofatlanticcity.com/news/breaking/orsted-celebrates-a-c-office-gets-first-federal-permit-for/article_b0b6c8d3-3039-5543-9a8b-60f55463b1bc.html)

<sup>15</sup> <https://www.utilitydive.com/news/new-jersey-sets-aggressive-target-2-gw-by-2030-for-energy-storage/524422/>

<sup>16</sup> <https://www.bnef.com/core/insights/18819/>

<sup>17</sup> <https://www.utilitydive.com/news/nv-energy-23-cent-solar-contract-could-set-new-price-record/525610/>

<sup>18</sup> <https://www.bnef.com/core/insights/18819>



Texas has become a leader in wind energy. State leaders recognized the abundance of wind energy in their state just waiting to be harnessed and they saw the economic benefits that could result. To take advantage of this resource, they addressed barriers that could limit its development – particularly finding ways to ensure that wind energy generated in rural Texas could be delivered to its major cities. Texas is now far and away the number one wind producer in the country and boasts about 24,000 jobs in the wind energy sector.<sup>19</sup> Texas built the foundation for its wind energy boom with the 2005 approval (by the legislature and then-Governor Rick Perry) of the \$7 billion Competitive Renewable Energy Zone initiative, a 3,600-mile network of transmission lines.<sup>20</sup>

The economic benefits of this policy have included over \$50 million in lease payments to land-owners (many of whom are farmers and ranchers whose bottom-line is vastly improved thanks to these payments), an increase in the tax base for rural communities, and significant reductions in water

**Texas is now far and away the number one wind producer in the country and boasts about 24,000 jobs in the wind energy sector....**

**The economic benefits ... have included over \$50 million in lease payments to land-owners (many of whom are farmers and ranchers whose bottom-line is vastly improved thanks to these payments), an increase in the tax base for rural communities, and significant reductions in water consumption needed for the power sector in a water-stressed state....**

**[S]tates from Texas to the Dakotas have recognized the economic opportunity of developing their renewable resources. In fact, in 2017 Iowa, Kansas, Oklahoma, and South Dakota all had more than 30 percent of their electricity generated from renewable resources, with North Dakota not far behind at 27 percent.**

<sup>19</sup> <https://www.awea.org/MediaCenter/pressrelease.aspx?ItemNumber=8736>

<sup>20</sup> [https://e360.yale.edu/features/how\\_conservative\\_texas\\_took\\_the\\_lead\\_in\\_us\\_wind\\_power](https://e360.yale.edu/features/how_conservative_texas_took_the_lead_in_us_wind_power)

consumption needed for the power sector in a water-stressed state.<sup>21</sup>

The state's generation capacity not only provides cheaper clean electricity for the state's retail market and jobs in Texas' wind-rich rural west, but also supplies growing demand from cities and businesses seeking to source their electricity from clean sources. In fact, Georgetown, Texas, a city of 50,000, is now 100% renewable.<sup>22</sup> Georgetown Mayor Dale Ross noted that the city's move to renewables "is chiefly a business decision based on cost and price stability."

**"One of the most important benefits of being 100 percent renewable is the potential for economic development. Many companies, especially those in the high-tech sector, are looking to increase green sources of power for both office and manufacturing facilities."**  
**Georgetown, Texas, Mayor Dale Ross**

He also noted that "[o]ne of the most important benefits of being 100 percent renewable is the potential for economic development. Many companies, especially those in the high-tech sector, are looking to increase green sources of power for both office and manufacturing facilities."<sup>23</sup>

Overall, the great increase in renewable generation has been led from the middle of the country, as states from Texas to the Dakotas have recognized the economic opportunity of developing their renewable resources. In fact, in 2017 Iowa, Kansas, Oklahoma and South Dakota all had more than 30 percent of their electricity generated from renewable resources, with North Dakota not far behind at 27 percent.<sup>24</sup>

---

<sup>21</sup> <http://blogs.edf.org/energyexchange/files/2017/02/EDF-Texas-Report-to-Legislators-2017-FINAL.pdf>

<sup>22</sup> <https://www.statesman.com/news/local/georgetown-now-100-percent-powered-renewable-energy/Mjd2fjonnWU1PInZiVKEcO/>

<sup>23</sup> <https://www.mystatesman.com/news/opinion/ross-other-cities-should-follow-georgetown-lead-solar-energy/kvO7iGg5uqMjkk5HPM3Zul/>

<sup>24</sup> Based on data from the EIA electricity data browser, available at <https://www.eia.gov/electricity/data/browser/>.

## Efficiency

Procuring clean energy isn't the only way that states, cities, and businesses are reducing their greenhouse gas emissions. They've made strides in improving their energy efficiency as well.

A handful of states have been leaders on this front, with 26 having established Energy Efficiency Resource Standards (EERS), which require utilities to reduce electricity or natural gas sales by implementing customer energy efficiency measures.<sup>25</sup> According to the American Council for an Energy-Efficient Economy, these states achieved 25.4 terawatt hours of net incremental savings in 2016 (0.68 percent of 2016 retail sales, enough to power 2.4 million American homes for one year, on average).<sup>26</sup> Arkansas, the only state in the Southeast with an EERS, has, through this and other programs, increased energy savings by a factor of five over the last decade, saving enough energy to power every home in Little Rock for three months.<sup>27</sup>

Cities and companies have stepped up to boost their energy efficiency, with Texas again playing a leading role. EPA's ENERGY STAR program certifies buildings that are more efficient than 75 percent of similar buildings elsewhere; it also ranks cities based on the number of ENERGY STAR buildings in each city. Dallas, Houston and Austin all rank within the top 20 ENERGY STAR cities, with Dallas ranking #3.<sup>28</sup> Looking to smaller cities, Midland ranks #1, Odessa ranks #2 and San Angelo ranks #5 on the ENERGY STAR Top Small

**Cities and companies have stepped up to boost their energy efficiency, with Texas again playing a leading role....**

**Dallas, Houston and Austin all rank within the top 20 ENERGY STAR cities, with Dallas ranking #3. Looking to smaller cities, Midland ranks #1, Odessa ranks #2 and San Angelo ranks #5 on the ENERGY STAR Top Small Cities List.**

<sup>25</sup> <https://aceee.org/topics/energy-efficiency-resource-standard-eers>

<sup>26</sup> <http://aceee.org/sites/default/files/publications/researchreports/u1710.pdf>

<sup>27</sup> <https://arkansasadvancedenergy.com/index.cfm?objectid=37924D00-A460-11E7-9A910050569A5318>

<sup>28</sup> <https://www.energystar.gov/buildings/topcities>

Cities List. By investing in energy efficiency, the city of Arlington, TX is expecting to save more than 2.5 million kWh annually while saving \$14 million in energy costs over the next 15 years.<sup>29</sup>

In the corporate space, close to 200 U.S. manufacturers and other industries have committed to decreasing their energy intensity by 25 percent over 10 years by adopting an array of strategies and other innovative approaches. In fact, they have already reported 600 trillion Btu of cumulative energy savings and \$3.1 billion in reduced energy costs.<sup>30</sup> Much of this success is thanks to partnerships with federal programs, such as the Department of Energy's Better Buildings, Better Plants Program.

### Electric Vehicles

Many of the same states, cities and businesses that are stepping up on renewables and energy efficiency are also finding that investment in electric vehicles (EVs) fits in nicely with their overall shift towards cleaner technologies. Even with low gas prices, automakers know that proactive investment in EVs can pay off.

In January, Ford announced its plan to nearly double its investment in electric vehicles in the next five years.<sup>31</sup> Meanwhile, General Motors is now working towards an all-electric, zero tail-pipe emissions future with plans for 20 new EV models to be available globally by the early 2020s.<sup>32</sup> In Europe, Volkswagen announced plans to roll out *eighty* new EV models, marking a seismic expansion of zero-emissions mobility.<sup>33</sup> In fact, Bloomberg New Energy Finance (BNEF) projects that by 2040, 55 percent of

---

<sup>29</sup> <https://www.prnewswire.com/news-releases/city-of-arlington-to-save-14mm-through-landmark-energy-program-featuring-led-streetlights-300049261.html>

<sup>30</sup> "Successful Strategies: Driving Innovation & Results," U.S. Department of Energy, 2017, accessed June 22, 2018, [https://betterbuildingssolutioncenter.energy.gov/sites/default/files/attachments/Better\\_Buildings\\_Progress\\_Report\\_2017.pdf](https://betterbuildingssolutioncenter.energy.gov/sites/default/files/attachments/Better_Buildings_Progress_Report_2017.pdf).

<sup>31</sup> <https://www.wired.com/story/ford-electric-cars-plan-mach-1-suv/>

<sup>32</sup> <http://www.gm.com/mol/m-2018-mar-0307-barra-speech.html>

<sup>33</sup> [https://www.volkswagenag.com/en/news/2018/03/VolkswagenGroup\\_expand\\_production.html](https://www.volkswagenag.com/en/news/2018/03/VolkswagenGroup_expand_production.html)

new global car sales will be electric.<sup>34</sup> What may be surprising, however, is that BNEF also projects that by 2030, 84 percent of new global *bus* purchases will be electric.<sup>35</sup>

States and cities are paying attention and grabbing hold of this momentum, and in some cases driving it even further. 10 states, representing over one third of the nation's car market, have committed to getting more than three million zero-emission vehicles on the road by 2025.<sup>36</sup> And 30 U.S. cities have committed

\$10 billion to begin implementing a plan to purchase 114,000 EVs for their municipal fleets<sup>37</sup>—equal to 60 percent of the EVs sold in 2017.<sup>38</sup>

### Carbon Pricing

These examples help demonstrate the extent to which actions that drive economic growth and promote the protection of our environment can go hand in hand. Now, I'll turn for a minute to focus on the states and businesses that have put a price on carbon pollution and in turn delivered significant economic benefits to their region or their stakeholders.

The Regional Greenhouse Gas Initiative, or RGGI, is a carbon pricing system serving nine states from Maryland to Maine led by five Republican governors and four Democratic governors. By putting a price

**In January, Ford announced its plan to nearly double its investment in electric vehicles in the next five years. Meanwhile, General Motors is now working towards an all-electric, zero tail-pipe emissions future with 20 new EV models to be available globally by the early 2020s.... BNEF projects that by 2040, 55 percent of new global car sales will be electric.**

---

<sup>34</sup> <https://www.bnef.com/core/themes/119>

<sup>35</sup> <https://cleantechnica.com/2018/05/23/electric-buses-will-84-of-new-bus-sales-in-2030-bnef-forecast/>

<sup>36</sup> <https://ww2.arb.ca.gov/news/california-applauds-multi-state-coalitions-releases-new-zero-emission-vehicle-action-plan>

<sup>37</sup> Ryan Kilpatrick, "Cities Across the U.S. Will Splurge on Electric Vehicles After Automakers Said There Wasn't Enough Demand," *Fortune*, March 15, 2017, accessed September 29, 2017, <http://fortune.com/2017/03/15/electric-vehicles-cities-demand/>.

<sup>38</sup> David Gohlke and Yan Zhou, "Impacts of Electrification of Light-Duty Vehicles in the United States, 2010 – 2017," Argonne National Lab, Energy Systems Division, January 2018, <http://www.ipd.anl.gov/anlpubs/2018/01/141595.pdf>.

on carbon emissions from their electric power plants, RGGI has helped drive a move towards lower carbon and zero carbon resources in the region. RGGI has also generated \$4.3 billion of net positive economic benefit since the program's inception in 2009<sup>39, 40, 41</sup>, \$1.4 billion of which came between 2015 and 2017. In fact, states in RGGI have out-performed the rest of the country both environmentally and economically. Over the period from 2009 to 2014, the power sector carbon pollution covered by RGGI decreased 35 percent in RGGI states but only 12 percent elsewhere. At the same time, RGGI state economies grew 21.2 percent, compared to 18.2 percent elsewhere.<sup>42</sup> Now, newly-elected governors in New Jersey and Virginia are pushing to join in and reap the benefits.

**RGGI has helped drive a move towards lower carbon and zero carbon resources in the northeast. RGGI has also generated \$4.3 billion of net positive economic benefit since the program's inception in 2009, \$1.4 billion of which came between 2015 and 2017.... Over the period from 2009 to 2014, the power sector carbon pollution covered by RGGI decreased 35 percent in RGGI states but only 12 percent elsewhere. At the same time, RGGI state economies 21.2 percent, compared to 18.2 percent elsewhere.**

California has put a carbon price on 85 percent of its carbon pollution, and directed significant portions of the resulting revenue into disadvantaged communities within the state. In 2017, two studies looked at the economic impacts of the program in the San Joaquin Valley and the Inland Empire, two of the most economically and environmentally challenged regions in California. These studies found the program was a net economic benefit in both regions: the San Joaquin Valley saw net direct economic

<sup>39</sup> [http://www.analysisgroup.com/uploadedfiles/content/insights/publishing/analysis\\_group\\_rggi\\_report\\_april\\_2018.pdf](http://www.analysisgroup.com/uploadedfiles/content/insights/publishing/analysis_group_rggi_report_april_2018.pdf)

<sup>40</sup> [https://www.dec.ny.gov/docs/administration\\_pdf/ag15rggi.pdf](https://www.dec.ny.gov/docs/administration_pdf/ag15rggi.pdf)

<sup>41</sup> [http://www.analysisgroup.com/uploadedfiles/content/insights/publishing/economic\\_impact\\_rggi\\_report.pdf](http://www.analysisgroup.com/uploadedfiles/content/insights/publishing/economic_impact_rggi_report.pdf)

<sup>42</sup> <https://www.ceres.org/sites/default/files/Fact%20Sheets%20or%20misc%20files/RGGI%20Fact%20Sheet.pdf>

benefits of \$119 million and 700 jobs were created directly as a result of the program<sup>43</sup>; and in the Inland Empire, the program had net economic impacts of \$25.7 million, \$900,000 in tax revenue and net employment growth of 154 jobs.<sup>44</sup>

Companies are also using internal carbon prices as a tool for integrating climate change considerations into their business decisions.<sup>45</sup> According to CDP<sup>46</sup>, as of last fall, 96 U.S. businesses used internal carbon prices, while 142 U.S. businesses planned to implement internal carbon pricing by 2019.<sup>47</sup> A few of those companies with internal carbon prices include Exxon, Shell and BP.<sup>48</sup>

### **Congress and the administration should support these efforts**

States, cities and businesses across this country are pushing forward, some loudly and some quietly. This shifting tide towards cleaner sources of energy is happening—from Maine to Kansas to Hawaii—and it will not be abated. This Congress and administration should be taking measures to bolster the changes that are already occurring on the ground. If we're all in this together, we'll all be better off.

Before closing, I'd like to point to four areas that could use the strong support of congress:

1. **Increased clean energy research and development:** More robust investment in research, development and deployment of clean energy technologies could yield significant economic and

---

<sup>43</sup> <https://www.law.berkeley.edu/research/clee/research/climate/economic-impacts-of-californias-major-climate-programs-on-the-san-joaquin-valley/>

<sup>44</sup> <https://www.dailybulletin.com/2017/07/12/cap-and-trade-system-an-economic-net-positive-for-inland-empire-guest-commentary/>

<sup>45</sup> <https://www.wri.org/blog/2015/11/4-corporate-carbon-pricing-do%E2%80%99s-and-don%E2%80%99ts>

<sup>46</sup> CDP runs a global disclosure system that enables companies, cities, states and regions to measure and manage their environmental impacts, and has the most comprehensive collection of self-reported environmental data in the world.

<sup>47</sup> "Putting a price on carbon: Integrating climate risk into business planning," CDP, October 2017, accessed October 16, 2017, <https://b8f65cb373b1b7b15feb-c70d8ead6ced550b4d987d7c03fcd1d.ssl.cf3.rackcdn.com/cms/reports/documents/000/002/738/original/Putting-a-price-on-carbon-CDP-Report-2017.pdf?1507739326>.

<sup>48</sup> <http://www.climatechangenews.com/2013/12/06/exxon-shell-and-bp-operating-internal-carbon-prices/>

environmental benefits. Accelerating the development of even cheaper technologies and modifications to current technologies is crucial as we approach the second quarter of this century.

2. **Incentives for deployment:** Clear and strong incentives for emerging technologies like renewables, electric vehicles and battery storage can ensure that developers don't take their foot off the pedal and continue to facilitate this shift across the country.
3. **Infrastructure for clean energy deployment:** An infrastructure overhaul is sorely needed in this country and, according to Gallup polling, it was far and away President Trump's most popular campaign promise.<sup>49</sup> Texas has seen the dividends that can come from investment in clean energy infrastructure, like transmission lines. Additional investments in infrastructure for electric vehicle charging, smart grids, bus rapid transit and other clean energy opportunities can pay dividends. Let's take this opportunity to move our national infrastructure into the 21<sup>st</sup> century.
4. **Carbon tax:** James Baker III, George P. Schultz, Janet Yellin, former Senate leader Trent Lott, former Senate leader John Breaux, Larry Summers—these are just a few of the political and economic luminaries who have come out in support of a carbon tax. Companies including ExxonMobil and Shell are also in favor.<sup>50</sup> These leading voices know that our energy mix is shifting—that our energy mix *must* shift—to avoid catastrophic climate change. They also know that a carbon price is often the cheapest and most efficient way to reduce emissions.

---

<sup>49</sup> <https://news.gallup.com/poll/202691/infrastructure-spending-deemed-important-trump-promise.aspx>

<sup>50</sup> <https://www.clcouncil.org/>



## **American leadership for the 21<sup>st</sup> century**

In the United States, we rightfully pride ourselves on not backing down from any challenge because it's too hard. We have the opportunity now to take on the challenge of addressing climate change by making America a leader in the global clean energy revolution that is starting to unfold. Throughout the country, states, cities and businesses are seeing the economic opportunities presented by tapping our clean energy resources and finding ways to use them efficiently. I encourage this Congress and the current Administration to step up with Americans from across the country to embrace the challenge – and the opportunity – of being a leader on clean energy.