

## CHAPTER 6: INFRASTRUCTURE & ENERGY

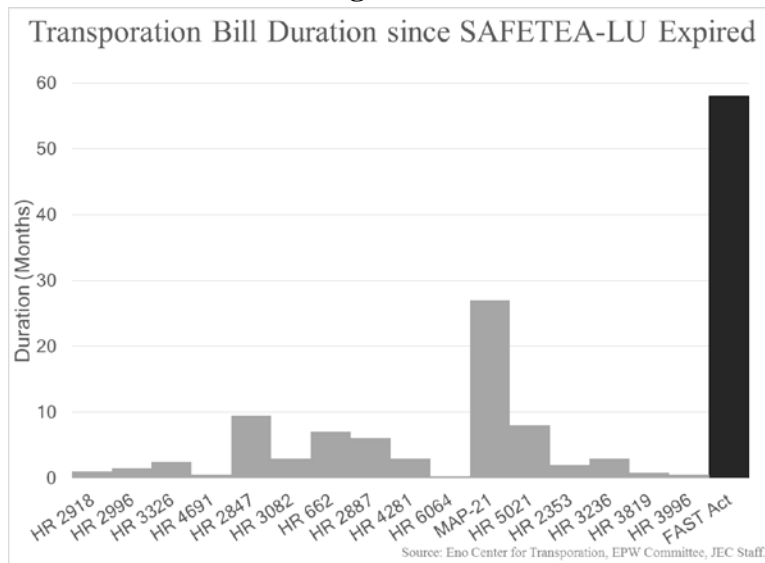
In the *Report*, the Administration discusses the economic benefits of investing in U.S. infrastructure. It proposes a series of new clean technology programs and expanded public transit. The *Report* minimizes the role of the private sector, despite the encouraging prospects for public-private partnerships. The Administration proposes to pay for its clean energy agenda with a deemed repatriation tax on multinational corporations and a new tax of \$10.25 per barrel on crude oil and imported petroleum products. An analysis prepared by the Tax Foundation found that the oil tax would reduce GDP by \$48 billion and cost 137,000 full-time jobs.

The *Report* provides diminutive discussion of the energy sector or the Administration's aggressive regulation of American energy production. Absent from the *Report* is any discussion of the economic costs of the Clean Power Plan or the Paris Agreement on greenhouse gases. NERA Economic Consulting has estimated that the Clean Power Plan will cost between \$220 billion and \$292 billion. The *Report* also misses a chance to substantively highlight the revolutionary innovation in the energy sector related to hydraulic fracturing and horizontal drilling in an entire Chapter 5 dedicated to innovation.

### INFRASTRUCTURE

In the *Report*, the Administration rightly notes that America needs an efficient transportation system to remain competitive globally. In recent years, the lack of a long-term highway bill has undermined economic growth and stymied private sector job creation by relying on short-term extensions that failed to give the private sector the certainty it needed to make investments and create jobs.

**Figure 6-1**



The situation changed significantly in 2015 with the passage of a comprehensive, long-term bill to improve America’s surface transportation infrastructure (see Figure 6-1).<sup>1</sup> The *Fixing America’s Surface Transportation (FAST) Act* provides long-term certainty for improving our roads, bridges, transit systems, and rail transportation network. The FAST Act is set to have an immediate impact to fuel economic growth, enhance global competitiveness, and empower the private sector to create new quality jobs.

Notwithstanding Congress’s achievement, the challenge of how to fund infrastructure improvements remains a central focus for policymakers. CBO estimates that infrastructure outlays will continue to outpace revenues from motor fuel taxes stretching into the future.<sup>2</sup> Notably, the FAST Act provided sources of funding to offset the Highway Trust Fund shortfalls without raising taxes.

#### *The Report Favors New Taxes to Fund Infrastructure*

In contrast, the President’s Fiscal Year 2017 Budget proposes to divert funds from international tax reform to fund infrastructure. Lawmakers from both sides of the aisle have expressed support for the concept of an international tax reform that would include a one-time tax on the overseas profits of U.S. businesses. The purpose would be to transition to a more competitive tax system in which businesses could return profits earned overseas to the United States without high tax penalties. This one-time transition tax is known as “deemed” repatriation because it would impose a tax as if the earnings had been repatriated, but in reality the funds could either be brought back or left overseas.<sup>3</sup>

As noted in Chapter 3 of this *Response*, U.S. companies are currently at a competitive disadvantage with businesses based in countries with more favorable tax systems. While the vast majority of OECD competitors have territorial regimes in which their businesses can bring overseas profits back to their home countries with little or no tax, the United States has a worldwide tax system that imposes the full corporate tax rate (the highest in the developed world) when overseas profits are repatriated to the United States. This creates a “lock-out” effect whereby businesses are incentivized to leave profits overseas in order to avoid high domestic taxes.

Under the President’s transportation framework, the revenues from deemed repatriation would be solely used to finance highway trust fund spending, rather than to lower other tax rates or otherwise transition to a more competitive tax system.<sup>4</sup>

In addition, the rate of tax the Administration proposed for deemed repatriation is 14 percent. This is much higher than the rates in other tax reform plans, such as the one proposed by then-Ways and Means Chairman Camp in the last Congress.<sup>5</sup> This 14 percent tax could be very painful for U.S. companies, particularly since not all overseas earnings are liquid. Some may already be invested in brick and mortar. In addition, U.S. financial institutions may need to retain foreign earnings overseas due to the capital requirements of the host country.

Moreover, Federal highway spending has traditionally been financed by a “user pays” system in which those who use the roads generally pay for road construction and maintenance.<sup>6</sup> Imposing a high tax on U.S. businesses with international operations that bears no relationship to their use of roads and does nothing to improve our international competitiveness sets a very dangerous precedent.

In addition, the *Report* endorses the President’s proposed \$10.25-per-barrel oil tax (discussed further below) that would be used not to improve our nation’s roads, but for mass transit, high-speed rail, and other so-called “Clean Transportation” options that already account for an increasing portion of the revenues that fund the Highway Trust Fund and do not directly benefit many of those paying these taxes. The *Report* also praises the President’s Build America Bonds program from the 2009 stimulus bill, which the Government Accountability Office chided for both a lack of efficiency and transparency.<sup>7</sup>

### *Efficiency and the Private Sector*

The President’s preference for tax and spend policies is no longer tenable. This country can and must live within its means. Doing so will require us to make more efficient use of the resources available. A study conducted by the Indiana Department of Transportation found that it could replace a bridge in Indiana at a cost 10-25 percent lower using local funds rather than Federal funds, due to costly Federal regulations.<sup>8</sup> Such Federal regulatory “strings” include Davis-Bacon wage controls, *National Environmental Protection Act* requirements that open the door for huge litigation costs, set-aside contracting requirements, and “Buy American” mandates. Using local

funds also allows a state to avoid a diversion of funds into non-motorized federally-mandated programs, such as so-called enhancement projects, nature trails, parking lots, and ferry boats.

Living within the nation's means will also require finding new resources from non-traditional venues. For instance, rather than pursuing traditional government-run spending policies, we need to pursue pro-growth infrastructure policies that better leverage the private sector. The *Report* acknowledges that public-private partnerships—or “P3s”—get the private sector off the sidelines and put new resources to work to meet our growing transportation needs. P3s allow the private sector to assume more responsibility in one or more stages of infrastructure development: including planning, financing, design, construction, operation, and maintenance. Some P3s involve the leasing of existing infrastructure from the public sector to the private sector, while other projects entail the financing and construction of new infrastructure.<sup>9</sup> Evidence suggests that significant private capital sits available for investment today. In 2008, the U.S. Department of Transportation estimated that \$400 billion in private capital was ready to pour in from the sidelines to finance infrastructure projects.<sup>10</sup>

P3s offer advantages beyond providing new money. Studies conducted by the International Monetary Fund, among others, have concluded that the private sector can build infrastructure cheaper than the public sector.<sup>11</sup> P3s can also effectively accelerate projects and thereby allow states and localities to reap the benefits of new or improved infrastructure much earlier. Rather than wait ten years for sufficient funds, states can go ahead and build that connector, or widen that vital artery, to encourage economic development and growth today.

Another major advantage of P3s is risk allocation. In addition to the financial risks, the private sector often assumes most or all of the project risk. If a design flaw increases the costs of construction, or if demand falls unexpectedly, P3s can shift the risk from the taxpayer to the private partner. In this way, P3s can serve as an insurance policy for the public partner. Often the private partner can better manage these risks and does so at a lower cost.

Finally, P3s represent genuine user financing. The motorists who use the road pay directly for what they use. Of course, P3s won't solve all of our nation's infrastructure problems. But as we look for new and innovative ways to pay for highways, P3s can play an important role.

**Box 6-1. Indiana Toll Road**

One major P3 success worth highlighting occurred in the state of Indiana. After his election in 2004, then-Governor Mitch Daniels tasked his cabinet with finding a way to fund the hundreds of roads and bridges projects that had been promised for years that did not involve raising taxes or taking on more debt. He began exploring the feasibility of leasing the Indiana Toll Road to a private entity. After a bidding process involving 11 proposals, a 75-year lease concession was awarded to a

private consortium for a single lump-sum payment of \$3.8 billion. That figure is nearly four-times the yearly allocation that Indiana receives from Federal highway programs.

Prior to its leasing, the Toll Road had operated at a loss, needed repairs, and expansions had been chronically postponed. As part of the lease agreement, the consortium agreed to spend millions to improve the road and ensure a higher level of maintenance. Governor Daniels used the proceeds from the lease to fund a large number of highway construction and preservation projects under his monumental Major Moves initiative. Major Moves fully funded the State's 10-year transportation plan, including 65 roadway projects completed or under construction and 720 bridges rehabilitated or replaced by 2012, and accelerated critical highway arteries. In addition, the seven counties through which the toll road passes received payments of between \$15 million and \$40 million for local transportation projects.

As mentioned previously, P3s allow states to shift risk over to the private partner. In this case, the recession and sluggish recovery distorted some of the economic assumptions made at the deal's signing and the consortium declared bankruptcy. However, a new buyer stepped forward last year, and this new buyer will be liable for the same obligations of maintenance and improvements as the original consortium. The fact that there is a new buyer demonstrates the value of the Toll Road and of P3 projects more generally. There is clearly interest in the private sector for P3s.

## ENERGY AND CLIMATE CHANGE

The *Report* provides very little discussion about energy or how the energy sector has become revolutionized by innovative technologies. It also noticeably fails to discuss the economic costs of the Administration's aggressive clean air agenda.

### *Fracking Technology Lowers the Price of Oil*

The price of crude oil has gone into steep decline over the past year-and-a-half, in large part due to the incremental supply brought on by fracking and horizontal drilling technology. The price has fallen, presently to around \$30 per barrel, and many North American oil producers have come

under severe pressure from imported oil, but a fundamental change has occurred in the domestic oil supply. Fracking and horizontal drilling enable substantial and relatively rapid supply increases at costs per barrel that are far below the \$100-plus level prevailing before adoption of the technology started to spread in the United States. At present, it appears that large amounts of oil can be produced with the technology on a sustained basis at a cost per barrel in an approximate range of \$40 to \$60, and the cost is still falling.

The long-term significance of this development for the economy is that the threat of an oil shock is much reduced. The domestic oil fracking supply curve, in effect, limits how high a price OPEC can charge. Prices between about \$40 and \$60 per barrel will not push the economy into a recession, as the economy has managed far higher crude oil prices for an extended period of time.

At around \$30 per barrel, the oil price may force some operators to exit the market. A study by Deloitte suggests that up to 35 percent of independent oil companies could declare bankruptcy in 2016.<sup>12</sup> However, the oil industry's ability to frack vast oil and gas deposits in the United States remains. New operators can take over the production facilities and continue to produce and sell oil at prices that do not threaten to cause a recession in the United States. That is an important development the *Report* fails to note, even as it discusses the impact of oil price declines.<sup>13</sup>

#### *Toward a Secure and Stable Supply of Oil*

Fracking combined with horizontal drilling in the United States, oil sands production in Canada, and a liberalized oil field development policy in Mexico that permits foreign companies to participate, may make it possible for North America to meet its own oil demand in the future without dependence on overseas imports.<sup>14</sup>

If allowed to operate more freely, the marketplace will settle how much oil is efficient to import from overseas based on the relative costs of supply from the United States, Canada, and Mexico, and while not necessarily zero, the level of overseas oil imports should constitute a lower market share and command a much lower price than would be the case if North American sources are artificially constrained by government.

The chance for North American independence from unreliable overseas sources of oil rests on the supply capability in North America. Restraining the U.S. domestic and the North American oil and gas supply will most directly increase the supply from outside sources, and is unlikely to significantly increase supply from alternative forms of energy whose costs at scale are much higher and whose supply cannot be increased rapidly in response to price changes.

Since the Arab oil embargo of 1973, oil price shocks have repeatedly caused or contributed to economic recessions in the United States and posed a threat to national security.<sup>15</sup> The *Report* misses the fact that U.S. shale oil production technology, Canadian oil sands development, and the opening of Mexico's oil and gas sector to foreign investment together present a historic opportunity to greatly reduce the threat that oil shocks pose to the United States and North America.

### *Administration's Proposed Oil Tax*

Consistent with the Administration's theme of raising taxes to cover new spending, the President's budget has proposed a new oil fee of \$10.25 per barrel on domestic and imported crude oil as well as imported petroleum products. The fee—which is essentially a new tax on production—would phase in over a five-year period. The White House estimates the new oil tax will raise approximately \$319 billion in revenue over ten years.<sup>16</sup> The President plans to use the revenue to fund broad new spending on this Administration's preferred green energy initiatives.

The White House Fact Sheet on the Budget affirms that oil companies would shoulder the burden of the new tax hike,<sup>17</sup> ignoring the basic economic reality that producers will pass along this new cost to consumers. Indeed, CRS concluded that, as a result of the new tax, “[C]onsumers will likely see higher prices, not only directly for gasoline and other consumer products, but, in general, for many products to varying degrees.”<sup>18</sup> Even the President's own director of the National Economic Council, Jeff Zients, estimates that the oil tax will increase the cost of gasoline by 24 cents per gallon.<sup>19</sup> Zients further conceded that oil companies would likely shift the burden of the fee to consumers.<sup>20</sup>

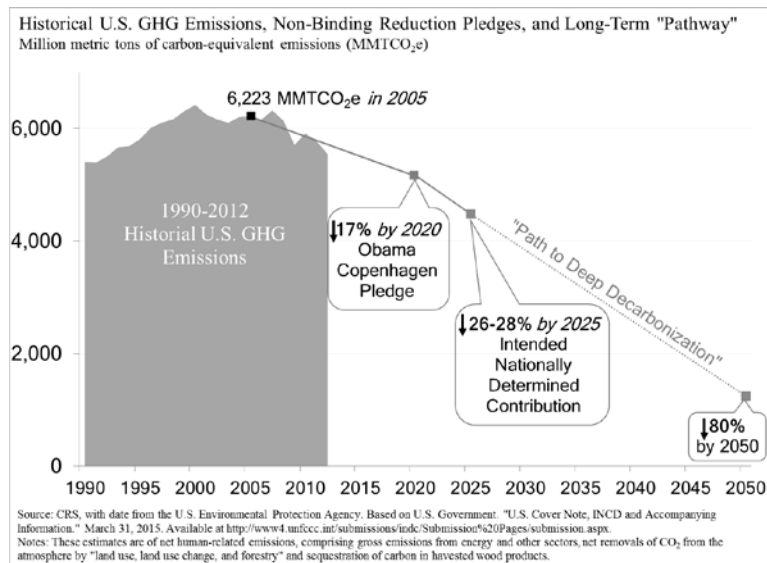
The nonpartisan Tax Foundation analyzed the oil tax to evaluate the effects it would have on the economy broadly. It found that the tax would reduce GDP by \$48 billion and cost 137,000 full-time jobs.<sup>21</sup> Furthermore, the tax would disproportionately impact poor and lower-income households.<sup>22</sup> Besides gasoline prices, the proposed tax would apply to a myriad of oil products unrelated to transportation, such as plastics, dyes, lubricants, asphalt, toothpaste, lipstick, and many other products.

Notably, while some of the most direct impacts of the President's oil tax would be felt through gasoline prices, the proposal would do little or nothing to improve the solvency of the Highway Trust Fund. It calls instead for significant new spending for transit, high-speed rail, a new “Climate Smart Fund,” clean fuel technology, and heating oil support in the Northeast.<sup>23</sup> None of these initiatives would result in new roads, improved transportation efficiency, or the repair of aging infrastructure.

### *The Paris Climate Agreement, GHG Regulations, and the Economy*

The President has made greenhouse gas (GHG) emission reduction a major goal of his Administration. For the 2015 United Nations Climate Change Conference held in Paris from November 30 to December 12, the State Department made a pledge for the year 2025 that the United States will reduce its GHG emissions by 26 to 28 percent below the 2005 level, substantially surpassing the targeted reduction pledged at the Copenhagen Conference for 2020 (see Figure 6-2).

**Figure 6-2**



The Environmental Protection Agency (EPA) has issued increasingly stringent emission mandates. The Administration has announced that the EPA's Clean Power Plan (CPP), issued in August of last year, is expected to reduce the carbon dioxide emissions of electric power generation from 2005 levels by 32 percent in 2030, and there are other reductions expected from efficiency standards for heavy- and medium-duty trucks, for example. The Administration has not committed to policies and measures that could reach the Copenhagen Climate Conference target with certainty or that are able to reach the Paris Climate Conference target range, though it has identified additional measures that, under optimistic assumptions, could result in the 26 percent reduction by 2025 pledged in Paris.<sup>24</sup>

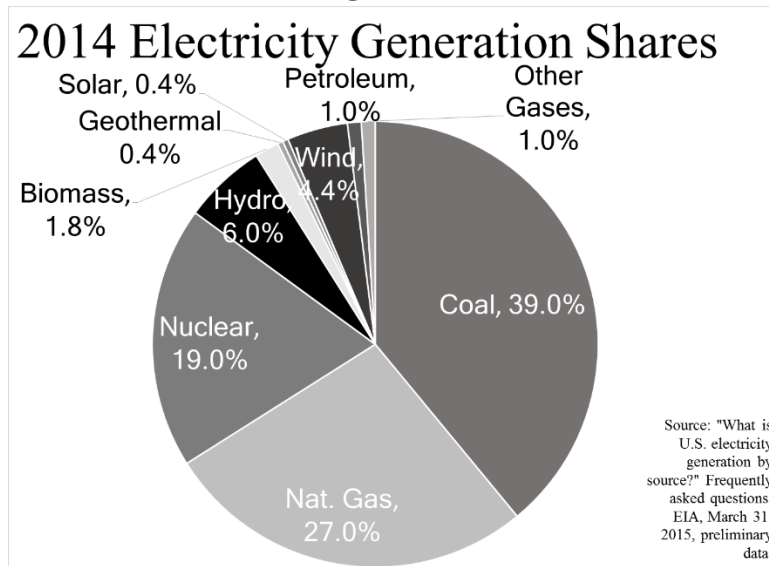
The CPP itself is controversial; 27 states are contesting it in court. The EPA made debatable assumptions in its impact analysis,<sup>25</sup> and NERA Economic Consulting has estimated the present value of energy sector expenditures will increase by \$220 billion to \$292 billion from 2022 to 2033 as a result of implementing the CPP, not including potential increased costs for transmission and distribution infrastructure. According to NERA, some states could experience average electricity price increases of 30 percent or more.<sup>26</sup>

It is puzzling that the CEA does not address the economic implications of such a major undertaking as the Paris Climate Agreement, especially since the Administration apparently has changed the energy mix it envisions will be utilized in the United States to pursue its emission targets. The President used to speak of an "all-of-the-above" energy strategy<sup>27</sup> and endorsed increased use of natural gas, in particular, as a relatively clean "bridge" fuel. He does so no more,<sup>28</sup> even as he touts substantial emission reductions in recent years that would not have been possible without increased use of natural gas. The CPP would leave the market share of natural gas flat.<sup>29</sup> Nuclear power has zero CO<sub>2</sub> emissions, but the President has not expressed support for nuclear power

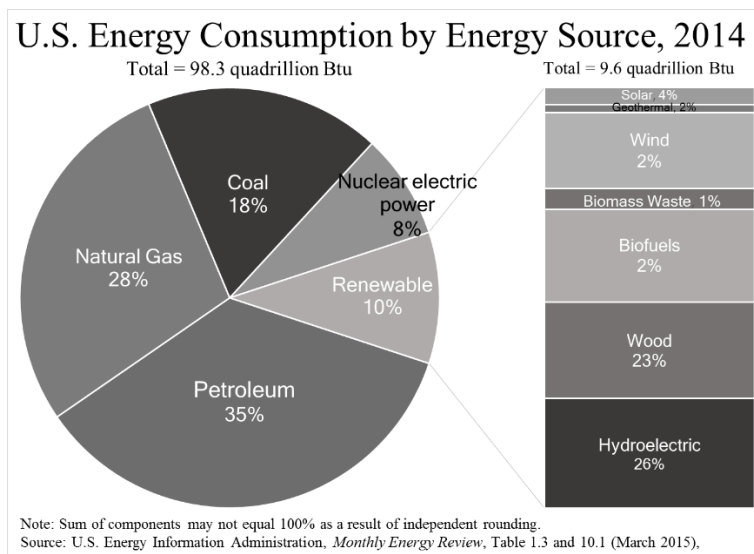


either. Nuclear power accounts for 19 percent of electric power generation and 8 percent of total U.S. energy consumption as of 2014 (see Figures 6-3a and 6-3b).

**Figure 6-3a**



**Figure 6-3b**



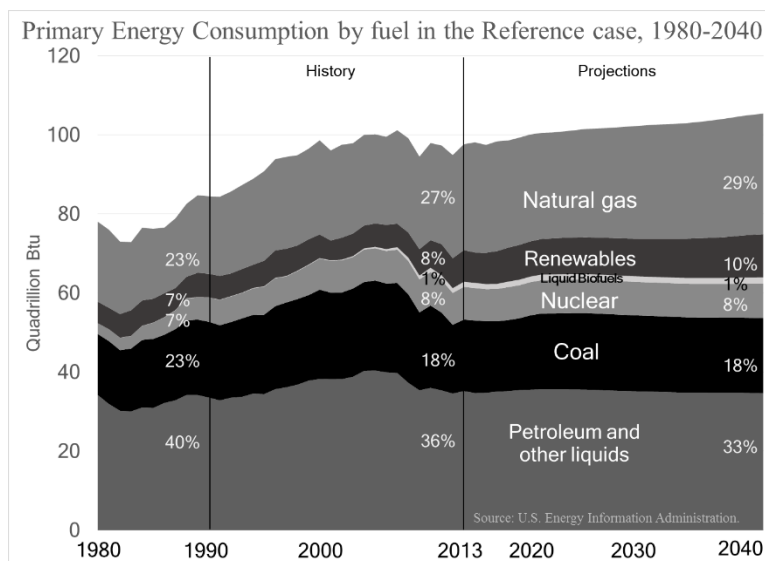
The power industry has made and continues to make substantial capital investments in emissions reduction from coal-fired electric generating units to comply with EPA policies that began well before the most recent CPP. The cumulative investments made since 2000, not counting the incremental operating costs, in air pollution control alone reached more than \$110 billion as of 2015.<sup>30</sup> However, the Administration’s pursuit of more ambitious climate goals and its preference for alternative fuels—to the extent of waging what some call a “war on coal”—is forcing many coal plants to close. EPA policy-induced shut downs and fuel conversions are causing 410 electric

generating units representing nearly 67,000 megawatt (MW) of generating capacity, which is 21 percent of total coal-generating capacity, to abandon the use of coal.<sup>31</sup> Hence, the turn away from an “all-of-the-above” energy strategy is stranding emissions control investments. It also has disruptive employment effects in coal-producing regions, where tens of thousands of jobs have been destroyed.

While clearly not among this Administration’s preferred energy sources, oil, natural gas, coal, and nuclear power together account for 85 percent of electricity generation and 90 percent of total energy consumption in the United States, whereas solar and wind account for 0.4 percent and 1.8 percent of energy consumption, respectively. Wind and solar power generation have increased during this Administration but continue to hold very small shares of the U.S. energy market. Furthermore, non-fossil fuels are by no means free of unwelcomed impacts that can provoke opposition to them, such as against new hydroelectric power projects and the placement of windmills, and they face difficulty scaling up commercial production, which is a particularly troublesome problem for meeting Federal cellulosic ethanol mandates. The biofuel supply consists mostly of corn ethanol whose use in gasoline is constrained by the so-called blend wall, the limited tolerance of engines for concentrations of ethanol in gasoline above 10 percent. Wind generated electricity requires extensive use of land.<sup>32</sup> These are only selected examples of the challenges facing efforts to expand the supply of renewable fuels. As a result, the Energy Information Administration (EIA) projections for the nation’s energy mix through 2040 show only a marginal increase in the share of all renewables (see Figure 6-4).

**Figure 6-4**

(EIA Annual Energy Outlook 2015)

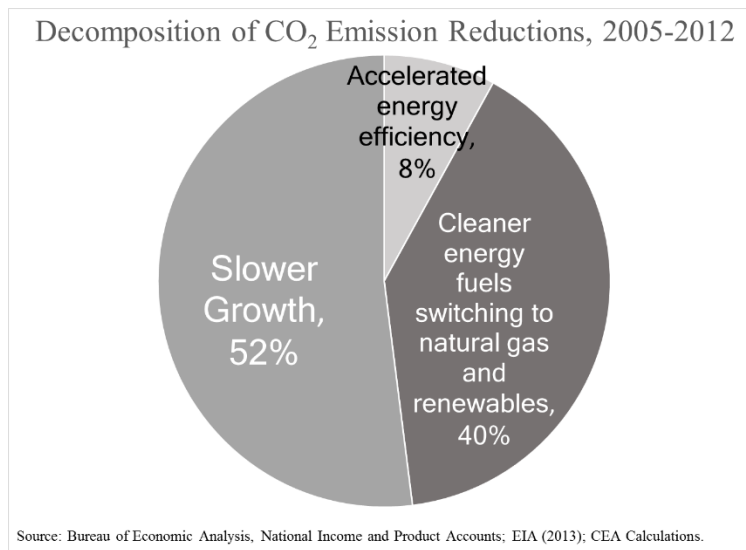


Shifting from sources that provide 90 percent of the energy supply to sources that currently supply 10 percent is an enormous undertaking. How will this be accomplished and at what cost? In the 2013 *Report*, the CEA wrote:

*As the economy improves, GDP will rise, and the weakness of the economy in 2007-09 will no longer restrain energy consumption. Thus if the recent reductions in emissions are to be continued, a greater share will need to be borne by fuel switching into natural gas and into zero-emissions renewables, and by accelerating improvement in economy-wide energy efficiency.*<sup>33</sup>

This statement was followed by Figure 6-3 of the 2013 *Report* (Figure 6-5 below) showing the contribution of slower economic growth and fuel switching to emission reductions.<sup>34</sup>

**Figure 6-5**



If the Administration no longer believes that large emissions reductions require substantially increased use of natural gas, does not want to rely on more zero emission nuclear power plants, and now believes that emissions reductions do not reduce economic growth, then the CEA should explain the reasons. However, the *Report* says not a word about the Paris Agreement or the Clean Power Plan in either its macroeconomic outlook (“The Outlook,” p. 106-117) or any other part of the *Report*. The President’s State of the Union Address this year did not go into the huge changes required in the economy to meet his pledges, nor does the President’s Fiscal Year 2017 Budget. The Administration’s 2017 budget does not address quantitatively what its climate policies mean for economic growth. In the section entitled “Economic Assumptions and Interactions with the Budget,” OMB discusses its economic forecast at length and mentions policies related to trade agreements, immigration reform, business tax reform, infrastructure investment, community college subsidies, and boosting the labor supply (p. 15), but not climate change.

Economic analysis should inform setting quantitative targets, identify the most cost effective policies to achieve them, and show the public what material sacrifices to expect. Unfortunately, the *Report* does not address the costs to the economy of the retooling that would be required or the efficiency of the policies to be pursued in an effort to meet the pledges made at the Paris Climate Conference.

Among the key questions the Administration has failed to answer are:

- How do different emission levels relate to the rate of economic growth (or decline), and how did the Administration decide to set its emission targets?
- What will be the anticipated energy mix and energy technologies used to support the economy and achieve the emission reductions pledged by the Administration?
- What are the alternative policies that might achieve the targets, what are their comparative costs, and how did the Administration choose the policies it is using?

### *Inadequacy of the Administration's Energy Policies*

The President has never made his climate policy priorities explicit with respect to their impact on economic growth and national security. The President has also not explained how his Administration sets emissions targets or justified how his chosen policies, which rely primarily on regulatory mandates, are the best way to achieve them.<sup>35</sup> Unfortunately, this year's *Report* also fails to elaborate on these particulars.

It appears anything that increases the use of wind, solar power and biofuels is a good thing in the view of the Administration, and together with mandated conservation measures, it apparently expects these fuels to deliver the huge CO<sub>2</sub> emissions reductions it has pledged. However, the supply of all the alternative fuels is difficult to scale up, and they are not environmentally harmless either. The Administration also appears to support anything that reduces the use of all other domestic energy sources, even if it increases the use of imported oil.

For decades, Administrations of both parties have sought to break the dependence on oil from unreliable sources, and now that the goal is within reach, the Administration seems at best disinterested and at worst is working at cross-purposes, as exemplified by its denial of the Keystone pipeline.

If the Administration is serious about meeting the emissions targets it has pledged and is not merely waging a campaign in favor certain industries and against others, there are a number of unanswered fundamental questions that the *Report* fails to address.

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<sup>1</sup> Public Law No. 114-21.

<sup>2</sup> CBO Projections of the Status of the Highway Trust Fund Accounts, August 2015 Baseline, <https://www.cbo.gov/sites/default/files/cbofiles/attachments/43884-2015-08-HighwayTrustFund.pdf>

<sup>3</sup> Heritage Foundation, Changes to Repatriation Policy Best Left to Tax Reform, February 17, 2015, <http://www.heritage.org/research/reports/2015/02/changes-to-repatriation-policy-best-left-to-tax-reform>

<sup>4</sup> "Meeting Our Greatest Challenges: Innovation to Forge a Better Future," The President's Fiscal Year 2017 Budget, OMB, <https://www.whitehouse.gov/sites/default/files/omb/budget/fy2017/assets/innovation.pdf>, p. 19.

<sup>5</sup> H.R. 1, 113th Congress.

<sup>6</sup> Tax Foundation, Likely "Solutions" to Highway Trust Fund Shortfall Violate Sound Tax Policy and User-Pays Principle, June 11, 2014, <http://taxfoundation.org/blog/likely-solutions-highway-trust-fund-shortfall-violate-sound-tax-policy-and-user-pays-principle>

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- <sup>7</sup> U.S. GAO, Recovery Act, IRS Quickly Implemented Tax Provisions, but Reporting and Enforcement Improvements are Needed, February 2010, <http://www.gao.gov/assets/310/300837.pdf>
- <sup>8</sup> Indiana Department of Transportation, 2005 Indiana County Highway Departments Bridge Replacement Cost Estimation Procedures, <http://rebar.ecn.purdue.edu/ltap1/multipleupload/Bridge/Indiana%20County%20Highway%20Departments%20Bridge%20Replacement%20Cost%20Estimation%20Procedures-2005.pdf>
- <sup>9</sup> See, e.g., U.S. Department of Transportation, Federal Highway Administration, Case Studies of Transportation Public-Private Partnerships in the United States, Final Report 05-002, [http://www.fhwa.dot.gov/ipd/pdfs/us\\_ppp\\_case\\_studies\\_final\\_report\\_7-7-07.pdf](http://www.fhwa.dot.gov/ipd/pdfs/us_ppp_case_studies_final_report_7-7-07.pdf)
- <sup>10</sup> U.S. Department of Transportation, Press Release, Transportation Public-Private Partnerships Soar to Record Levels, July 22, 2008, <https://www.fhwa.dot.gov/pressroom/fhwa0815.cfm>; see also, U.S. Department of Transportation, Innovation Wave: An Update on the Burgeoning Private Sector Role in the U.S. Highway and Transit Infrastructure, July 18, 2008, [https://www.fhwa.dot.gov/reports/pppwave/ppp\\_innovation\\_wave.pdf](https://www.fhwa.dot.gov/reports/pppwave/ppp_innovation_wave.pdf)
- <sup>11</sup> International Monetary Fund, Public-Private Partnerships, March 12, 2004, <https://www.imf.org/external/np/fad/2004/pifp/eng/031204.pdf>
- <sup>12</sup> Deloitte Center for Energy Solutions, The crude downturn for exploration & production companies, <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/us-er-crude-downturn.pdf>
- <sup>13</sup> For example, Box 2-1: “The Impact of Oil Price Declines on Spending and Production (pp. 55-58)” would have been a good place to report this development.
- <sup>14</sup> Whereby independence does not necessarily imply oil imports will be zero, only that North American sources are readily available if the price surges.
- <sup>15</sup> See, for example, “Historical Oil Shocks,” James D. Hamilton, Working Paper 16790, National Bureau of Economic Research; <http://www.nber.org/papers/w16790>.
- <sup>16</sup> White House Office of Management and Budget, Budget of the U.S. Government, Fiscal Year 2017, Table S-2: Effect of Budget Proposals on Projected Deficits, p.116, <https://www.whitehouse.gov/sites/default/files/omb/budget/fy2017/assets/budget.pdf>
- <sup>17</sup> White House, Fact Sheet: President Obama’s 21<sup>st</sup> Century Clean Transportation System, <https://www.whitehouse.gov/the-press-office/2016/02/04/fact-sheet-president-obamas-21st-century-clean-transportation-system>
- <sup>18</sup> CRS Memorandum to Senate Energy and Natural Resources Committee, \$10 Fee/Tax on Oil, February 8, 2015, [http://www.energy.senate.gov/public/index.cfm/files/serve?File\\_id=043a204c-38f7-48be-862a-3a339594097d](http://www.energy.senate.gov/public/index.cfm/files/serve?File_id=043a204c-38f7-48be-862a-3a339594097d)
- <sup>19</sup> *Ibid.*
- <sup>20</sup> *Ibid.*
- <sup>21</sup> Tax Foundation, What Would the Administration’s \$10 Oil Tax Do to the Economy and Federal Revenue? <http://taxfoundation.org/blog/what-would-administrations-10-oil-tax-do-economy-and-federal-revenue>
- <sup>22</sup> *Ibid.*
- <sup>23</sup> White House, Fact Sheet: President Obama’s 21<sup>st</sup> Century Clean Transportation System, <https://www.whitehouse.gov/the-press-office/2016/02/04/fact-sheet-president-obamas-21st-century-clean-transportation-system>
- <sup>24</sup> “2016 Second Biennial Report of the United States of America under the United Nations Framework Convention on Climate Change,” U.S. Department of State.
- <sup>25</sup> See, for example, “Facts on the Clean Power Plan,” American Coalition for Clean Coal Electricity, November 20, 2015, <http://www.americaspower.org/issue/facts-on-the-clean-power-plan/>
- <sup>26</sup> “Energy and Consumer Impacts of EPA’s Clean Power Plan,” NERA Economic Consulting, November 7, 2015.
- <sup>27</sup> “We need an energy strategy for the future – an all-of-the-above strategy for the 21st century that develops every source of American-made energy,” President Barack Obama, March 15, 2012; <https://www.whitehouse.gov/blog/2014/05/29/new-Report-all-above-energy-strategy-path-sustainable-economic-growth>
- <sup>28</sup> “Obama spurns natural gas in climate rule,” *The Hill*, August 5, 2015, <http://thehill.com/policy/energy-environment/250268-obama-spurns-natural-gas-in-climate-rule>
- <sup>29</sup> “Shale gas is loser in Obama climate plan,” Barney Jopson, Financial Times, August 3, 2015.
- <sup>30</sup> “Capital Investments in Emission Control Retrofits in the U.S. Coal-fired Generating Fleet through the Years—2016 Update,” Energy Ventures Analysis, Inc., January 26, 2016 (nominal dollars), <http://www.americaspower.org/wp-content/uploads/2015/05/Emission-Control-Investments-2016.pdf>

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<sup>31</sup> Data based mostly on publicly announcements, not modelling. The total number of retirements and conversions regardless of cause is larger. See, “Coal Unit Retirements,” American Coalition for Clean Coal Electricity (ACCCE), December 30, 2015, <http://www.americaspower.org/wp-content/uploads/2015/10/Coal-Unit-Retirements.pdf>

<sup>32</sup> See, for example, “Facts on the Clean Power Plan,” American Coalition for Clean Coal Electricity, November 20, 2015, <http://www.americaspower.org/issue/facts-on-the-clean-power-plan/>

<sup>33</sup> “Economic Report of the President together with the Annual Report of the Council of Economic Advisers,” Council of Economic Advisers, March 2013, p. 195.

<sup>34</sup> *Ibid*, p. 196.

<sup>35</sup> At the end of the Paris Climate Conference, the President revealed that: “I have long believed that the most elegant way to drive innovation and to reduce carbon emissions is to put a price on it.” Press Conference by President Obama, Organization for Economic Cooperation and Development Centre, Issy-les-Moulineaux, France; <https://www.whitehouse.gov/the-press-office/2015/12/01/press-conference-president-obama>