

## United States climate policy: What's next? EPA regulations as an alternative pathway to comprehensive federal action?

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### ALTERNATIVES TO THE LEGISLATIVE DEADLOCK?

The United States finds itself in a schizophrenic situation: its domestic climate policy has clearly been in a stalemate since the Congress failed to adopt comprehensive climate and energy legislation in 2010. On the other hand, U.S. delegates confirmed the target of reducing greenhouse gas (GHG) emissions by 17% by 2020 compared to 2005 levels at the Cancún UN climate summit in December 2010. How then will the U.S. fulfill its international obligations without being able to reach a consensus at home? While climate policies at state and regional levels show some encouraging signs, the extent to which the diffusion of climate initiatives across states could gain momentum is still uncertain.

### THE EPA'S AMBITIONS AND STANDARDS

Shifting back from a market-based approach to a command-and-control approach, the Environmental Protection Agency's (EPA) regulations seem to be the only viable improvement at the federal level. The EPA set *ex-ante* GHG emissions standards for a given pollutant by industry sector, based on available and cost-efficient technologies. And it also provides not directly GHG-related regulations which could indirectly help the U.S. curb its GHG emissions trajectory.

### THE EPA'S LIMITS OF ACTION

Yet, in a highly politicized context, EPA regulations are only a second best option, which cannot make up for comprehensive Congress-adopted climate policy in the long-run: it is doubtful that they can alone manage to trigger a relevant infrastructure change. Technological and emissions standards are one piece of the required policy mix, and should be backed up by complementary policies. But in the current tense, partisan and unpredictable context, no clear investment signals can be sent to shift to a low-carbon economy.

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# United States climate policy:

What's next? Assessing EPA regulations  
as an alternative pathway to  
comprehensive federal action

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## 1. WHO CAN MAKE UP FOR THE LACK OF AMBITION AT THE FEDERAL LEVEL?

### 1.1. An adverse political and economic context

A year has passed since majority leader Harry Reid dropped the project of passing a comprehensive climate bill in the Senate. Hope raised by the adoption of the American Clean Energy and Security Act (ACES) in the House of Representatives in May 2009 was shattered. Indeed, the U.S. Constitution requires both chambers of Congress to support a bill to make it legally binding: failure to pass a companion bill in the Senate before the end of the 110<sup>th</sup> Congress meant that ACES was void.

Ever since, the domestic discourse on climate has been stagnating, suffering from an increased partisanship and blunt opposition of Republicans to almost any major Democratic policy initiatives. When Republicans swept the House of Representatives in November 2010, it became clear that climate policy would be taken off a top spot on the political agenda. Climate change deliberations have become taboo again on Capitol Hill, just like about a decade ago, when President George W. Bush took office and Republicans gained majority in both houses of Congress in 2002.

Hence, asking about the future of U.S. climate policy appears an almost provocative but still urgent question. It is essential to keep in mind the large U.S. share of global GHG emissions (about 17%<sup>1</sup>), as well as its international voluntary commitment to reduce them by 17% by 2020 compared

to 2005 levels.<sup>2</sup> How will the U.S. fulfill its international obligations without being able to reach a consensus at home? The U.S. delegation to Cancún committed to ambitious reduction targets, remaining silent about the fact that the U.S. Congress had failed to establish a federal, comprehensive climate legislation earlier that year. As international negotiations are moving toward a bottom-up approach, rather than a top-down, Kyoto-like approach, domestic climate action is of paramount importance.<sup>3</sup>

The following table compares the energy intensity of the United States and EU-27 countries over the last 30 years.

U.S. GHG emissions have been declining since 2007 (see Figure 1). As in Europe, the economic crisis from 2007 onwards brought the United States a bit closer to their 17% target, as it affected economy-wide GHG emissions, particularly CO<sub>2</sub> emissions from fossil fuel combustion.<sup>4</sup> Energy demand in both the transportation and industry sectors – the two largest emitting end-use sectors in the United States – decreased due to a reduction of fuel consumption<sup>5</sup> and energy-intensive industrial

1. Share of global CO<sub>2</sub> emissions from fossil fuel combustion. Energy Information Administration International Energy Statistics 2010. <http://www.nytimes.com/cwire/2009/11/25/25climatewire-obama-announces-2020-emissions-target-dec-9-22088.html>

2. i.e. A 4% reduction below 1990 levels, Kyoto Protocol's base year. President Obama first announced this emission target at the Copenhagen Summit of December 2009.

3. So far, the international negotiations approached the climate issue with an overall objective – limit the increase of mean global temperatures to 2°C above pre-industrial level – to be translated into emissions reduction target for each participating country, i.e. the top-down approach. The U.S. has been pledging for the opposite approach – so-called bottom-up approach – in which countries voluntarily commit to national GHG emissions reductions according to their estimated potential.

4. EPA, Inventory of U.S. greenhouse gas emissions and sinks: 1990–2009, p.2-2.

5. In 2009, petroleum-based fuels consumption dropped by 7.1% below 2007 level, i.e. 3.2% below 2008 level.

**Table 1.** Total primary energy consumption per dollar of GDP (Btu per Year 2005 U.S. Dollars [market exchange rates]).

	U.S.	EU-27
1980	13 379,65	14 409, 54
1981	12 272,04	11 147,84
1982	12 460,22	10 845,39
1983	11 902,53	10 661,29
1984	11 745,36	8 415,265
1985	11 266,05	8 331,36
1986	10 934,75	8 272,605
1987	10 904,64	8 193,9
1988	10 934,75	7 898,825
1989	10 823,94	7 674,466
1990	10 585,07	7 109,51
1991	10 628,45	6 791,562
1992	10 418,37	6 713,297
1993	10 347,27	6 733,981
1994	10 123,26	6 543,904
1995	10 096,51	6 494,173
1996	10 028,64	6 577,548
1997	9 662,79	6 383,166
1998	9 321,67	6 236,176
1999	9 044,02	6 051,824
2000	8 892,19	5 873,09
2001	8 531,75	5 880,487
2002	8 524,63	5 761,204
2003	8 337,79	5 802,689
2004	8 233,76	5 759,747
2005	7 995,01	5 657,369
2006	7 743,17	5 497,133
2007	7 749,32	5 270,612
2008	7 602,96	5 238,391

Source: International Energy Statistics by the U.S. Energy Information Administration: <http://www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=92&pid=46&aid=2&cid=CG1.&syid=1980&eyid=2008&unit=BTUPUSD>

production.<sup>6</sup> Along with energy efficiency and carbon intensity improvements,<sup>7</sup> this made energy-related CO<sub>2</sub> emissions drop to 5,405 million metric tons in 2009 – a reduction of 9.5% below 2005 levels.<sup>8</sup> Still, as Figure 1 shows, the United States was still 451 TgCO<sub>2</sub>e (or about 7%) above its 1990 emissions.

It is likely that the economic crisis has affected GHG emissions only temporarily. The complexion

6. Total industrial production fell by 9.8%. However, energy-intensive sectors were more affected by the economic recession: output from the primary metals industries fell by 33.9% and nonmetallic minerals by 17.4%.
7. Both energy and carbon intensity fell by more than 2% in 2009.
8. For a detailed analysis of the factors explaining the emissions drop in 2009, see: <http://www.eia.doe.gov/oiaf/environment/emissions/carbon/index.html>

of U.S. economic recovery will determine future emissions trends. While industrial emissions from coal and gas are expected to further decline in 2011, due to decreased fossil fuels consumption in the power sector, continued economic recovery is estimated to turn the downward trend around in 2012. Overall U.S. carbon emissions from fossil fuels are expected to increase again by about 2.4%, to a total of 5.720 tons that year – only 4.4% below the emissions level in 2005<sup>9</sup>.

The U.S. Energy Information Agency (EIA) estimates that energy-related emissions per capita are expected to decrease by an average of 0.2 % a year from 2005 to 2035. However, this also reinforces the fact that in a business-as-usual scenario,<sup>10</sup> the United States is not yet on a sustainable GHG emissions reduction path. As of 2027, energy-related CO<sub>2</sub> emissions would lie above 2005 levels again and in 2035 they would total 6,311 million metric tons, i.e. about 5% higher than in 2005<sup>11</sup>. By contrast, a consistent decline is needed to tackle climate change.

## 1.2. Alternative pathways

Hence, what is to be expected from the United States in the coming years? If comprehensive climate and energy legislation is highly unlikely to be agreed on in the foreseeable future, what are the alternative pathways to move towards the 17% GHG emissions reduction by 2020 and 80% by 2050, as stated at the 2009 G8 Summit held in L'Aquila<sup>12</sup>?

As U.S. climate policy is stalled in Congress, two alternative ways of cutting GHG emissions appear to be left: climate action developed at the state level and regulations of the Environmental Protection Agency (EPA).

### 1.2.1. Climate policy at the state level

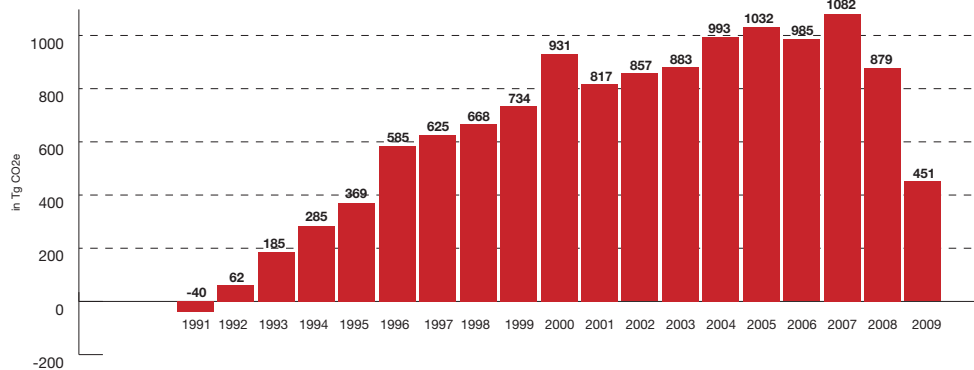
The American federalist system has often given states leeway to play an innovative role in policy making. States are typically considered as political laboratories, where innovative policies can be pioneered, tested and matured before being

9. EIA, *Short-Term Energy Outlook*, released on January 11, 2011: <http://www.eia.doe.gov/emeu/steo/pub/contents.html>

10. EIA scenario includes already introduced policies and measures at both the federal and state levels, such as efficiency standards, including the Corporate Fuel Average Economy Standards for model year (MY) 2012-2016 and Renewable Portfolio Standards.

11. EIA, *Annual Energy Outlook 2011*, April 2011, p.87

12. UNEP, Press Release, *G8 Leaders Agree to Global Warming Goals*, 9 July 2009. Available at: <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=593&ArticleID=6245&l=en>

**Figure 1.** Cumulative change in annual U.S. GHG emissions relative to 1990

Source: EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2009, April 2011

deployed at federal scale, when a window of opportunity opens.

There are encouraging signs coming from the states, such as the development of regional cap-and-trade systems<sup>13</sup> and the recent defeat of a petition threatening Californian climate policy<sup>14</sup>. 27 states have completed climate action plans of some sorts thus far, and among these states, twelve have adopted concrete GHG emissions targets. Also, sectoral policies – such as renewable portfolio standards – have increasingly been crafted.

Several elements, however, cast a shadow on that optimistic assessment. Last year, the World Resources Institute (WRI) assessed the impact of both federal and sub-national policies.<sup>15</sup> It found out that all current initiatives at the federal, state and regional levels, if fully implemented, would

only result in a 27% reduction in 2030 from 2005 levels, whereas the American Clean Energy and Security Act (ACES) alone has set a 40% target for 2030. Considering the collective emissions reduction of GHGS from industrialized countries suggested by the IPCC in its Fourth Assessment Report of 2007, WRI found that far more ambitious reductions would be necessary in the United States to reach a global maximum concentration of GHGS at 450ppm CO<sub>2</sub>e: 36-48% by 2020 and 51-64% by 2030.

Moreover, today's political context alters the dynamics of policy diffusion. The 2008 federal window of opportunity closed in 2010, before states' pioneer work could be transposed to the national level. Today, the pace of diffusion of climate initiatives across states is also uncertain, as they face problems of their own. To name only a few, California delayed the compliance start of its economy wide cap-and-trade scheme by one year (to 2013), and New Jersey announced in May 2011 its decision to pull out of the Northeast Regional Greenhouse Gas Initiative (RGGI).

### 1.2.2. Will the EPA drive U.S. climate policy?

Given the uncertainty surrounding the potential of state and regional climate initiatives to spread nation-wide, this paper focuses on the second policy option: EPA regulation. While both options are complementary, the Agency is the only lever left to push climate action at the *federal* level. After the failure to pass a bill in the 110<sup>th</sup> Congress, the attention has shifted back to the regulatory action of the EPA, with the issue having been strongly influenced and overshadowed by the heated budget debate.

In 2007, the U.S. Supreme Court granted EPA the authority to regulate GHGS as pollutants under the Clean Air Act (CAA). Since then, the agency has been issuing rules covering three major

13. On the East coast, the Northeast Regional Greenhouse Gas Initiative (RGGI) was set up in 2005 at the initiative of New York Governor George Pataki. To date, RGGI – U.S. first carbon market. – regulates power plant emissions of 209 utilities of a capacity of at least 25 MW located in ten States. On the Pacific coast, several initiatives have been set up: the West Coast Governor's Initiative, the South West Climate Change Initiative and the Western Governor's Associations. They all aim to improve cooperation on states' respective strategies to reduce emissions by incentivizing energy efficiency improvements, renewable energy and fuels, and in some case carbon capture and storage.

14. Rick Daysog, *Voters overwhelmingly reject Proposition 23*, The Sacramento Bee, 2 November 2010

15. WRI, "Reducing Greenhouse Gas Emissions in the United States Using Existing Federal Authorities and State Action", 2010. The authors developed three scenarios of various ambition levels in order to provide a general range of reductions that could be achieved with existent authorities. At state level, the less ambitious scenario – *lack-luster scenario* – considered emissions reductions enacted in states legislations only; the *middle-of-the-road scenario* additionally included reductions called in executive orders; finally their most ambitious scenario – the *go-getter scenario* – also encompassed emissions targets set in regional cap-and-trade systems.

sectors of U.S. economy: transportation, industry, and energy production (electric utilities as well as refineries). EPA action on climate change as an alternative to federal legislative action has since been facing strong political opposition.

While some argue that EPA regulation is the only option left to adopt climate action at the federal level, others assert that the CAA is not the right framework for climate action because the act has in the past successfully regulated air pollution with much more direct impact on human health than GHG have (or for those doubting mainstream climate science, supposedly have). For many observers, the debate has raised another equally important political question, namely: are the results of EPA GHG regulations worth the strong opposition they are raising? Can EPA regulations become a milestone on the way to stronger U.S. future climate policy, or a dead end that only crystallizes partisan positions? Against this backdrop, this paper describes which regulations have been introduced since the Supreme Court ruling, and analyses their potential to impact U.S. GHG emissions. As the EPA debate is evolving quickly, this paper does not aim to provide detailed updates.<sup>16</sup> Rather, it aims to illuminate the debate by providing analytical insight.

## 2. OVERVIEW OF GHG-RELATED EPA REGULATIONS

### 2.1. EPA's reluctant capture of U.S. GHG regulation

#### U.S. Supreme Court ruling

Most interestingly, the EPA itself was at first reluctant to include GHG emissions under the CAA. In 2003, it officially declared that in its opinion, GHG did not fall under its scope and that even if they did, the agency did not see the necessity to exercise its right at that time. However, the EPA was challenged by a group of states and non-profit organisations that filed a lawsuit with the Supreme Court. They blamed the agency's decision not to regulate tailpipe GHG emissions, based on the accusation that this would cause damage to the State of Massachusetts.

In its 2007 ruling *EPA vs. Massachusetts*, the U.S. Supreme Court rejected the EPA's argument that

#### BOX 1. Step-by-step determination of the BACT

1. Identify all available control technologies
2. Eliminate technically infeasible options
3. Evaluate and rank remaining control technologies based on environmental effectiveness
4. Evaluate cost effectiveness of controls and energy and other environmental impacts
5. Select the BACT

emissions from mobile sources belonged in the exclusive scope of the Department of Transportation (DoT). The Supreme Court stated, to the contrary, that DoT measures “in no way licenses EPA to shirk its duty to protect the public ‘health’ and ‘welfare.’”<sup>17</sup> In effect, the court granted the EPA juridical validation to regulate GHGs as pollutants under the Clean Air Act.

Consequently, the agency issued standards on tailpipe emissions from light-duty vehicles in coordination with the DoT's National Highway Traffic Safety Administration (NHTSA). These joint standards – regulating emissions under the CAA, as well as Corporate Average Fuel Economy (CAFE) under the Energy Policy and Conservation Act – were both finalized in April 2010.

#### A snowball effect caused by CAA provisions

In 2011, the EPA started regulating stationary sources of GHGs as well. The trigger for a shift toward enhanced regulation resulted from provisions within the CAA. As soon as GHGs were regulated under light-duty vehicle emissions standards, all new or modified GHG emission sources would have to participate in EPA's *pre-construction* authorization system called *Prevention of Significant Deterioration (PSD)* (see Table 2). This snowball effect was triggered by the *New Source Review (NSR)* requirement that has been implemented since the late 1970s. The federal EPA has been enforcing National Ambient Air Quality Standards to maintain overall good air quality. New major sources of air pollutants located in so-called “non-attainment areas” – i.e. where emission will increase above regulatory and statutory emissions thresholds – must obtain an authorization (i.e. a pre-construction permit) from the local regulatory authority.

The NSR aims to ensure that Best Available Control Technology (BACT) will be installed, in order to maintain national air quality standards. However, the EPA does not prescribe *ex-ante*

<sup>16</sup> Regular updates on U.S. climate change policy can be found at: <http://www.usclimatenetwork.org>, <http://www.eenews.net>, <http://www.grist.org>, <http://bnef.com>, and <http://www.vnf.com/news-policyupdates.html>

<sup>17</sup> see EPA vs. Massachusetts ruling available at : <http://supreme.justia.com/us/549/05-1120/>



**Table 2.** Current and expected GHG regulations by the EPA

	Transportation <i>Tailpipe emissions</i>	Industry, Electric Sector and Refineries <i>Stationary sources emissions</i>
<b>Type of regulation</b>	Federal standards	Participation in CAA's <i>pre-construction</i> authorization program (Prevention of Significant Deterioration permitting system- PSD), which requires Best Available Control Technology (BACT) to limit the impact on air quality. BACT are decided on a <i>case-by-case basis</i> (see Box 1). New Source Performance Standards (NSPS), which set allowed GHG concentrations <i>in advance</i> to all new or modified major emitters by sector.
<b>Covered Entities and Requirements</b>	<p><b>Light-duty vehicles</b> Joint measures from the EPA and the US National Highway Traffic Safety Administration (NHTSA): nationwide standards for new light- and medium-duty vehicles and standards for Corporate Average Fuel Economy (CAFE), both finalized in April 2010.</p> <p><i>Objective:</i> increasing the fuel-efficiency of vehicle models issued between 2012 and 2016, requiring to "meet an estimated combined average emissions level of 250 grams of carbon dioxide per miles"*</p> <p>In September 2010, the EPA and the NHTSA announced that they will jointly work on developing standards for 2017 to 2025.</p> <p><b>Medium and Heavy-duty vehicles</b> President Obama asked the EPA and NHTSA in a memorandum, issued in May 2010, to develop standards for medium and heavy-duty vehicles that would be introduced as early as 2014.</p>	<p>1.</p> <ul style="list-style-type: none"> <li>As of January 2011, regulations will be applied to <u>stationary sources already subject to the CAA's permitting program (PSD) and that undertake changes</u> leading to an increase of GHG emissions, resulting in the emission of 75,000 t CO<sub>2e</sub> per year. Accordingly, no sources would have to comply with CAA's permitting system due solely to GHG emissions.</li> <li>As of July 2011, though, <u>new facilities that emit more than 75,000 t CO<sub>2e</sub> per year and that were otherwise subject to permit requirements – or 100,000 t CO<sub>2e</sub> for sources that did not require a permit previously</u> – will be required to comply with the regulation.</li> </ul> <p>2.</p> <p>GHG NSPS for <u>fossil fuel-based power plants and refineries</u> will be proposed in July and December 2011 respectively. The introduction of final standards is expected in May and November 2012, after public participation.</p>

\* Note: EPA Transportation and Climate website: <http://www.epa.gov/oms/climate/regulations/420f10014.htm>

a BACT for any source type. On the contrary, local authorities (states or tribes) are responsible for determining the BACT on a case-by-case basis, following a five step approach that takes into account technical feasibility, costs, and environmental and energy considerations (see Box 1). Hence, the NSR does not impose any strict technology standard but rather encourages local government to determine the most advanced standards for individual technologies.

### The Tailoring Rule

The EPA encountered a problem when it incorporated GHGs into the NSR process. Normally, all major sources must comply with the CAA requirements. Yet CAA's usual thresholds for defining major sources (e.g. sulfur dioxide, lead, nitrogen dioxide thresholds) range from 100 to 250 tons per source and per year.<sup>18</sup> However, these levels are not relevant for GHGs, which are emitted in a much larger quantity: the EPA estimated that over 6 millions of stationary sources throughout the country emit more than 100 tons of CO<sub>2e</sub>

18. 28 categories of sources must comply with a threshold of 100 tons of emissions per year, whereas all other sources' threshold amounts to 250 tons per year (see CAA, section 169(i)).

per year.<sup>19</sup> Hence, it issued a *Tailoring Rule*, which set higher thresholds to be implemented following a phase-in approach starting in 2011.<sup>20</sup>

As a result, only large emitters – namely manufacturing industries, electric power plants and refineries – would fall under CAA requirements. Small emitters such as schools, churches, hospitals and restaurants would be excluded from the regulation's scope.

### Next step: A shift from case-by-case air pollution control to ex-ante performance standards?

Currently, following a similar process, the EPA is establishing New Sources Performance Standards (NSPS) for electric utilities and refineries.<sup>21</sup> Unlike the NSR, the NSPS (entailed in section 111 of the CAA) set *ex-ante* emissions standards for a given pollutant by industry sector, based on

19. Congressional Research Service, EPA's BACT Guidance for Greenhouse Gases from Stationary Sources, November 2010. Available at: [www.fas.org/sgp/crs/misc/R41505.pdf](http://www.fas.org/sgp/crs/misc/R41505.pdf)

20. Available at: <http://www.epa.gov/NSR/documents/20100413fs.pdf>

21. The EPA announced its plan to regulate GHG under NSRS on December 23, 2010. See: <http://www.epa.gov/airquality/ghgsettlement.html>

**Table 3.** Overview of new, non-GHG statutes with relevance for the electricity sector

EPA Statute	Targeted Pollutants	Affected Utilities
Clean Air Transport Rule	Nitrogen Dioxide, Sulfur Dioxide	Fossil fuel-based power plants of 31 states and the District of Columbia*
Clean Air Act	Hazardous Air Pollutants (HAPs), such as mercury	Mainly coal-fired power plants
Coal Combustion Residuals Disposal Regulations	Coal ash	Some coal-fired power plants
Clean Water Act, section 316(b)	Cooling water intakes and discharges	Thermal power plants using once through cooling systems, i.e. discharging industrial waste heat directly into a river or coastal water

\* Note: The CATR replaces Bush administration's Clean Air Interstate Rule. It addresses the issue of interstate air pollution, i.e. NOx and SOx particles emitted by power plants that cross interstate borders, not air pollution caused by the transportation sector.

available and cost-efficient technologies. The federal EPA is responsible for issuing standards for new sources, whereas standards for existing sources result from a cooperative process between federal and state level. For the latter, the EPA only issues emissions guidelines at the discretion of states authorities.

The NSPS must be revised every eight years. Their last update took place in 2006, prior to the Supreme Court's ruling on EPA's authority to regulate GHGs. Consequently, the revised NSPS did not include GHGs. However, after the *EPA vs. Massachusetts* ruling, and under the pressure of a coalition of states and NGOs, the EPA decided to revise its 2006 regulations as part of a settlement agreements reached on December 23, 2010. The EPA now plans on consulting the public and stakeholders, before releasing new standards in 2012.

## 2.2. Air and water pollutants regulations updates: A potential driver of GHG reduction

Separately from GHG regulations, the EPA is revising rules that can lead to dramatic changes in the power sector (see Table 3).

These new, not directly GHG-related regulations could indirectly help the U.S. curb its GHG emissions, as they will mostly – albeit not exclusively – affect coal-fired plants beginning in 2015. Today, about half of U.S. coal plants are over 45 years old and, compared to today's standards, extremely inefficient.<sup>22</sup> As retrofitting may induce high costs, these regulatory updates may *accelerate* the shutting down of many coal-fired plants. Estimates of the amount of generation capacity that may be closed by 2020 greatly vary, but most

22. Deutsche Bank Group, Natural Gas and Renewables: A Secure Low Carbon Future Energy Plan for the United States, November 2010. Available at: [http://www.dbcca.com/dbcca/EN/\\_media/NaturalGasAndRenewables.pdf](http://www.dbcca.com/dbcca/EN/_media/NaturalGasAndRenewables.pdf)

commentators including U.S. Energy Secretary Steven Chu are certain that many power plants would retire in five to eight years under the new EPA regulations.<sup>23</sup>

EPA regulatory updates are likely to accelerate the shift from coal to gas in power generation, thereby reducing GHG emissions. This is to be put in the perspective of a broader trend – i.e. the boom for natural gas in the United States, which is mainly driven by the following factors:

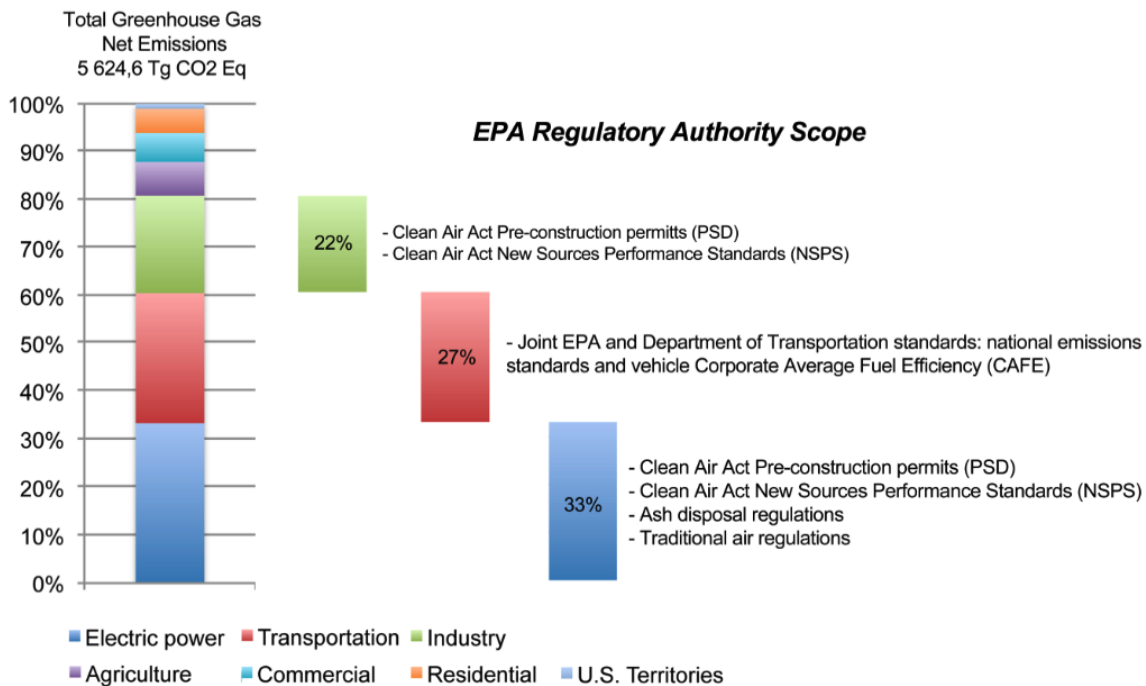
- a) the United States has enormous shale gas resources at its disposal which with new production technologies have become accessible at competitive cost;
- b) natural gas prices have stabilized at low levels. They currently fluctuate between 4 and 5 USD per thousand cubic feet, compared to a 10 USD price peak in 2008;<sup>24</sup> and
- c) increasing the share of gas in energy consumption appears as a bipartisan option that could increase the nation's energy independence, while reducing GHG emissions.

Natural gas is indeed increasingly seen as an important part of a low-carbon economy in the short term and a bridge fuel to a zero-carbon economy in the long term. According to analysts, this switch – together with a limited increased capacity of nuclear generation (20% to 23% of total US electric supply by 2030), as well as improvements in coal efficiency – “could lead to a 29% reduction in CO<sub>2</sub> emissions from the US power sector by

23. Steven Chu declined to propose a numbered estimate. The EIA projects that 7,7 GW of capacity will be shut down by 2018. The Brattle Group and the Credit Suisse Group estimates that a capacity of about 50 to 65 GW may be retired, whereas the Deutsche Bank Group estimates that 120 GW are “at risk”. Source : <http://www.bloomberg.com/news/2011-02-09/-massive-closures-of-u-s-coal-plants-loom-chu-says-update2-.html> and Deutsche Bank Group report.

24. Presentation of Alex Krapic, Coalition for Green Capital at the ACORE Renewable Energy Seminar on “November 2<sup>nd</sup> elections – impact on renewable energy policy”.

**Figure 2.** The EPA Regulatory Authority Scope (rough estimate)



Source: EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2009, April 2011, and WRI, “Reducing Greenhouse Gas Emissions in the United States Using Existing Federal Authorities and State Action”, 2010.

2020 and a 44% reduction by 2030 compared to a 2005 baseline.”<sup>25</sup>

Several studies point out the eventual threat of the new regulations to the U.S. electric system’s reliability.<sup>26</sup> This debate, however, is mostly political. On the one hand, regulation of pollutants like Nitrogen Dioxide or mercury has greater chances of success than GHG regulations, because these pollutants are directly and without a delay in time related to public health, in contrary to climate change. On the other hand, opponents of EPA GHG regulation often point to the Congress authority to regulate GHGs when in fact they are against any GHG legislation that has teeth. The politicization of the EPA debate is illustrated by the introduction of the Regulations from the Executive In Need of Scrutiny Act (REINS) that would require Congress to endorse all executive-branch

rules – including those from EPA – that cost over 100 million USD.<sup>27</sup>

### 3. WHAT IS THE POTENTIAL OF EPA REGULATIONS?

Provided that the EPA manages to implement its ambitious GHG regulations, the agency would regulate on a wide scope of U.S. economy – about 80% of total GHG emissions (see Figure 2). What would be the nation-wide reduction potential of these regulations?

Ironically, with moving from legislation to agency regulation, the United States – birthplace of many market-based mechanisms – is shifting back to a command-and-control approach to climate action. Yet, whereas the setting of emissions and performance standards is a valuable first step in light of the current legislative stalemate, this approach may not be a panacea for curbing GHG

25. Deutsche Bank Group, *Natural Gas and Renewables: A Secure Low Carbon Future Energy Plan for the United States*, November 2010, p.13.

26. WRI’s Susan Tierney conducted a comparative analysis of studies on that issue. See: <http://www.wri.org/stories/2011/01/electric-reliability-under-new-epa-power-plant-regulations-field-guide#studies>

27. Schor E. and Abruzzese S., “Tea party’s congressional allies diverge on how to gut agency”, 02/10/2011. Available at: [http://www.eenews.net/EEDaily/2011/02/10/1?page\\_type=archive&terms=REINS+Act](http://www.eenews.net/EEDaily/2011/02/10/1?page_type=archive&terms=REINS+Act)

emissions and sustainably transforming the U.S. economy long-term.

### 3.1. EPA as a command-and-control instrument

Two main approaches are usually considered to curb greenhouse gases emissions: command-and-control and incentive-based measures. EPA regulations belong to the command-and-control category: the agency sets emissions limits, technology standards, or in the case of BACT standards, a hybrid form of both. While command-and-control options are well-tied policies, especially regarding health issues, they have often received criticism. For example, many economists argue that standards cannot achieve an optimal level of cost-efficiency. Standards are also static and do not provide incentives to go beyond the level they set. This is the case of BACT standards implemented within CAA's pre-construction authorization program (option 1 in Table 2). The standards are set prior to the construction or modification of the source of pollutants. Once set, it is complicated to tighten them later on. NSPS, (option 2), however, need to be revised every 8 years and can hence better adapt to technology improvement, environmental needs, or other new situational factors.

The second main option – incentive-based instruments – comprises most fiscal and market-based measures, in the case of climate change solutions most importantly carbon taxes and tradable permits systems. In other words, they aim to regulate GHGs by putting a price on their emission. They create a revenue stream that can be reallocated and reinvested, for example in renewable energy deployment or energy efficiency advancement. These market-based instruments have the advantage of regulating emissions at minimal cost to society, and, if set at the right price level, of providing an ongoing and predictable incentive to curb GHG emissions. However, incentive-based instruments are not in the hands of the EPA, but of the federal Congress or individual states.

In addition to these tools, other complementary policies can help shift to a low-carbon economy. Information available to consumers can be enhanced through the development of labels, such as Energy Star in the United States. Supporting research, development and deployment (RD&D) of selected technologies through, e.g., subventions or tax cuts – an ongoing debate in the U.S. Congress – can be very valuable additional tools in helping the transition to low-carbon technologies.

The question really is: Can EPA regulations trigger infrastructure change? Technological and emissions standards can be an important piece of a comprehensive policy mix, as they will help increase the efficiency of industrial facilities and transportation options. However, to reach ambitious sustainability goals, they need to be backed up by complementary policies. Steering policies and concrete reduction targets are needed especially for the industry, buildings and transportation sectors.

### 3.2. The limits of EPA action: the case of transportation

A look at GHG regulations in the transportation sector illustrates the limits of EPA action.

Three elements are required to reach long-term sustainability of the transportation: an improvement of fuel efficiency; a shift away from fossil fuel-based transportation; and the reduction of distances traveled. Joint EPA and NHSTA standards would cover 85% of transportation-related emissions. By implementing light-duty vehicle standards alone, the administration hopes to achieve a GHG emissions cut of about 960 million metric tons over the lifetime of the model year 2012-2016 vehicles sold under the program. In addition, standards for model years beyond 2016 could ensure sustainable and ambitious results by 2030. Studies estimate that light-duty GHG emissions could decrease by an amount ranging from 17% to 41% below 2005 levels (i.e. respectively +7% to -25% compared to 1990 levels), depending on the degree of ambition of projected standards.<sup>28</sup>

Standards alone are not likely to guarantee that the United States will embark and remain on a low-carbon track in the future, as they affect only one of the three factors driving transportation GHG emissions: fuel efficiency of vehicles at the individual level. In the past, this technological improvement has been counterbalanced by the increasing consumption of heavier, more powerful cars.<sup>29</sup> As a result, the share of transportation emissions in overall GHG emissions has not changed significantly. Transportation share decreased only slightly over the last twenty years, in spite of standards implementation.

EPA standard-setting alone will thus most likely not be able to achieve ambitious GHG emissions

28. WRI, "Reducing Greenhouse Gas Emissions in the United States Using Existing Federal Authorities and State Action, Summary for Policymakers", 2010, p.12-13.

29. Pew Center on Global Climate Change's website: <http://www.pewclimate.org/technology/overview/transportation>

reductions in the future. While emissions standards are an important step and politically feasible even in the highly politicized current climate in Washington DC, it is paramount to further elaborate on policies to leverage on all drivers of transportation emissions.<sup>30</sup> States and federal governments have been working on improved individual and public transportation infrastructure, with important successes in some, but little progress in other regions. A recent report points out that current state transportation policies altogether are likely to worsen GHG emissions because they fail to integrate climate change and land-use in transportation plans<sup>31</sup>. Another study states that the performance of the U.S. highway system has in fact declined, and that “roughly one-quarter of the nation’s bus and rail assets are in marginal or poor condition”.<sup>32</sup> A change of perspective on transportation policy is hence required. At the federal level, the outcome of the Financial Year 2012 budget debate may be decisive in this regard<sup>33</sup>.

What holds for the transportation sector is also valid for stationary sources, where determining performance standards represents *a fortiori* a greater challenge. It is not yet clear how effective EPA regulation will be in reducing emissions from stationary pollutant sources. The BACT rule is still decided on a case-by-case basis, while the NSPS, which sets allowed GHG concentrations in advance, is applied only to new or overhauled sites. This number will increase over time. The EPA itself measures a reduction of NO<sub>x</sub> and SO<sub>2</sub> by 177,000 tons per year for power plants and 162,000 tons per year for refineries<sup>34</sup>. For other cases, such as the iron and steel production, the EPA has measured a 6,575 tons reduction over the past two years. Adding to emission reductions,

the EPA is spending billions of dollars for mitigation projects or for voluntary low emissions equipment. The combination of a national standard of renewable energy sources of 25% by 2030 and energy efficiency policies could result in CO<sub>2</sub> reductions ranging from 6-14%<sup>35</sup>.

### 3.3. A political challenge

Adding to the skepticism about the effectiveness of EPA regulation, the question of its political acceptability becomes more important. Many members of Congress oppose stronger EPA regulatory power as an attempt to limit their stringency.<sup>36</sup> This adds to the political tensions that the Obama administration is currently facing. Republicans, some Democrats, and interest groups from the industry and power sector have been developing strategies in Court and in the Congress to prevent EPA from regulating GHG. While tailpipe emissions standards for model year 2012-2016 are generally accepted, transportation regulations beyond 2016 and particularly the regulation of stationary sources are highly controversial.

These attacks on EPA authority can be categorized in three groups:

1. *Delaying the inclusion of GHG within the PSD system* (see Table 2, option 1), as illustrated by Rockefeller’s proposal in the Senate;
2. *Stripping EPA of its authority to regulate GHG within the CAA*, i.e. repealing the U.S. Supreme Court ruling of 2007. So far, these attempts have succeeded in the Republican-led House of Representatives, but stalled in the Senate, which is still controlled by a Democrat majority;
3. *Hampering the EPA’s action by cutting its funding*. The adoption of the budget for FY 2011 encountered many obstacles, leading the United States close to government shutdown. In the end, the agency’s budget was reduced by 16% for the rest of 2011. Some of these cuts are likely to affect state-level implementation of the GHG regulations

30. Pew Center on Global Climate Change’s website: <http://www.pewclimate.org/technology/overview/transportation>

31. Bhatt N., Peppard C., Potts S., “Getting Back on Track : Aligning State Transportation Policy with Climate Change Goals”, Smart Growth America and Natural Resources Defense Council, December 2010. Available at : <http://www.nrdc.org/smartgrowth/statepolicy.asp>

32. The National Surface Transportation Infrastructure Financing Commission, *Paying Our Way, A new framework for transportation financing*, 2010, p.22

33. President Obama proposed to boost infrastructure funding within the FY 2012 budget. He called, among others, for the creation of a National Infrastructure Bank, suggested to greatly increase funding dedicated to the federal railroad administration, and to substitute the Transportation Trust Fund to the Highway Trust Fund, thereby including transit and high speed rail.

34. See the EPA Clean Air Act Enforcement Environmental Results website: <http://www.epa.gov/compliance/civil/caa/caaenfenvresults.html>

35. EPA’s Forthcoming Performance Standards for Regulating Greenhouse Gas Pollution from Power Plants (Clean Air Act Section 111), Issue Brief for States, Georgetown Climate Center, September 2011. Available at: <http://www.georgetownclimate.org/issue-brief-epas-forthcoming-performance-standards-for-regulating-ghg-pollution>

36. “Washington agencies are now trying a backdoor approach to regulate our climate by abusing existing laws. Congress must step in and stand up for the American people [...] I will do whatever it takes to ensure that Washington doesn’t impose cap and trade policies in any form.” Republican Senator Barrasso. Source: [http://barrasso.senate.gov/public/index.cfm?FuseAction=PressOffice.PressReleases&ContentRecord\\_id=dd746813-f96f-d4ef-4474-592d95590360](http://barrasso.senate.gov/public/index.cfm?FuseAction=PressOffice.PressReleases&ContentRecord_id=dd746813-f96f-d4ef-4474-592d95590360)

and could hence slow down the issuance of Clean Air Act PSD permits (option 1 for stationary sources in Table 2). However, most environmentalists believe that the agency could have been hit even stronger. These tensions now bear on the FY 2012 budget debate. With deficit reduction a first priority in Washington these days, the agency faces the threat of greater funding cuts that could target its climate programs.

Several anti-EPA bill proposals are currently being debated in both chambers of the Congress.<sup>37</sup> The most recent development is that the House adopted a Republican-led bill called the “Transparency in Regulatory Analysis of Impacts on the Nation Act” (TRAIN)<sup>38</sup>. The bill is meant to measure the cumulative economic effects of several EPA rules, most of which the Republicans and some conservative Democrats consider “job killers” and heavy burdens on the U.S. economy. The bill could delay the final setting of mercury emission standards for power plants as well as new regulatory measures on cutting emissions from power plants that affect more than one state (Cross-State Air Pollution Rule)<sup>39</sup>. However, as the 112<sup>th</sup> Congress is split between a Democratic Senate and a Republican House, aggressive bills likely to pass in the House may fail to gain support from moderate Republicans and Democrats in the Senate. A bill questioning the Supreme Court ruling of 2007 will most likely not find a majority in both chambers.

It is also important to note that President Obama could veto any anti-EPA bill, including one that removes GHG as air pollutants regulated under the CAA. In theory, the President must sign a bill within 10 days to make it legally binding. In case he opposes it, he disposes of two ways to veto the bill:

- *a regular veto*: the president can choose to send it back unsigned to the Congress within the 10-day period, along with a veto message stating his reasons for rejecting it;
- *a “pocket veto”*: the president can simply refuse to sign the bill within the given time.

Should the President issue a regular veto, the Congress could overrule it by adopting the bill at a 2/3 majority in both chambers. Consequently, vetoing an anti-EPA bill could crystallize the opposition against Obama and considerably diminish

its legitimacy – a highly risky strategy in view of the 2012 presidential election. On the other hand, Obama could also appear considerably weakened if he chooses to bend to Republicans demands – especially against the backdrop of the highly partisan budget negotiations. As of September 2011, statements issued by the White House show that the President will “continue to take steps to defend the authority of the Clean Air Act, and the important progress we have made to protect the air we breathe.”<sup>40</sup> Hence, he is very likely to veto a “legislation, which would seriously roll back the CAA authority.”<sup>41</sup> Ultimately, it remains an open question to what extent the EPA will be able to implement its regulations.

## CONCLUSION

Since climate legislation is stalled in the Congress in the near future - a situation that is unlikely to change for at least another couple of years - the attention has shifted to the agency’s mandate to regulate GHGs nation-wide. The EPA has been at the heart of a long, complex, and highly politicized process since the U.S. Supreme Court’s 2007 ruling *EPA vs. Massachusetts*.

EPA action can only be considered as a second best option, mainly for two reasons. First, from a political point of view, a Congress bill is perceived as more democratic and hence more legitimate. Second, legislative action could have tackled the issue more thoroughly, comprehensively and effectively. While it aims to regulate the U.S. economy on a broad scope, it is doubtful that the EPA alone can trigger the infrastructural change required to shift to a low-carbon economy. A clear vision and policy framework as well as concrete support mechanisms and policies are needed to provide clean energy investors with reliable planning security. In spite of EPA’s commitment to provide states and targeted entities with guidance, confusion remains at federal and state levels over the likelihood of the implementation and timeline of GHG regulations. Anti-EPA proposals have been introduced in the Congress, and actions filled in Courts fuel this atmosphere of unpredictability.

Considering these hurdles, it seems legitimate to ask whether climate action through the EPA is worth the political fight in a context of great

37. Again, we recommend the Van Ness Feldman weekly updates to follow U.S. climate change policy debate : <http://www.vnf.com/news-policyupdates.html>

38. TRAIN Act To Limit Clean Air Protection Passes The House, Huffington Post, 23 September 2011. Available at: [http://www.huffingtonpost.com/2011/09/23/train-act-clean-air-protection-house\\_n\\_978502.html](http://www.huffingtonpost.com/2011/09/23/train-act-clean-air-protection-house_n_978502.html)

39. White House threatens veto of House EPA attack: <http://thehill.com/blogs/e2-wire/677-e2-wire/182429-white-house-threatens-veto-of-house-epa-attack>

40. White House official on September 19 2011: *ibidem*

41. Executive Office of the President, Statement of administration policy H.R. 910 – Energy Tax Prevention Act of 2011, April 5. Available at: [http://www.whitehouse.gov/sites/default/files/omb/legislative/sap/112/saphr910r\\_20110405.pdf](http://www.whitehouse.gov/sites/default/files/omb/legislative/sap/112/saphr910r_20110405.pdf)

partisanship and budget issues. However, in the absence of comprehensive climate and energy legislation at the federal level, without EPA action the United States would be left with initiatives at the state level only. Even if some states – particularly

California – have the scale and scope of a European country, this would leave the United States with poor prospects of achieving their voluntary federal target of -17% GHG emissions by 2020 compared to 2005 levels. ■

# United States climate policy:

What's next? Assessing EPA regulations  
as an alternative pathway to  
comprehensive federal action

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