DISCUSSION PAPER

February 2015 ■ RFF DP 15-04

EPA's New Source Review Program: Evidence on Processing Time, 2002–2014

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Abstract

As the United States moves forward with future energy policy, it must address and resolve issues associated with a shift away from coal and toward natural gas. While natural gas offers a significant opportunity as an abundant and relatively clean fuel source, optimum development and use of this resource requires an efficient and effective permitting process. A long and difficult permit approval process unnecessarily hinders progress toward energy and environmental goals by delaying or even cancelling both additions to new capacity as well as the upgrading of existing capacity. This study provides information on the time required to obtain permits through the Environmental Protection Agency (EPA) New Source Review (NSR) program for refineries and for coal-fired and natural gas–fired electric generating plants. The study finds that processing times for NSR permits for the 2002 to 2014 period varied significantly across EPA regions. They were also significantly longer for coal-fired and combined cycle electric generating units as compared to that for combustion turbines. Finally, processing times were significantly longer over this period for electric generating units and refinery projects as compared to reported permitting times for projects from 1997 to 2001.

Key Words: regulatory policy, energy, electricity

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EPA's New Source Review Program: Evidence on Processing Time, 2002–2014

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I. Introduction

The production and use of coal, oil, and natural gas are critical elements in the continued economic performance of the United States. As the country moves forward with future energy policy, it must address and resolve issues associated with a shift away from coal and toward natural gas.[1] In his State of the Union Address, President Obama acknowledged the importance of natural gas as it relates to the present and future of US energy:

> It's the bridge fuel that can power our economy with less of the carbon pollution that causes climate change. … I'll cut the red tape to help states get [natural gas factories] built. … My administration will keep working with the industry to sustain production and job growth while strengthening protection of our air, our water, and our communities.[2]

While natural gas offers a significant opportunity as an abundant and relatively clean fuel source, optimal development and use of this resource require an efficient and effective permitting process for development, infrastructure, and industrial and electric generation use. A long and difficult permit approval process unnecessarily hinders progress toward energy and environmental goals by delaying or even canceling both additions of new capacity and the upgrading of existing capacity.

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[1] The mix of fuels for electricity generation in the United States is changing. US ENERGY INFORMATION ADMINISTRATION (Nov. 8, 2013), *available at* http://www.eia.gov/todayinenergy/detail.cfm?id=13731. *See also* Fuel Mix for U.S. Electricity Generation, US ENVIRONMENTAL PROTECTION AGENCY (last updated Feb. 2, 2014), *available at* http://www.epa.gov/cleanenergy/energy-and-you/. In 2013, coal constituted 39% of the fuel for electricity generation, while natural gas was second, at 27%. EPA's proposed Clean Climate Plan will continue this shift in fuel mix. Under its proposed rule, EPA mandates a 30% cut in carbon emissions by 2030 (from 2005 levels). The agency projects that utility response to its proposed program would also reduce particle, nitrogen oxide, and sulfur dioxide emissions by more than 25%.

[2] Press Release, President Barack Obama's State of the Union Address, OFFICE OF THE PRESS SECRETARY (Jan. 28, 2014), *available at* http://www.whitehouse.gov/the-press-office/2014/01/28/president-barack-obamas-state-union-address.

The purpose of this study is to provide information on the time required to obtain permits through the US Environmental Protection Agency (EPA) New Source Review program for refineries and for coal-fired and natural gas–fired electric generating plants.

II. EPA's New Source Review

A. Background

In the 1977 Amendments to the Clean Air Act (CAA), Congress established regulations affecting the permitting of all new major sources of pollution.[3] The basic goal of New Source Review (NSR) is to ensure that "air quality does not worsen where the air is currently unhealthy to breathe [nonattainment areas], and air quality is not significantly degraded where the air is currently clean [attainment areas]."[4] New major sources located in nonattainment areas must provide offsets for their emissions and must show that they will install and operate pollution controls that achieve the lowest achievable emission rate (LAER).[5] In attainment areas, New Source Review requires preconstruction review to ensure that all new major sources and major modifications of existing sources use the best available control technology to limit emissions.[6] This review also requires air quality modeling to ensure that there is no significant deterioration in air quality in attainment areas. Section 165(c) of the CAA requires EPA to complete NSR within one year.[7]

New Source Review construction permits may be issued by state environmental agencies under State Implementation Plans (SIPs) approved by EPA. These SIPs must be at least as

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[3] New Source Review (NSR) applies to new facilities, additions to existing facilities, and modifications to existing facilities and processes.

[4] NSR 90-Day Review Background Paper, NATIONAL ENERGY POLICY DEVELOPMENT GROUP, at 1 (June 22, 2001), *available at* http://www.epa.gov/nsr/documents/nsr-review.pdf. (Hereinafter, NSR 90-Day Review Background Paper).

[5] Nonattainment areas are those EPA has determined to have air quality levels that do not meet the National Ambient Air Quality Standards (NAAQS).

[6] Attainment areas are those EPA has determined to have air quality levels that meet (or are better than) the NAAQS. For new sources, NSR is triggered if the emissions qualify as "major," whereas existing sources making modifications trigger NSR only when the modification results in a significant increase in emissions. *See* NSR 90-Day Review Background Paper, at 2.

[7] Applicants have only rarely gone to court to force EPA action. For example, *see* Avenel Avenal Power Ctr., LLC v. EPA, 787 F. Supp. 2d 1 (D.D.C. 2011). There is no comparable requirement in the nonattainment provisions of the CAA.

stringent as the federal regulations.[8] In nonattainment areas, a state's NSR program must be an EPA SIP-approved program meeting the criteria in EPA's NSR regulations.[9] Where the state has failed to develop an approved SIP, NSR permits may be issued by the states through delegated programs.[10] Where EPA has delegated permit authority to a state, the state must use EPA's permitting regulations.[11] In some cases, states have approved SIPs for some conventional pollutants but must rely on delegated authority for other pollutants.[12] Finally, some states have on occasion refused to operate an NSR permitting program, and in such cases, EPA has carried out NSR review under its NSR regulations.

Whether NSR applies to a particular construction project depends on the location (attainment or nonattainment area), amount of the emissions, and type of facility (new construction or a modification to an existing facility).[13] Generally, New Source Review in Prevention of Significant Deterioration (PSD) areas applies to facilities that will emit over 100 tons/year if the facility falls into one of 28 specific industrial categories or 250 tons per year for other sources.[14] In nonattainment areas, the trigger for NSR ranges from 10 to 100 tons per year, depending on the air quality in the area.[15] New sources under construction are subject to NSR if their *potential* emissions will exceed the major threshold.[16] For existing sources, only "major modifications" that result in a physical change in the plant or the method of operation that results in an increase in emissions are subject to NSR review.[17] With existing sources, NSR is triggered only when the change results in a significant *net* emissions increase that surpasses the

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[8] *See id.* at 2.

[9] *Id*.

[10] *Where You Live*, US ENVIRONMENTAL PROTECTION AGENCY (last updated Dec. 11, 2013), *available at* http://www.epa.gov/nsr/where.html. Agencies at the state or local level develop individual plans for NSR permitting and submit the plans to EPA. If EPA approves the plan, the state reviews and issues permits according to its State Implementation Plan (SIP). Though SIPs may differ among states, each must be at least as stringent as the standards set by EPA. A large majority of states have permitting authority through their SIPs.

[11] *Id*. Currently Washington, Minnesota, Illinois, the District of Columbia, Massachusetts, Hawaii, Puerto Rico, and the US Virgin Islands are delegated authority to permit according to EPA standards.

[12] Currently, California, Arizona, Nevada, and New Jersey have NSR programs with combined SIP and EPA permitting authority.

[13] *See supra* note 7, at 3.

[14] *Id*.

[15] *Id*.

[16] *Id*.

[17] *See id*. However, these types of changes exclude routine maintenance or repair, increase in hours of operating, and so on.

significance level for the PSD or nonattainment area.[18] The facility may avoid NSR if it can "offer past or future emission decreases at its other units to counterbalance the increase from the proposed change."[19] Thus the *net* increase from the facility as a whole—instead of the projected emissions increase of the modified unit(s)—is compared with the significance level for the facility.[20]

New Source Review will play an important role as the United States moves forward in addressing climate change.[21] The Environmental Protection Agency has proposed to lower carbon emissions from the electric generating sector—the largest single source of carbon pollution in the United States.[22] EPA's proposed Clean Power Plan aims to cut carbon emissions from the electricity generating sector by 30% from 2005 levels.[23] EPA projects that the electric utility sector will shift away from coal and rely more heavily on relatively cleaner-burning natural gas to implement the proposed rule.[24] An efficient NSR permit process will be important in facilitating this transition.

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[18] *See id.* at 3–4.

[19] NSR 90-Day Review Background Paper, at 4.

[20] *Id.*

[21] *See* Justin Gillis & Henry Fountain, *Trying to Reclaim Leadership on Climate Change*, THE NEW YORK TIMES (June 1, 2014), *available at* http://www.nytimes.com/2014/06/02/us/politics/obama-tries-to-reclaim-leadership-on-climate-change.html?_r=0.

[22] *See Overview of Greenhouse Gases*, US ENVIRONMENTAL PROTECTION AGENCY (last updated July 2, 2014), *available at* http://www.epa.gov/climatechange/ghgemissions/gases/co2.html. Electric generating power plants emit 2.2 billion tons of carbon dioxide per year, accounting for about 40% of US emissions. *See also* Section 111(d), 42 US Code § 7411: "The Administrator shall prescribe regulations which shall establish … a plan which (A) establishes standards of performance for any existing source for any air pollutant (i) for which air quality criteria have not been issued or which is not included on a list published under section 7408(a) of this title or emitting from a source category which is regulated under section 7412 of this title but (ii) to which a standard of performance under this section would apply if such existing sources were a new source."

[23] *See* Press Release, EPA Proposes First Guidelines to Cut Carbon Pollution from Existing Power Plants/Clean Power Plan is flexible proposal to ensure a healthier environment, spur innovation and strengthen the economy, US ENVIRONMENTAL PROTECTION AGENCY (June 2, 2014), *available at* http://yosemite.epa.gov/opa/admpress.nsf/bd4379a92ceceeac8525735900400c27/5bb6d20668b9a18485257ceb00490c98!OpenDocument. EPA also projects that shifts in the fuel mix within this sector will reduce sulfur dioxide, nitrogen oxides, and particulate pollutants by 25%.

[24] *How Much Carbon Dioxide Is Produced When Different Fuels Are Burned?*, ENERGY INFORMATION ADMINISTRATION (last updated June 4, 2014), *available at* http://www.eia.gov/tools/faqs/faq.cfm?id=73&t=11. This report states that coal produces 228.6 pounds of CO_2 per million Btu of energy, compared with 117.0 pounds of CO_2 per million Btu of energy for natural gas.

B. Costs of the NSR Process and Permitting Delays

The permit application process can involve up to five different stages: permit preparation; determination of application "completeness"; public notice and comment; response to comments; and possible administrative and judicial appeals.[25] EPA's 2001 NSR Report notes that "most developers describe [NSR] permitting as an extremely complex and time-consuming process."[26] The NSR process imposes direct costs in terms of the time and resources required to prepare the permit application (and to provide responses to questions and issues that arise in the permitting process). In addition, this multistep process may impose additional costs associated with the uncertainty and delay that attend the permitting process. For example, EPA's 2001 NSR Background Report provides the following description of the indirect costs associated with permitting delays: "Permitting (including required public hearings and comment processes) can be costly not only because of the time and human resources involved, but also because of uncertainty and delay."[27]

These costs could include both financial costs and penalties, as well as the opportunity costs—additional production forgone and lower emissions from these well-controlled new or retrofitted facilities—associated with delays in the project.[28] Longer delays and uncertainty from intangibles such as local opposition to certain types of projects could lead to suboptimal decisions in upgrading existing capacity and installing new capacity.[29]

Some economists and industry representatives have argued that the focus of NSR on preconstruction review of new or modified plants—resulting in a "new source bias"—has penalized the construction of new plants and the retrofit of existing plants because of the significant costs associated with the NSR program. Thus it has arguably been more economic in

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[25] NSR 90-Day Review Background Paper, at 5.

[26] *Id*. at 11.

[27] *See id.* at 22.

[28] EPA's 2001 NSR Report notes that "delay, for example, can cause a developer to miss advantageous financial circumstances when interest and equity costs are low." *Id*. at 11. In addition, the applicants may have penalty clauses associated with delays in the start of construction in their contracts with engineering and construction firms. These penalties could be as much as $35,000 to $40,000 per day. Private communication from Jeff Holmstead.

[29] These time-cost considerations may be particularly important in the petroleum refining industry, where the National Petroleum Council claimed that "the most critical factor in the U.S. refining industry's ability to meet new fuel requirements in a timely manner is the ability to obtain permits. *Id.* at 44. National Petroleum Council, *U.S. Petroleum Refining: Assessing the Adequacy and Affordability of Cleaner Fuels*, June 2000. EPA's 2001 Background Report also cited statements by several oil company executives claiming that the NSR process impedes the US refinery industry's capacity to expand. *See* NSR 90-Day Review Background Paper, at 44.

some cases to continue to operate older, inefficient, dirtier plants than to install new facilities or to upgrade existing facilities with the best pollutant control technology.[30] EPA's 2001 NSR Report found some evidence to support this argument, reporting that NSR for existing sources "has impeded or resulted in the cancellation of projects which would maintain and improve reliability, efficiency, and safety of existing energy capacity."[31] In these cases, NSR review had the perverse effect of delaying reductions in pollutants like SO_2 and NO_x.[32]

C. NSR Processing Time

For the time required to obtain an NSR permit, we have chosen to focus on the processing time as measured by the number of days from the date when EPA determined that the permit application was complete to the date of final approval for the NSR permit. The primary data source for this study is the Environmental Protection Agency's RACT/BACT/LAER Clearinghouse (clearinghouse).[33]

We identified the following as factors potentially affecting the time required by EPA to issue NSR permits:

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[30] Gruenspecht and Stavins, *New Source Review under the Clean Air Act: Ripe for Review*, 20-21 RESOURCES FOR THE FUTURE, Spring 2002, Issue 147, *available at* http://www.rff.org/RFF/Documents/RFF-Resources-147.pdf; and NSR 90-Day Review Background Paper. The direct costs to add pollution controls at existing facilities are often significantly greater than the corresponding control cost for a new plant, because pollution controls can be incorporated in the initial design of a new facility, whereas compatibility problems and space constraints at existing facilities often complicate the retrofit of controls at these facilities. *See supra* note 7, at 18.

[31] EPA, New Source Review: Report to the President. June 2002, at 1, *available at* http://www.epa.gov/nsr/documents/nsr_report_to_president.pdf. Cited by NATIONAL ACADEMY OF SCIENCES, *New Source Review for Stationary Sources of Air Pollution* (2006), at 45.

[32] Clean Air Act Requirements and History, US ENVIRONMENTAL PROTECTION AGENCY (last modified Aug. 15, 2013), *available at* http://www.epa.gov/air/caa/requirements.html. To be sure, supporters of the current NSR program argue that NSR review yields important reductions in the covered pollutants. For example, EPA's 2001 NSR Report estimated that PSD best available control technology (BACT) permitting over the period 1997–1999 avoided 1.4 million tons per year in conventional pollutant emissions (largely reductions in SO_2 and NO_x emissions). NSR 90-Day Review Background Paper, at 8.

[33] US ENVIRONMENTAL PROTECTION AGENCY RACT/BACT/LAER Clearinghouse (last visited July 16, 2014), *available at* http://cfpub.epa.gov/rblc/index.cfm?action=Home.Home. RACT stands for "reasonably available control technology," BACT for "best available control technology," and LAER for "lowest achievable emission rate."

- **Type of Project:** natural gas simple cycle combustion turbines, natural gas combined cycle turbines, natural gas–fired boilers and furnaces, coal-fired boilers and furnaces, or petroleum and natural gas refineries.[34]
- **Throughput:** the size or capacity of the project, measured in million British thermal units per hour (mmBtu/hr).[35]
- **Year:** the year in which approval for the permit was granted.[36]
- **PSD:** designation of the location of the facility in an attainment area (where the air quality is better than the NAAQS) versus a nonattainment area (where the air quality is worse than the NAAQS).[37]
- **Region:** EPA region (or group of EPA regions) where the facility is located.[38]
- **Type of Permit:** new greenfield facilities, modifications to existing processes, new additions to existing facilities, a combination of modifications and additions to existing facilities, or unspecified.

We also used a simple ordinary least squares (OLS) regression to help identify the effects of these factors on processing time. The OLS results are presented for coal and natural gas–fired EGUs and for the full sample, including refinery projects, in Table 9.

D. Data Summary

The primary data for this study are from the EPA's clearinghouse database. The clearinghouse is a compilation of the NSR permits that have been approved by local and state permitting agencies and submitted to EPA for the clearinghouse database. Our sample, covering

[34] Utility-grade coal and natural gas boilers and furnaces are those with a capacity greater than 250 mmBtu/hr. Industrial-size coal and natural gas boilers and furnaces have a capacity greater than 100 but less than 250 mmBtu/hr. The natural gas turbines in the dataset are all considered large combustion turbines if they have a capacity greater than 25 megawatts (MW).

[35] Size is listed in the clearinghouse data as mmBtu/hr, megawatts, or horsepower (though the third is rare). We have converted megawatts and horsepower to mmBtu/hr.

[36] The year can also be used to identify potential differences in NSR permitting for the Bush administration (2002–2008) and the Obama administration (2009–present).

[37] While attainment versus nonattainment status differs by pollutant group, where a facility falls in both attainment and nonattainment areas for different pollutants, we treat the facility as being located in a nonattainment area. Note that the RBL data suggests that all the permits for a facility are approved at the same time.

[38] We used a grouping of northeastern states (EPA regions 1, 2, and possibly 3).

the period from January 2002 to September 2014, includes 686 NSR permits: 104 coal, 416 natural gas, and 166 refinery projects.[39]

Reporting to the clearinghouse is mandatory for projects in nonattainment areas; however, states are not required to report PSD permitting information. Because of this, EPA believes that the actual reporting rate to the clearinghouse is only approximately 50% of eligible NSR projects. We believe, however, that our sample is representative of the EPA permit process.

We compared the clearinghouse information with permitting information provided by individual state agencies, specifically those in Mississippi, Iowa, Virginia, Georgia, Missouri, Texas, Illinois, and Oregon. Cross-checking the state-level permit data showed that the permits available online from state databases were largely consistent with the clearinghouse data. The few exceptions largely involved permits that had only recently been issued and had not yet been added to the clearinghouse database. While the state-level data proved useful for verification and cross-checking purposes, the clearinghouse data proved to be much more complete and comprehensive than any of the state databases.[40] Thus, although the clearinghouse reporting rate may be only about 50%, we believe the clearinghouse data accurately reflect the available state-level data and that a further effort to collect data from state sources would not substantially augment the clearinghouse data.

E. Results

Over the period from 2002 to 2014, the nationwide average time to obtain an NSR permit for coal and natural gas–fired electric generating units (EGUs) and refineries in PSD areas was 420 days.[41] The permitting time varied by the type of facility; for example, it took 377 days for natural gas–fired plants and 404 days for coal-fired plants. In PSD areas, there was a three-month difference in permitting times between combined cycle EGU (419 days) and combustion turbines (319 days). Finally, the NSR permitting time for refinery modifications and additions in PSD areas was 537 days (Table 1). The distributions are skewed—median values are less than the mean—with some projects requiring substantially longer to obtain NSR approval. Our OLS

[39] We excluded 47 permits identified as "unspecified."

[40] For example, many state-level agencies list only the name of the applicant company and the date of permit approval.

[41] Calculated from the date the application was determined to be complete to final agency approval. This calculation does not include any potential delays facilities faced before the permitting agency deemed the application complete. Court challenges to the approved permits—and any associated delays to the start of construction—have not been included in this calculation.

results indicate that average processing times for approval of coal-fired and combined cycle EGUs are significantly longer than for combustion turbines.

Table 1. Permitting Time (Days) by Project Type in PSD Areas

	Mean	Median	Number
Coal	404	265	96
Natural gas	377	290	388
Simple cycle	319	247	120
Combined cycle	419	369	131
Refineries	537	297	154
Average	420	294	638

The time required to obtain an NSR permit in PSD areas was significantly longer during the 2002 to 2014 period than from 1997 to 2001.[42] Table 2 presents a comparison of NSR permitting times over the two periods. EPA reported an average time to obtain an NSR permit over the 1997–2001 period of 7.2 months, or 219 days.[43] The average processing time over the 1997–2001 period was 228 days for simple cycle gas turbines and 304 days for a new coal-fired EGU, as compared with approval times of 319 days for combustion turbines and 496 days for new coal-fired EGU projects over the more recent 2002–2014 period.[44] The most dramatic difference has occurred for NSR projects at refineries. EPA reported that over the 1997–2001 period, the average approval time for modifications at refineries was only 160 days,[45] but over the more recent 2002–2014 period, the time to obtain approval for refinery NSR projects averaged 480 days. Sources familiar with the NSR program have suggested several factors that may account for this substantial increase in processing time: the NSR review has become a more complex process over time; states have reduced the resources for NSR review because of budget pressures; and environmental groups are better funded and more aggressive in contesting NSR permit applications.[46]

[42] 2001 NSR 90-Day Review Background Paper.

[43] *Id*. at 7.

[44] *Id*. at 9.

[45] *Id*. at 30.

[46] Appeals of a permit decision to EPA's Environmental Appeals Board by interested parties may also contribute to a delay in a final NSR permit action.

Table 2. Comparison of PSD Permitting Time

	Mean	Median	Number
EPA's Clearinghouse Database: 2002–2014			
Natural gas: simple cycle	319	247	120
Coal: new construction permit	496	367	43
Refinery: modification or addition permit	480	286	111
EPA's 2001 NSR Report: 1997–2001			
Natural gas: simple cycle	228		>250
Coal: new construction permit	304		10
Refinery: modification or addition permit	160		10

The OLS results also show a statistically significant difference in permitting times across some of the EPA regions.[47] NSR projects in EPA regions 7 and 8 were approved with the shortest average permitting times—as short as 217 days for projects in region 7. Region 9 had the longest average processing time, at 777 days (Table 3). This general pattern across EPA regions also applies to PSD permitting times for natural gas–fired EGUs (Table 4). Again, the distributions are skewed, with some projects having experienced substantially longer delays in obtaining NSR approval.

Table 3. Permitting Time for All Facilities in PSD Areas by EPA Region

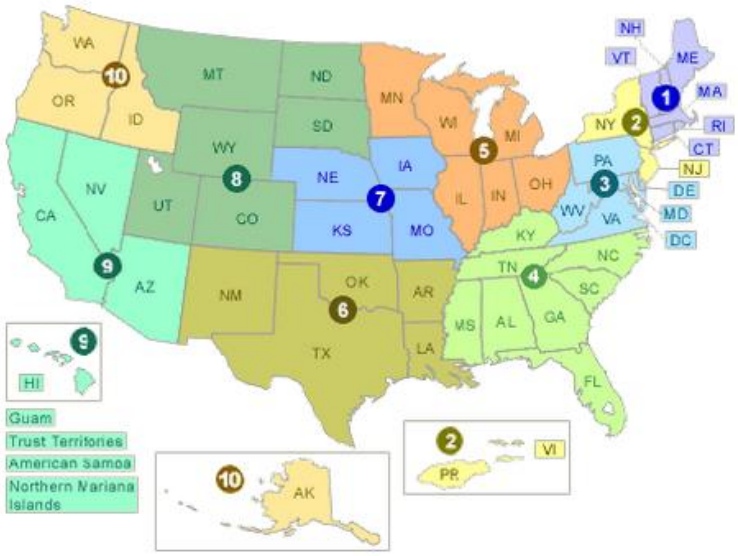
	Mean	Median	Number
Regions 1,2,3	443	386	59
Region 4	321	237	78
Region 5	386	258	94
Region 6	427	336	234
Region 7	217	182	41
Region 8	317	282	42
Region 9	777	562	52
Region 10	468	311	38
Average	420	294	638

[47] EPA regions 1, 2, and 3 were combined for analysis purposes because the state programs in these regions have been coordinated to achieve regional air quality objectives (e.g., the OTC NO_x budget program and RGGI). In addition, the RACT/BACT/LAER Clearinghouse database included relatively fewer entries for these regions.

Table 4. Permitting Time for Natural Gas Permits in PSD Areas by EPA Region

	Mean	Median	Number
Regions 1,2,3	487	394	41
Region 4	323	237	63
Region 5	364	253	64
Region 6	366	320	112
Region 7	204	193	19
Region 8	266	180	21
Region 9	567	557	37
Region 10	362	287	31
Average	377	290	388

Figure 1. Map of EPA Regions



Substantial differences in processing times occurred for new versus existing combined cycle and coal-fired plants. Average processing times were 483 days for new combined cycle plants and 413 days for projects at existing sites. (Table 7.) There was an even greater difference in the average permitting times for new versus existing coal plant projects: 495 days for new greenfield coal-fired facilities compared with 322 days for projects at existing facilities. (Table 8.) The OLS results indicate that these differences are statistically significant.

Table 5. Average Permitting Time for Natural Gas (Including PSD and Nonattainment Areas)

Year	All natural gas		New permits		Additions		Modifications	
	Mean	Number	Mean	Number	Mean	Number	Mean	Number
2002	321	73	324	47	299	25	769	1
2003	379	64	362	36	406	27	267	1
2004	612	46	521	27	829	13	551	6
2005	463	27	665	15	124	3	241	9
2006	290	23	355	6	286	11	231	6
2007	343	24	371	16	393	3	223	5
2008	377	21	384	3	715	4	278	14
2009	409	33	439	25	364	5	233	3
2010	468	24	554	14	372	5	321	5
2011	436	21	587	8	415	5	297	8
2012	268	31	245	14	223	11	403	6
2013	225	26	270	11	228	7	161	8
2014	235	3	—	0	—	0	235	3
Average	384	416	411	222	391	119	293	75

Table 6. Average Permitting Time for Simple Cycle Natural Gas (Including PSD and Nonattainment Areas)

Year	New permits		Additions		Modifications	
	Mean	Number	Mean	Number	Mean	Number
2002	241	18	171	5	—	0
2003	255	17	272	7	—	0
2004	501	8	811	5	311	3
2005	386	6	124	3	190	3
2006	78	3	263	4	153	1
2007	332	4	435	2	114	2
2008	260	1	620	1	142	3
2009	369	5	303	2	241	2
2010	576	4	673	1	—	0
2011	432	2	432	2	317	2
2012	128	3	128	1	631	1
2013	472	1	245	2	118	3
2014	—	0	—	0	—	0
Average	315	72	357	35	221	20

Table 7. Average Permitting Time for Combined Cycle Natural Gas (Including PSD and Nonattainment Areas)

Year	New permits		Additions		Modifications	
	Mean	Number	Mean	Number	Mean	Number
2002	378	25	305	11	769	1
2003	523	14	522	11	—	0
2004	804	11	1262	1	790	1
2005	547	4	—	0	319	3
2006	—	0	330	3	281	3
2007	623	2	—	0	92	1
2008	881	1	964	2	323	7
2009	449	7	—	0	218	1
2010	550	8	167	1	241	2
2011	437	3	174	1	330	4
2012	305	6	216	4	417	4
2013	206	5	184	2	—	0
2014	—	0	—	0	193	1
Average	483	86	413	36	364	28

Table 8. Average Permitting Time for Coal (Including PSD and Nonattainment Areas)

Year	All coal		New permits		Additions		Modifications	
	Mean	Number	Mean	Number	Mean	Number	Mean	Number
2002	596	9	283	5	987	4	—	0
2003	787	7	874	6	—	0	265	1
2004	465	12	338	6	804	3	379	3
2005	306	12	302	4	90	6	961	2
2006	311	13	405	4	173	5	389	4
2007	269	13	258	6	212	5	446	2
2008	249	8	315	3	170	4	366	1
2009	579	7	767	4	329	3	—	0
2010	391	10	545	6	162	4	—	0
2011	908	5	1372	2	599	3	—	0
2012	215	5	164	1	228	4	—	0
2013	131	2	—	0	131	2	—	0
2014	73	1	—	0	73	1	—	0
Average	419	104	495	47	322	44	472	13

The data also show substantial year-to-year variation in processing times, with markedly longer processing times over the 2003–2005 and 2009–2011 periods. (Tables 5 and 8.) The increase in permitting time over the 2003–2005 period may reflect the uncertainty in the NSR program with the DC Circuit Court review of EPA's 2002 and 2003 revisions to the program.[48] The longer processing times over the 2009–2011 period may reflect a transition as the Obama administration put its climate policy in place. Note that the clearinghouse database contains very few NSR projects for EGUs in the last few years

Across all project types, average permitting time for projects located in nonattainment areas was roughly five and a half months longer than the time required for projects located in attainment areas. (Table 9.) This difference was particularly marked for refinery projects in nonattainment areas. For coal-fired and natural gas–fired EGUs, the difference in processing times between nonattainment and attainment areas was roughly three months, but the difference was not statistically significant.

Finally, processing times were not sensitive to the size of the project. Instead, variations in the required time to obtain an NSR permit appear to be related to the type of project (e.g., combustion turbine or coal-fired EGU) and to site-specific factors such as location. (Table 9.)

III. Summary

Regarding the 2002–2014 period, the clearinghouse data suggest the following:

- Significant variation occurred across EPA regions in the processing time required for approval of energy-related projects at refineries and coal- and oil-fired EGUs.
- Average processing times for new combined cycle EGUs were roughly comparable to the times for new greenfield coal-fired plants. (Note, though, that the clearinghouse database had only one additional NSR permit approved for a new coal-fired plant in 2012 and no additional permits for these plants in 2013 and 2014.)
- Average processing times for NSR permits issued over the 2002–2014 period were substantially longer than the reported permitting times for the 1997–2001 period.

[48] The DC Circuit largely upheld EPA's 2002 revisions to its NSR program in June 2005. *New York v. EPA*, 413 F.3d 3 (DC Cir., June 24, 2005). On December 24, 2003, however, the DC Circuit blocked the 2003 NSR rule revising the routine maintenance, repair, and replacement provisions from going into effect until the court reached a final decision. In New York II, the DC Circuit held that the 2003 NSR revision was invalid. *New York v. EPA*, Case No. 03-1380 (DC Cir., March 17, 2006).

Table 9. OLS Regression Results

Regressors	Coal and NG facilities only	Full sample
EPA_region123	–15.852 (53.77)	–30.046 (50.93)
EPA_region4	–58.501 (40.74)	–91.374** (39.02)
EPA_region5	–20.606 (51.14)	–8.945 (44.46)
EPA_region7	–175.881*** (44.59)	–168.572*** (44.5)
EPA_region8	–130.258*** (49.37)	–121.281** (53.5)
EPA_region9	157.708** (77.65)	329.438*** (78.43)
EPA_region10	–41.933 (47.65)	–2.867 (68.04)
year_2003	58.358 (47.31)	5.272 (49.94)
year_2004	235.938*** (74.29)	154.465** (67.66)
year_2005	84.499 (72.96)	288.606*** (85.33)
year_2006	–68.103 (58.2)	–160.745*** (52.05)
year_2007	–14.148 (56.45)	–45.468 (72.73)
year_2008	9.709 (69.58)	–23.739 (61.18)
year_2009	58.649 (61.2)	–134.019** (54.42)
year_2010	58.596 (58.5)	62.322 (63.73)
year_2011	132.413 (96.34)	38.401 (90.79)
year_2012	–92.399** (43.28)	–138.021*** (46.1)

year_2013	–88.342* (47.09)	–112.916** (48.55)
year_2014	31.026 (67.42)	42.238 (55.73)
permit_addn	–69.748* (40.54)	–78.348** (38.18)
permit_mod	8.502 (36.77)	41.108 (36.5)
NG_combined_cycle	117.707*** (33.98)	106.724*** (36.16)
NG_other_process	120.628** (53.75)	140.848** (57.56)
size_large	36.128 (48.49)	43.846 (53.83)
coal	199.334** (80.13)	214.784** (85.6)
coalXpermit_addn	94.763 (118.84)	105.44 (110.77)
coalXpermit_mod	–162.164* (91.22)	–219.287** (99.51)
nonattainment	108.254 (79.52)	165.601* (82.33)
refinery	n/a n/a	252.626*** (65.24)
_cons	261.037*** (58.24)	263.390*** (65.18)

r^2	0.18	0.237
N	520	686

Notes: Dependent variable is the number of days between an NSR permit application and approval for coal and natural gas facilities. *** p < 0.01, ** p < 0.05, * p < 0.10. Standard errors in parentheses. Region 6 served as the "baseline" region; the regression results for the other regions are differences from the mean permitting time for region 6. The mean permitting time for Region 6 for the full sample is 443 days and for coal and natural gas the mean permitting time is 406 days.