Chapter 8

STATE AIR PERMITS

CHAPTER EIGHT: CLEAN AIR ACT PERMITTING

A. Overview

1. What is the Clean Air Act and what approvals are required?

LNG export facilities are substantial sources of air pollution. For instance, Cheniere Energy calculates that, when completed in the next year or so, its Sabine Pass LNG facility will emit up to 6,500 tons of nitrogen oxides ("NOx") and 5,200 tons of carbon monoxide ("CO"), ranking in the top two or three largest sources of these emissions in the state of Louisiana. As such, LNG export facilities easily qualify as major sources of air pollution under the Clean Air Act and must obtain appropriate Clean Air Act construction and operating permits. This chapter sets out what permits are required and a general overview of the Clean Air Act as it applies to LNG export facilities.

The primary goal of the Clean Air Act is to achieve compliance with National Ambient Air Quality Standards (NAAQS), which are federal standards set by EPA establishing the allowable concentration in the air for six "criteria" pollutants: ground-level ozone (or smog) (regulated as volatile organic compounds (VOCs) and NOx[937]), particulate matter (PM) (regulated as PM10 and PM2.5), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO) and lead. For example, and in vastly simplified terms, the current NAAQS for ozone is a maximum of 0.070 parts per million (ppm); if the concentration of ozone is above that for a given area, that area is in "nonattainment;" areas below the standard are in "attainment."

Although EPA sets the NAAQS, states have primary responsibility for achieving compliance with the NAAQS. They do so by establishing "state implementation plans" (SIPs), which are legal requirements that govern, in relevant part, how new and existing sources of air pollution are regulated. SIPs must be approved by EPA, and once approved, they become federally enforceable, meaning that they can be enforced by EPA and members of the public via the Clean Air Act's citizen suit provision. Note that most SIP requirements are *state regulations* that have been approved by EPA. Though a state might revise its state regulations, such revision does not alter what is in the SIP unless and until the regulation is approved by EPA.

Among other things, SIPs must implement preconstruction permit programs in accordance with the Act's New Source Review (NSR) provisions. For now, it suffices to say that NSR permits implement limits on emissions of criteria pollutants and serve to assure sources will not cause or contribute to NAAQS exceedances.

Critically, the permitting requirements applicable to a new source will be vastly different if the source will be a "major," or large, source, versus a "minor" source. Various emission thresholds determine major versus minor status; moreover, otherwise major sources may opt to be "synthetic" minor sources by accepting limits that must keep their potential emissions below the applicability threshold. "Minor" sources are subject to "minor NSR," however the Clean Air Act and federal regulations say very little about what a state's minor NSR program must include, other than to require that minor NSR programs must assure NAAQS compliance and that the public must have an opportunity to comment on draft minor NSR permits. In sharp contrast, major sources are subject to

[937] Ground level ozone in the atmosphere is formed by a reaction of VOCs and NOx in the presence of sunlight. As such, there are not specific air quality standards ("NAAQS") for VOCs or NOx, except for NO_2, but VOCs and NOx are regulated due to their contribution to ozone formation.

detailed federal statutory and regulatory requirements. As noted above, LNG export facilities are large sources and will typically be permitted as major sources.

More specifically, "major" NSR requirements differ depending on whether the area where a proposed source will be located is attaining the NAAQS. Pollutants for which an area is in nonattainment are subject to Nonattainment New Source Review, or "NNSR." Pollutants for which the area is in attainment are subject to "Prevention of Significant Deterioration," or "PSD." PSD always applies to at least some of the pollutants emitted because no area is in nonattainment for all of the NAAQS. NNSR *only* applies to those pollutants for which the area in which the source is proposed to be located is nonattainment; in other words, a source that is subject to NNSR for one or more nonattainment pollutants will remain subject to PSD for attainment pollutants.

Although the NAAQS and SIPs can fairly be called the backbone of the Clean Air Act, there are numerous other pollution control requirements under the Act that may apply to a new LNG source. Those programs are briefly described below and expanded in depth later:

- EPA's Technology Based Standards. The Act and EPA's regulations establish two similar technology-based standards applicable to new sources. These standards differ from NSR in that they apply to individual units or processes within a proposed facility and are standardized across an industry or beyond; for instance, all new emergency generators are subject to the same standards regardless of where they are located (i.e. emergency generators at a hospital in Los Angeles and emergency generators at an LNG plant in Louisiana will be subject to the same standards).
    - New Source Performance Standards (NSPS). NSPS, found at 40 C.F.R. part 60, are the standards implemented for criteria pollutants. For instance, and of relevance to LNG facilities, all new stationary combustion turbines must meet the NSPS emission limits for criteria pollutants like PM as set out in Subpart KKKK of the NSPS rules (40 C.F.R. § 60.4300). LNG facilities may trigger several other NSPS Subparts, discussed below.
    - National Emission Standards for Hazardous Air Pollutants (NESHAP). Where NSPS focuses on criteria pollutants, NESHAP regulates hazardous air pollutants (HAPs). HAPs are pollutants listed by Congress or EPA as especially toxic and/or carcinogenic even in small quantities and are not regulated by NAAQS and SIPs (other than lead, which is both a criteria pollutant and a HAP). As to LNG facilities, several NESHAPs are applicable, for instance, stationary combustion turbines are subject to a NESHAP (40 C.F.R. § 63, Subpart YYYY). Standards promulgated after 1990 are referred to as "Maximum Achievable Control Technology" or "MACT" standards.
- Title V Operating Permits. Frustrated with endemic non-compliance and complex, disparate permitting schemes, Congress in 1990 enacted Title V of the Clean Air Act, which established a federal operating permit program requiring every major source and some smaller sources to obtain a permit that comprehensively spells out all of the source's Clean Air Act obligations. This is the Title V permit, and despite the frequent description as a "federal" operating permit, states again typically take the lead in this permitting, although EPA exercises direct oversight. Critically, a Title V permit must identify each Clean Air Act requirement that applies to a source and require monitoring, recordkeeping, and reporting sufficient to assure compliance with all such requirements. Title V permits are typically only required after a facility has begun operating, but

several states—including Louisiana and Texas—have certain Title V requirements that must be met either before construction or before operations can commence, so Title V permitting will be addressed by this guide.

2. Who Implements the Clean Air Act? States vs. EPA

The Clean Air Act is an oft-cited example of "cooperative federalism" in that "air pollution control at its source is the primary responsibility of States and local governments, but that federal leadership is essential for the development of cooperative Federal, State, regional, and local programs to prevent and control air pollution."[938] In practice, this means that most work related to LNG air permits will be at the state level. For example, most LNG air permits will be drafted and issued by state agencies, in accordance with regulations issued by those same agencies; those regulations, however, typically follow EPA's regulations, and EPA usually must approve state regulations before they are legally in force as part of the overall Clean Air Act structure.

In Texas, the key agency with authority to issue Clean Air Act permits is the Texas Commission on Environmental Quality (TCEQ), and in Louisiana, it is the Louisiana Department of Environmental Quality (LDEQ). In addition to permitting, state agencies also frequently take the lead in compliance oversight and enforcement.

Despite the emphasis on state implementation, there are several important ways that advocates can seek EPA's intervention in permitting a new LNG facility. As discussed below, EPA retains explicit oversight of all Title V operating permits and must object to defective permits, although because Title V permits are *operating* permits as opposed to *construction* permits, this oversight may not be especially powerful when confronted with a new LNG facility seeking permission to construct. EPA also holds informal oversight over the NSR permitting programs implemented by states; EPA can review draft NSR permits and offer comments to state permitting authorities, and has legal authority to stop a facility's construction if the facility has not complied with NSR preconstruction permitting requirements.

Finally, note that some offshore LNG facilities may be permitted directly by EPA. This is discussed further in Section 8.D.

3. Why challenge an LNG export plant's Clean Air Act permits?

A motivated advocate is likely to identify defects in a facility's air permit application as well as its draft permit. There are numerous incentives for an applicant to cut corners: skimping on proposed pollution controls will save money, for instance. And even well-intentioned state agencies are generally understaffed, so permit writers may not have the time or incentive to deeply review a complex air permit application to assure the proposed facility will comply with the Act. That said, advocates should understand that it is extremely difficult—though not impossible—to defeat a proposed facility's application for an air permit. Simply put, a state agency will issue an air construction permit once the applicant has demonstrated that the proposed facility will meet all applicable federal and state requirements. In most cases, it is at least possible for an applicant to make that demonstration, even if it fails to do so on the first try. For example, if an applicant receives pushback regarding the adequacy of its proposed pollution controls, it can redesign the facility. If the applicant fails to demonstrate that its emissions will not cause or contribute to a NAAQS violation, it

[938] 42 U.S.C. § 7401(a).

can accept additional limits that constrain its operations in a way that would avoid such violation. Nonetheless, a challenge to a facility's air permit often succeeds in forcing an applicant to take significant additional measures to ensure that its emissions do not adversely impact air quality, including utilizing more effective (and often much more expensive) air pollution controls, performing additional air quality modeling, preparing a more robust analysis of environmental impacts, and being made subject to more rigorous air pollution monitoring requirements. Occasionally, when faced with having to pay the full cost of Clean Air Act compliance, an applicant will withdraw its application or simply fail to move forward with construction after receiving a final permit.

Finally, air permit challenges can be a useful organizing tool for advocates. Well-attended public hearings with key community leaders voicing opposition, large numbers of public comments detailing public concerns about a project, and legal challenges can generate substantial publicity and demonstrate widespread community opposition to a proposed facility. Even if a state agency like TCEQ ultimately issues the air permit, other entities that may hold discretion over approving a new facility may be more likely to vote against a project given the widespread public concern regarding air pollution issues.

4. How is this chapter organized?

This chapter describes the portions of the Clean Air Act most relevant to LNG export facilities, followed by helpful resources and advice on how to approach reviewing an LNG air permit.

- Section 8.B examines major NSR Permits that most LNG facilities will need;
    - Subsection 8.B.9 should be highlighted as it details particular major NSR issues likely to arise in LNG permitting;
- Section 8.C details *minor* rather than major NSR, which may apply to some smaller LNG plants or supporting projects;
- Section 8.D discusses air permitting for offshore facilities;
- Section 8.E looks at hazardous and toxic air pollutants (HAPs and air toxics) and the NESHAP and state air toxics requirements that apply to LNG facilities;
- Section 8.F briefly describes the applicable New Source Performance Standards;
- Section 8.G examines Title V federal operating permits;
- Section 8.H provides an overview how to prepare effective comments on air permits and gives advice on how to review a complex permitting record;
- Section 8.I details the air pollution and air pollution control technology relevant to LNG export facilities, and
- Section 8.J lists resources for learning more about all of the above topics, how to find important information and documents, and other helpful resources.

B. Major New Source Review Construction Permits

1. Who needs a major NSR permit?

Perhaps the single most important Clean Air Act question a new facility must confront is whether it will be a major NSR source or a minor (including synthetic minor source, discussed below). The costs and hurdles of building a major source are far more substantial than minor sources, and many types

of sources will even try to design their facility specifically to avoid major NSR. For our purposes, however, most LNG export facilities are so high-emitting that they have no choice but to be permitted as major NSR sources. That said, we provide a brief overview of NSR applicability determinations here.

EXISTING RESOURCE: EPA'S (DRAFT) NSR MANUAL

This chapter provides an overview of NSR permitting and specific issues relevant to LNG facilities. Advocates looking to learn more about NSR issues should look at EPA's NSR Workshop Manual, released as a draft in 1990 and never finalized. Although the Manual is not considered legally binding, it is recognized as a good resource for EPA's interpretation of NSR requirements. Many of those interpretations have been included in other EPA's documents or decisions that are binding, such as decisions by EPA's Environmental Appeals Board or in Title V petition orders. Be aware, however, that EPA has made changes to its rules and guidance since 1990, including extensive regulatory revisions promulgated in 2002 that altered the methodology for determining whether a facility modification triggers NSR.

The manual is currently available at: https://www.epa.gov/nsr/nsr-workshop-manual-draft-october-1990.

In the context of LNG export facilities, major NSR applicability is determined by two factors: location and the planned facility's potential emission rates for the six criteria pollutants (PM, NOx, CO, SO2, VOCs, and Lead). Location is important because areas that are in nonattainment have lower thresholds for major source applicability than areas that are in attainment.

In attainment areas, and as applicable to LNG facilities, a major source is any new facility that has the "potential to emit" (PTE, more on this below) 250 tons or more of any criteria pollutant per year.[939] In nonattainment areas, the default major source threshold is 100 tons per year of any pollutant that is causing the nonattainment (for instance, VOCs and NOx are both precursors of ozone, so if any area is in nonattainment for ozone, either VOCs or NOx could individually trigger the major source threshold). Further, there are more stringent thresholds depending on the severity and type of the nonattainment.

Potential to emit, or PTE, is term of art with specific, legal meaning defined in several places across the Act and in regulations. The relevant definition for NSR is set out as follows: *"Potential to emit* means the maximum capacity to emit a pollutant under [the source's] physical and operational design."[940] Further, "any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed" can be included in calculating PTE if it is legally and practicably enforceable, such as a permit limit on production throughput that is accompanied by adequate monitoring to ensure compliance with the limit.[941]

[939] For larger LNG export facilities that have turbines with a combined heat input rating of 250 MMBtu/hr or greater, the PSD threshold is actually 100 tpy, however, practically speaking, those larger facilities will have emissions that exceed either threshold. *See* 40 C.F.R. § 52.21(b)(1)(i)(a).
[940] 40 C.F.R. § 52.21(b)(4).
[941] EPA, *Guidance on Limiting Potential to Emit in New Source Permitting*, at 6 (June 13, 1989).

Finally, modifications can also require a major NSR permit. For sources that are already major and in attainment areas, the thresholds are set out below:

- Carbon monoxide: 100 tons per year (tpy)
- Nitrogen oxides: 40 tpy
- Sulfur dioxide: 40 tpy
- Particulate matter: 25 tpy of particulate matter emissions. 15 tpy of PM_{10}[942]emissions
- $PM_{2.5}$: 10 tpy of direct $PM_{2.5}$ emissions; 40 tpy of sulfur dioxide emissions (as a precursor to $PM_{2.5}$); 40 tpy of nitrogen oxide emissions unless demonstrated not to be a $PM_{2.5}$ precursor
- Ozone: 40 tpy of volatile organic compounds or nitrogen oxides
- Lead: 0.6 tpy
- Fluorides: 3 tpy
- Sulfuric acid mist: 7 tpy
- Hydrogen sulfide (H2S): 10 tpy
- Total reduced sulfur (including H_2S): 10 tpy
- Reduced sulfur compounds (including H_2S): 10 tpy

The thresholds for a modification to trigger Nonattainment NSR are generally the same as the PSD thresholds—except that lower thresholds apply in serious, severe, and extreme nonattainment areas.[943]

Finally, with respect to facility modifications, advocates should be aware that there are myriad ways for a facility to escape having its modification be classified as "major" even if the modification in question would, at first look, appears to result in a significant emission increase. For example, a facility can utilize a process called "netting" whereby sources may make modifications that would otherwise need a major source NSR permit by claiming credits for prior emission reductions at the same facility. The rules governing how to determine whether a facility modification is subject to major NSR are complex and beyond the scope of this guide. Advocates who believe that a facility modification has been improperly excluded from major NSR are strongly encouraged to consult with an experienced Clean Air Act attorney.

2. How do I know when a major NSR permit application has been submitted for a proposed LNG export plant?

As a general rule, it may be difficult to know when a major NSR permit application for a new proposed LNG plant has been submitted to a permitting agency. Although there are requirements for public notice and comment once an agency has prepared a draft permit it proposes to issue, many states have no notice requirements for the public to learn when an application has merely been submitted, although Texas is a notable exception, as explained below.

[942] PM_{10} refers to particulate matter 10 microns or smaller in diameter. $PM_{2.5}$, mentioned below, refers to particles 2.5 microns or smaller in diameter.
[943] *See* 40 C.F.R. § 51.165(a)(1)(x).

The lack of notice on applications is problematic because reviewing lengthy and complex applications can be daunting even for experienced Clean Air Act attorneys, so the more time available to review and organize in advance of the draft permit, the better.

Fortunately, there are ways advocates can learn of and obtain new applications. If an advocate is aware of a proposed new LNG export facility, perhaps from other, non-Clean Air Act, permitting processes, or from the industry itself, here's what they should do:

- Monitor online databases. Many states, including both Louisiana and Texas, maintain reasonably up-to-date online portals where documents, including permit applications, are uploaded (*see* Section 8.J.1). Be aware, however, that these databases may not be complete or updated sufficiently, so reliance on such databases alone may not be adequate to catch all new facilities.
- File public records requests.
- Talk to the agency. Most agency staff are willing to at least tell members of the public if an application has been received and how to obtain it. Often, they will direct you to file a public records request, but on occasion, a staff member will provide you with an electronic copy by email.

Texas Notice of Application: Texas does issue public notices when TCEQ receives a major source NSR application, but only after TCEQ has determined the application is administratively complete, and TCEQ has up to 90 days after receipt of an application to make this determination. The public notice is specifically referred to as the "Notice of Receipt of Application and Intent to Obtain Air Permit." Advocates can use TCEQ's website[944] to search for all public notices for a given time period, county, zip code, and so on. See the section below on public notice requirements for information on how to sign up for mailing lists to receive such notices.

3. Will I have an opportunity to comment on a proposed plant's major NSR permit application?

In most states the only formal opportunity to comment on a proposed plant's major NSR permit application will be once the agency has reviewed the application and drafted a permit. However, although the draft permit itself is the subject of the comment period, defective or incomplete applications that result in deficient permits are fair game for comments filed on the draft permit. In fact, reviewing and commenting only on the draft permit is likely to miss significant issues; reviewing the facility's application(s) is vital to spotting issues in the permit. For instance, a permit application may mention the possibility of the facility being equipped with more effective pollution controls, but the permit may require lesser controls because the applicant successfully argued that the more effective controls are not legally required. If you review the application and become aware of the issue, you might be able to successfully rebut the applicant's arguments and persuade the permitting agency to require the more effective controls.

Some states, including Texas, do provide a formal public comment period on major NSR permit applications. TCEQ allows for public comments and requests for public meetings as soon as it deems a new application "administratively complete" (see below Section 8.B.6.i). The "completeness determination" typically occurs many months before a draft permit is issued. Note that the deadline

[944] TCEQ, *Search for Public Notices*, https://www14.tceq.texas.gov/epic/eNotice/index.cfm.

for comments or meeting requests is not finalized at this stage, but rather will be set once TCEQ issues a subsequent public notice and opportunity for comment on the draft permit.

Regardless of whether the state provides a formal opportunity to comment on a permit application, nothing prevents you from providing the permitting authority with comments informally. Especially prior to the State finding that the application is "administratively complete," if you discover that an application is missing critical information (which is often the case) you should consider asking state officials to find that the application is incomplete. An incompleteness finding delays the deadline by which the state must act on the application and, as a practical matter, likely delays the point at which agency staff begin preparing a draft permit.

Be aware that in most cases, an applicant will submit its protocol for modeling the proposed facility's impacts on ambient air quality (the "modeling protocol") long before submitting its permit application—most likely about six to ten months beforehand. There is no formal opportunity to comment on the modeling protocol, but to the extent that you find out that a protocol has been submitted, it is helpful to submit any comments on the protocol early in the permitting process before the modeling is undertaken. While you can certainly comment on deficiencies in the modeling protocol when you comment on the draft permit, it will be difficult at that late stage to persuade the State to require the applicant to make substantial changes to its modeling protocol and redo its modeling.

To effectively comment on a modeling protocol, you almost certainly will want to enlist a modeling expert. One area that might be useful to focus on is the applicant's protocol for compiling the emissions inventory to be used for modeling the proposed facility's ambient air quality impacts. To correctly model compliance with the NAAQS, an applicant must partake in a two-step process—a process considered controversial by environmental advocates, discussed in Section B.9.i.d. First, an applicant will screen the project's emissions to determine whether they exceed "Significant Impact Levels" (SILs), and only if the emission exceed the SILs will an applicant need to model both the project's emissions and those of nearby sources.[945]

Often, at this second step, applicants try to take shortcuts, simply relying on state emissions inventories that may only include estimated actual emissions and often are woefully inaccurate. Early in the process, you could advocate for the state to require the applicant to undertake a more rigorous analysis of actual emissions in the area, which the applicant can identify by taking the time to review individual permits to determine each facility's allowable emissions. An expert could advise you as to the specific nuances of the state in which you are operating and the particular information sources that an applicant proposes to utilize in putting together the regional emissions inventory to be used for modeling.

4. When is a Permit Application Complete?

It is important to understand the significance of the administrative completeness (or sometimes "technical completeness") determination. Major NSR applications are vast documents and must contain many types of information. It is common for an applicant to submit an incomplete application. Agencies therefore usually do not start the permitting "clock" until they complete an initial review of the application to ensure it at least contains the minimal types of information that will enable the

[945] 40 C.F.R. Part 51, Appendix W, § 9.2.3.

agency to review and prepare a draft permit. If an applicant fails to supplement an incomplete application, the agency will not take any further action on the application.

Below, and in broad strokes, are the minimal requirements for a complete major NSR permit application relevant to a new LNG export facility in Louisiana; most other state's requirements will be similar:

- The facility's physical location (with high specificity) and process description;
- The facility's projected emissions rates;
- The bases for estimating emission rates (i.e. emission factors, process throughput, and other detailed calculations);
- List of applicable Clean Air Act requirements;
- Co-location determination: are there any other facilities that really should be permitted jointly with this one? Or is this potentially a modification of an existing source?
- Control technology determination(s), i.e. what emissions level reflects the use of best available control technology (BACT) (required for attainment-area pollutants) or lowest achievable emissions rate (LAER) (required for nonattainment area pollutants) and why?
- Air quality analysis, including air dispersion modeling to demonstrate compliance with NAAQS;
- Additional impacts analysis (impacts to soils, vegetation, and visibility);
- Signed certificate of compliance with applicable requirements;
- Certificate of a Registered Professional Engineer.

It is vital to note that the mere fact that an agency has determined that an application contains all of the necessary information does not mean the application is actually complete. The completeness determination by an agency is a high-level review, and advocates should be on the lookout for omissions of key information that is necessary to inform the permit writer and the public of how the facility will be built and operated. For example, a "complete" application may omit technological or economic information necessary to justify BACT determinations. A permit issued based on an incomplete application is likely defective and vulnerable to legal challenge.

Even after a permit application has been deemed complete, agencies may realize they need additional information, and will make formal or informal requests for additional information. Likewise, it is common for applicants to realize they need to make changes to the application and to submit application amendments.

In a perfect world, the NSR permit application would be a single, self-contained document with all of the necessary information in one place. In reality, however, the "application" may really consist of numerous documents, amendments, and even communications like emails. Advocates should therefore view the "application" as more of an administrative record rather than a single document.

5. How much time does a permitting authority have to act on a major NSR permit application?

In most states, including Texas and Louisiana, the deadlines applicable to permit processing are found in their SIPs—specifically, in state NSR regulations that have been approved by EPA.[946] Although these deadlines are legal requirements, in practice states frequently miss these deadlines. The relevant regulations for Texas and Louisiana are set out below:

Texas Major NSR Permitting Schedule (30 TAC § 116.114)

1. Upon receipt of an application, TCEQ has 90 days to inform the applicant whether the application is complete or deficient. If it is deficient, the clock stops until the applicant provides the missing information; if it is complete, then the schedule continues.
2. If the application is deemed complete initially, then TCEQ has 180 days to issue a preliminary decision in the form of a draft permit or permit denial; if the initial application was not initially deemed complete but was supplemented, TCEQ has 150 days from the date the permit was eventually deemed complete to make a preliminary decision.
3. The rules do not set out explicit deadlines for issuing permits when public comments are received; in practice, substantive comments can cause the agency to miss the aforementioned dates.

Louisiana Major NSR Permitting Schedule and Deadlines (LAC 33:III.509(Q))

1. Upon receipt of an application, LDEQ has 60 days to notify the applicant whether the application is complete or deficient (note that if LDEQ fails to timely notify the applicant one way or the other, the application is deemed complete). If the application is deficient, the applicant must respond to the notice of deficiency to supplement the application within 30 days.
2. Louisiana's rules are somewhat ambiguous on what happens once an application is deemed complete. Specifically, the rules state that "[w]ithin one year after receipt of a complete application, [LDEQ] shall make a preliminary determination whether construction shall be approved. . ."[947] The ambiguity arises because it is unclear whether the one-year deadline is triggered as of the date of receipt or the date the completeness determination is made.
3. Regardless, once a preliminary determination is made, LDEQ will make the draft permit and determination available for public notice and comment. As in Texas, there are no specific deadlines for when the final permit must issue if comments are received.

6. How do I know when a draft major NSR permit is available for public comment?

Once you know an application has been submitted, it is comparatively easy to know when a draft major NSR permit is available for public comments. At a minimum, all states must provide for public notice and comment on draft major NSR permits, and most states maintain mailing lists (often via email and regular mail) that advocates may sign up for to receive notices and other updates. Most agencies also have online websites listing recent public notices.

[946] If a state is operating under "delegated" EPA authority (a list of such states is provided at Section 8.B.12), or EPA is directly acting as the permitting agency (likely offshore permitting, Section 8.D), then a one-year deadline to issue or deny applies. See more information here: https://www.epa.gov/sites/default/files/2015-07/documents/timely.pdf.
[947] LAC 33:III.509(Q)(2).

a. Texas Public Notice Requirements for Major NSR Permits

Texas' public notice requirements for Major NSR permits can be found at 30 TAC § 39, Subchapters H & K.[948] Specifically, Texas' SIP requires public notice and comment at several stages of the permitting process:

- Notice of Receipt of Application and Intent to Obtain Permit, 30 TAC § 39.418: once TCEQ determines that an application is complete, TCEQ shall mail the determination and the Notice of Receipt of Application and Intent to Obtain Permit to those on the mailing list (see below for details on mailing lists). Notice must also be published in a local newspaper and on sign postings at the site, pursuant to 30 TAC Chapter 39K.
    - Comment deadline: TCEQ's public notice deadlines can be confusing, so it's best practice to look at the public notice itself to ascertain when TCEQ has set the deadline. In general, however, for major NSR permits, the deadline will be 30 days after publication of the *Notice of Application and Preliminary Determination,* set out below. This means there will be a long but unspecified period where the *Notice of Receipt* is open for public comment.[949]
- Notice of Application and Preliminary Determination, 30 TAC § 39.419: "After technical review is complete for applications subject to the requirements [of major NSR, both PSD and NNSR], the executive director shall file the executive director's draft permit and preliminary decision, the preliminary determination summary and air quality analysis, as applicable, with the chief clerk and the chief clerk shall post these on the commission's website."
    - Comment deadline: 30 days after newspaper publication of the public notice.[950] This can be problematic for advocates, as the publication of the notice in a local newspaper is left to the applicant, meaning the exact start and end time of the notice period can be hard to ascertain. Specifically, the notice must be published "in a newspaper of general circulation in the municipality in which the facility is located or is proposed to be located or in the municipality nearest to the location or proposed location of the facility."[951] Advocates can call the applicant at the number listed in the public notice to ascertain whether publication has occurred. Alternatively, proof of publication is also usually posted on TCEQ's Commissioner's Integrated Database, but this may not be posted until days or weeks after publication, meaning advocates lose valuable time.
        - Also note that in some instances, applicants must also publish a newspaper notice in an alternative language; this is determined by whether the nearest elementary or middle school to the facility is implementing a bilingual education program.[952] If newspaper notice is required in more than one language, the alternative language notice may be in a different newspaper than the English-language notice; in this instance, the 30-day deadline runs from whichever notice was published last.

TCEQ Mailing lists: advocates may sign up for two types of mailing lists in Texas. First, TCEQ maintains mailing lists specific to each proposed facility, so if you know the name of a proposed

[948] Shortcut to the SIP: https://www.epa.gov/sips-tx/current-texas-sip-approved-regulations#39H.
[949] *See* 30 TAC § 55.152.
[950] 30 TAC § 55.152(a)(1).
[951] 30 TAC §39.603(d).
[952] For a quick guide to bilingual public notice requirements, see TCEQ's "Easy Steps to Determine if Public Notice in an Alternative Language is Required," https://www.tceq.texas.gov/assets/public/permitting/air/Bilingual/alternatelanguagechecklist.pdf.

facility, you may request to be added to that mailing list. Alternatively, TCEQ also maintains mailing lists on a county basis; for instance, you can ask to receive all public notices for facilities in Harris County. Requests for either type of mailing list must be made in writing to chiefclk@tceq.texas.gov. In practice, these notices are also posted on TCEQ's website at: https://www14.tceq.texas.gov/epic/eNotice/.

b. Louisiana Public Notice Requirements for Major NSR Permits

Louisiana's public notice requirements for PSD sources can be found at LAC 33:III.509(Q). Confusingly, Louisiana's regulations do not set out specific public notice requirements for nonattainment NSR permits, but practically speaking any LNG export facility located in a nonattainment area (and only one parish on the coast of Louisiana is in nonattainment—St. Bernard Parish) is likely to trigger PSD or minor NSR permitting requirements (which will also require public notice and comment, discussed in Sections 8.B.3 and 8.C.2, respectively).

Louisiana's rules also do not establish a specific time period for public comment periods on draft PSD permits, however the public notice document will set forth a precise deadline. Based on a review of public notices, LDEQ typically provides for around 35 days of public comment. Note that if the time period is less than 30 days, it is unlawful.[953]

LDEQ maintains both a regular mailing list and an electronic mailing list, to sign up visit https://internet.deq.louisiana.gov/portal/SUBSCRIBES/PUBLICNOTIFICATION or contact the Public Participation Group in writing at LDEQ, P.O. Box 4313, Baton Rouge, LA 70821-4313, by email at DEQ.PUBLICNOTICES@LA.GOV or by contacting the LDEQ Customer Service Center at (225) 219-LDEQ (219-5337). Likewise, public notices are posted to LDEQ's website at: https://deq.louisiana.gov/public-notices.

7. How much time will I have to comment on a draft major NSR permit? Can I get an extension?

Permitting authorities must provide at least 30 days of public notice and comment on draft Major NSR permits,[954] and in practice 30 days is typically what states choose to implement. Note that if the 30-day period ends on a weekend or holiday, most states will roll the deadline to the next working day, but it is imperative that you confirm this in writing with the permitting authority. It is also vital to check whether the deadline is 5 pm, midnight, or some other unnecessarily arbitrary time (at least one state has a 4:30 pm deadline, which seems designed to trip up unsuspecting advocates). In Louisiana and Texas, as of this writing, the deadline is midnight.

Extensions are granted at the discretion of the permitting authority. In practice, agencies are usually willing to grant an extension request when there is significant public interest, the facility or permit is particularly complex, or other extenuating circumstances exist. Regardless, it doesn't hurt to ask. Requests for extensions are typically made by a brief letter sent to the appropriate contacts at the agency setting out the reasons that a request would benefit the public or is otherwise warranted. Unfortunately, it is often the case that extension requests aren't granted until the end of the initial comment period, and you don't want to rely on the agency granting your request. Thus, even if you request an extension, be prepared to submit at least a basic set of comments by the initial comment deadline.

[953] 40 C.F.R. § 52.21(q) states that PSD permits must follow the public notice and comment requirements of 40 C.F.R. § 124, which, in turn, includes a requirement for at least 30 days of public comment. 40 C.F.R. § 124.10(b)(1).
[954] 40 C.F.R. § 124.10(b)(1).

Additionally, in many states, requesting a public hearing (discussed below) may also result in an extension of the deadline for written comments. In Texas, for instance, if a public hearing is granted during or after the close of the public comment period, TCEQ typically reopens or extends the written comment deadline until the date of the public hearing.

8. Is there an opportunity for a public hearing on a draft major NSR permit?

Permitting authorities must hold a public hearing when there is "a significant degree of public interest."[955] Many states choose to hold public hearings on all major NSR permits, but others will only do so when requested, including both Louisiana and Texas (discussed below).

So, what are public hearings and why or when should advocates request one?

- Public Hearing Format: The legal purpose of a public hearing is to provide members of the public with an opportunity to present oral comments to the permitting agency that will be entered into the administrative record for the permit action. The agency must document all oral comments that it receives. The agency is obligated to consider and respond to any substantive and significant comments in deciding what action to take on the permit application.

  The exact format of the public hearing will vary from state to state, but a typical public hearing will contain similar elements. Often the state agency will make a brief presentation before the public hearing begins in which it will describe the proposed facility, the draft permit, and, typically, the agency's rationale for why the permit will protect public health and the environment. Sometimes this presentation will be followed by a question-and-answer session, but not always. Note that if the agency gives a presentation and/or hosts a Q&A session, the official "public hearing" does not begin until after that is over. Once the hearing officially begins, all meeting attendees can provide oral comments on the draft permit if they wish to do so. It is important to confirm when the hearing officially begins so that you know that your oral comments will be in the administrative record. Also, though oral comments will be incorporated into the administrative record, it is good practice to bring a written copy of whatever you plan to say in your oral comments and hand them to the stenographer before you speak. Though not required, this will ensure that your comments are properly recorded and make it more likely that you will receive a substantive response from the agency when it takes final action on the permit application. Preserving a record of your comment is important because, in most cases, you can only challenge an agency's final decision based on issues that were raised in public comments on the draft permit.
- Typically, someone who wishes to make an oral comment at a public hearing must sign up on a speaker list when they arrive at the hearing. The public notice announcing the hearing should provide instructions for how to sign up. If you anticipate that there will be a lot of people at a hearing, tell advocates that they should sign up or arrive early if they want to speak near the beginning.

[955] For a discussion of what qualifies as a "significant decree of public interest," *see In re Sierra Pacific Indus. (Anderson Processing Facility)*, PSD Appeal Nos. 13-01, 13-02, 13-03 & 13-04, Order Remanding in Part and Denying Review in Part (EAB, July 18, 2013) (available on the website of EPA's Environmental Appeals Board at https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/05819647854bacb0852578db004a8fe9/1432397d2de2b8f885257bac005d9283!OpenDocument&Highlight=2,sierra,industries).

- Who will be there? The agency will typically bring a handful of representatives, including usually the individual(s) responsible for reviewing the application and writing the permit, as well as managers and public relations and/or environmental justice representatives. The applicant will usually send representatives to speak or even present, and sophisticated corporations also tend to invite numerous supporters, such as local politicians, representatives from the local chambers of commerce, and company employees, to vouch for the benefits of the project. Finally, of course, are members of the public. To get the most out of a public hearing, be sure to enlist as many advocates as possible to attend. You can assist those who are willing to speak by arming them with suggested talking points if they are interested. If you have a lot of people attending who are opposed to the facility but won't be speaking, make sure that one of the speakers asks members of the audience to raise their hands if they oppose the project, and have the speaker describe what portion of the audience is opposed, etc. Aside from encouraging community members to attend, you should also consider whether any elected officials would be willing to attend the hearing and express opposition to the project. Finally, if you think that you will have a sufficient number of advocates present, you should notify the media and be prepared to speak with them. You might hold a press event prior to the hearing at a location that provides a good visual background, e.g., protesters on the steps of city hall.
- What is the value of a public hearing? Generally speaking, the types of issues covered by this guide that relate specifically to the draft permit are best made in writing; oral comments are usually limited to around three to five minutes, making a presentation on legal or technical arguments concerning the permit difficult. However, public hearings can be useful for several reasons:
    - Showing that the community is paying attention and seeking a just and stringent permit;
    - Providing members of the community who are uncomfortable preparing written comments with an opportunity to present their concerns orally;
    - Focusing the agency's attention on key legal or technical arguments made in written comments;
    - If Q&A is allowed prior to the hearing, that can be a valuable opportunity to delve into how the agency has reviewed and processed the permit. For instance, if you have found vulnerabilities in the permit record, why not ask if the agency has considered the issue? If yes, they may save you time by explaining their rational, and if not, it highlights the agency's lack of thoroughness and oversight;
    - As an organizing tool to bring together members of the public who may have concerns about the facility;
        - Providing an opportunity for media coverage of the community's concerns.
- Are there risks to requesting a public hearing? There can be. The primary one is requesting a public hearing and not having community members show up or speak. Advocates should only request a public hearing when it is clear that the community is sufficiently engaged—and not overly intimidated—to attend and speak publicly.

Texas and Louisiana specific guidance:

- Texas public meetings: In Texas, public hearings are specifically referred to as public 'meetings;' requests for a public 'hearing' will be interpreted as a request for a contested case hearing, discussed below, so advocates must be precise with the language of their requests. Public meetings will only be held when requested. The public notice will contain instructions on how to request a public meeting.
- Louisiana hearings: Although Louisiana's SIP appears to require public hearings on all major PSD permits,[956] in practice it appears LDEQ only holds hearings for permits when requested or when they anticipate significant public interest. Advocates may request a hearing once the public notice for a draft permit is released, and the public notice will contain instructions for how to do so (including online and by email).

If advocates do wish to request a hearing, it is worth contacting the agency before the draft comes out if you have specific requests regarding when and where the hearing should be held. If the agency already intends to hold a public hearing on a draft permit, it likely will announce the time and location of the hearing in the same notice used to announce the availability of the draft permit for public comment.

9. What are the key issues I should cover in my comments on a draft major NSR permit?

Major NSR permits and the permit record can seem daunting. This section details key issues that tend to arise in major NSR permits, first in a general manner, and then in a more detailed look at LNG-specific NSR issues.

a. Prevention of Significant Deterioration requirements

Most LNG export facilities are permitted as major NSR sources, so they will need to obtain a PSD permit addressing all criteria pollutants for which the area where the source is proposed to be located is in attainment. As noted above, all areas in the U.S. are classified as attainment for at least some criteria pollutants, so a proposed major source will always be subject to PSD for at least some pollutants. This section addresses issues to watch for in the PSD portion of a permit.

i. Applicability Determinations

As discussed above, most LNG export facilities have been permitted as major NSR sources, so more often than not there won't be significant issues around whether NSR applies to a proposed new facility.[957] Further, the question of whether a minor or synthetic minor source should really be a major source is covered in the minor NSR section below.

Even with major NSR sources, however, there are still issues to watch for regarding major NSR applicability determinations. The main one involves support facilities. Here's an example: if a minor source pretreatment facility is to be built four miles from a major source liquefaction export facility, both owned by the same company, and they will be connected by a pipeline, are they two sources or one for purposes of NSR permitting? This isn't a hypothetical, but the questions faced by EPA and

[956] LAC 33:III:509(Q)(2)(c).
[957] One notable exception is Freeport LNG in Texas, which uses electric motors rather than combustion turbines in the LNG trains; as a result, it emits vastly lower levels of air pollution compared to similar-sized LNG export facilities that utilize combustion turbines.

TCEQ when permitting Freeport's LNG operations in Texas, and the answer is critical for several reasons.

By attempting to separate projects into discrete permits, industry can evade key NSR requirements. In the foregoing example, the pretreatment facility–if permitted individually–would be a minor source not subject to major NSR, and the combined emissions of the two sources would not need to be considered together in the NSR impacts analyses for the export facility.

This question is referred to as "project aggregation" (or sometimes "source aggregation"), and here are the broad elements that must be met for two or more projects to be considered one source:

1. Do they share the same industrial grouping? This is determined by whether the facilities share the same first two digits of the four-digit Standard Industrial Code (SIC). LNG facilities fall into the SIC code beginning with '13' for oil and gas extraction, so any other operation within that '13' group will qualify, and

2. are located on "one or more contiguous or adjacent properties," and,

3. they are "under the control of the same person (or persons under common control)."

40 C.F.R. § 52.21(b)(6)(i). Although the first prong is straightforward, the second two have been subject to shifting guidance and rulemaking in recent years. Key issues:

Definition of adjacent: As of February 2022, "adjacent" is defined for the oil and gas industry to mean on the same "surface site," as defined in 40 C.F.R. § 63.761,[958] or within ¼ mile of each other.[959] This ¼ mile rule was implemented in 2016 by EPA to apply specifically to the oil and gas industry. Prior to that, much further distances could be considered adjacent (for instance, the four miles at issue in the Freeport permit above was considered adjacent in 2015 when the permitting was conducted, but likely would not be considered adjacent currently).

Definition of control and common control: Here's how EPA recently summarized the common control question:

"EPA first determines whether the facilities are commonly owned, e.g., one company is a parent company to the other or one company owns part of the other company. Common control can also be established if an entity has the power to direct or cause the direction of the management and policies of another entity. This direction could be as a result of the ownership of stock, or voting rights, by the existence of a contract, lease, or other type of agreement between the facilities, or through another means."[960] EPA recently issued a Final Action further clarifying its interpretations of source aggregation,[961] which is a good starting point for advocates looking to learn more.

ii. Best Available Control Technology (BACT) Determinations

One of the most contentious realms of major NSR permitting, and therefore an area ripe for scrutiny, is the BACT determination (and much of what is discussed in this section also is relevant to LAER

[958] 40 C.F.R. § 63.761 defines "surface sites as any combination of one or more graded pad sites, gravel pad sites, foundations, platforms, or the immediate physical location upon which equipment is physically affixed."
[959] 81 Fed. Reg. 35,622, 35,623 (June 3, 2016).
[960] Letter from Gregg M. Worley, EPA, to James Capp, EPA, at 2, Dec. 16, 2011, https://www.epa.gov/sites/default/files/2015-07/documents/ps2011.pdf.
[961] 83 Fed. Reg. 57,324 (Nov. 15, 2018), https://www.regulations.gov/document/EPA-HQ-OAR-2003-0064-0175.

determinations for NNSR). Generally, the more stringent the BACT determination is, the more money the source will need to spend to comply; on the other hand, BACT is meant to require exactly what it stands for: the best available control technology. Herein lies the tension between sources, agencies, and advocates.

Despite its name, BACT is not truly a particular control technology, but instead a short-term emission limit based on the use of a given control technology or operating practice. Here is the most central part of the definition of BACT:

> *Best Available Control Technology means an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under the Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source . . .*

40 C.F.R. § 52.21(b)(12). See below for a more detailed description, but in short, BACT should be the lowest emission limit that has been achieved at a similar source such as combustion turbines. The burden then falls on the applicant to demonstrate why its unique, source-specific design or operating conditions render that emission limit infeasible either technologically or due to considerations of energy, environmental, or economic impacts.

In most states, the foregoing analysis is conducted in a five-step, "top down" approach pursuant to EPA guidance: [962]

- Step one. Assemble all available, potential control technologies and the related emission limits achieved or believed to be achievable. This can include both controls and operating practices, including a combination of controls, and the scope is not limited to control technologies in use in the United States.
- Step two. Eliminate those potential control technologies that are not technically feasible.
- Step three. Rank the remaining options in order of control effectiveness.
- Step four. Conduct a case-by-case consideration of energy, environmental, and economic impacts—starting with the option ranked most effective for controlling emissions. In the absence of unusual circumstance, the presumption is that cost and other impacts that have been borne by one source in a given category may be borne by another source in the same source category. Cost is usually expressed as cost-per-ton of emissions reduced. If the top option is rejected, evaluate the next most effective control option.
- Step five. The most effective option not rejected is BACT.

Ways to challenge a proposed BACT determination include:

- At step 1: The proposed determination ignores technology in use at other similar facilities (including those in other countries) or other industries that can be transferred to this industry. Sources and states sometimes claim that they can refuse to consider control technologies that

[962] This description of BACT and the following "Ways to challenge a proposed BACT determination" were adapted from material drafted by Patton Dycus for Clean Air Act Toolkit, and are excerpted here with permission.

are used by identical processes located at synthetic minor facilities, as these controls are not used as BACT, but this incorrect and should be challenged. In addition, it is not that unusual for the proposed BACT determination to involve no controls (but instead, best operating practices). Scrutinize such determinations carefully.

- At step 2. The technical infeasibility determination is unfounded.
- At step 4. A technology is improperly found cost-ineffective because costs are inflated (perhaps by counting the cost of controls that are already required to control other pollutants), the emission control efficiency assumption is too low (increasing the cost/ton of pollution removed), or the amount of uncontrolled emissions is underestimated.

Texas, meanwhile, does not use the top-down method, but instead a "three-tier" process. Note that while EPA does not require the top-down method, EPA will only accept other methods so long as the procedure produces the same results as the traditional EPA-endorsed top-down methodology.[963] In addition, TCEQ has specifically stated that the three-tier method must produce exactly the same results as the top-down method, and not merely be "likely" to produce the same results.[964]

TCEQ's three-tier process is briefly summarized here, but a full guide is available at this footnote.[965]

- Tier I: Evaluates emission limits or performance levels established as BACT in recent major NSR permits; this step roughly presumes that "technical practicability and economic reasonableness of a particular emission reduction option may have already been demonstrated in prior reviews for the same process and/or industry."[966] Note that Tier I also should also "take into consideration any new technical developments, which may indicate that additional emission reductions are economically or technically reasonable."[967]
- Tier II: If no BACT requirements have been established for particular process or industry, the process moves to Tier II, which considers BACT limits in recent NSR permits for "similar air emissions streams in a different process or industry."[968]
- Tier III: This tier applies only if the first two have failed to identify applicable BACT limits. Tier III is a "a detailed technical and quantitative economic analysis of all emission reduction options available for the process/industry under review."[969] In practice, it is rare for a source to reach Tier III, and it is especially unlikely that an LNG export facility would do so.

iii. Air Quality Modeling

Applicants for PSD permits must conduct air dispersion modeling to demonstrate that their emissions will not cause or contribute to exceedances of the NAAQS (or otherwise degrade air quality, *see* PSD Increments[970]). Air dispersion modeling is a complex and technical process, and

[963] TCEQ, Response to Texas Chemical Council's Comments on Air Permit Reviewer Reference Guide (APDG 6110) Air Pollution Control: How to Conduct a Pollution Control Evaluation, at 4 (undated), https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/rtc-texas-chem.pdf.
[964] *Supra,* 4.
[965] TCEQ, Air Permit Review Reference Guide (APDG 6110) Air Pollution Control: How to Conduct a Pollution Control Evaluation (2011), https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/airpoll_guidance.pdf.
[966] *Supra,* 11.
[967] *Supra.*
[968] *Supra.*
[969] *Supra.*
[970] Here's how EPA explains PSD increments: "PSD increment is the amount of pollution an area is allowed to increase. PSD increments prevent the air quality in clean areas from deteriorating to the level set by the NAAQS. The NAAQS is a maximum

advocates may benefit from bringing in expert assistance if there is reason to suspect issues with the modeling. Below are a few things to look for:

- How close does the applicant themselves show the results compared with the NAAQS or PSD Increments? The application will contain tables that show the results of the modeling, i.e. the highest concentration of each pollutant in the atmosphere as a result of both existing pollution and the plant's new emissions. Those tables will compare the results with the applicable standard. For instance, the NAAQS for PM2.5 (fine particulate matter) is 12 $\mu g/m_3$,[971] so if the modeling report shows the current value in the county is 8 $\mu g/m_3$, and will be 11.5 $\mu g/m_3$ with the new facility, that is worth further examination.
- Does the modeling report comply with the modeling protocol? Prior to conducting the modeling, applicants will work with the permitting authority to develop a protocol document that governs how the modeling will be conducted. In the final report, if the applicant has deviated from the protocol, they will typically say so and explain why. It may be legitimate, but it is worth a closer look.
- Does the modeling protocol and report comply with Appendix W? Appendix W to 40 C.F.R. Part 51 is EPA's guidance on how air dispersion modeling should be conducted. Any deviations from Appendix W may be another red flag. Such deviations will be discussed in the protocol, final report, or in communications between the applicant and the agency.
- If the modeling is for a modification rather than a new source, does modeling include only the increased emissions from the modification rather than the total emissions from the source? Sources occasionally attempt to model only the "new" emissions that result from a modification rather than the total emissions for the source; this is improper. Modeling for modifications must include the total emissions from the source.[972]

Finally, the modeling is only as good as the data it's based on. For example, if you have reason to believe a source is underestimating emissions, then you should also argue that the modeling analysis is deficient because it relied on underestimated emission rates.

iv. Significant Impact Levels

It is not uncommon for a permit applicant to claim that its emissions will not have a "significant" impact on ambient air quality, and thus, that the applicant is not required to undertake a detailed analysis or modeling to demonstrate that its emissions, in combination with the emissions of other sources in the vicinity, will not cause or contribute to a violation of the NAAQS or PSD increment (a "cumulative impact analysis"). This argument is based on a concept created by EPA called "Significant Impact Levels" (SILs). Essentially, the idea is that if ambient air impact of the proposed

allowable concentration 'ceiling.' A PSD increment, on the other hand, is the maximum allowable increase in concentration that is allowed to occur above a baseline concentration for a pollutant. The baseline concentration is defined for each pollutant and, in general, is the ambient concentration existing at the time that the first complete PSD permit application affecting the area is submitted. Significant deterioration is said to occur when the amount of new pollution would exceed the applicable PSD increment. It is important to note, however, that the air quality cannot deteriorate beyond the concentration allowed by the applicable NAAQS, even if not all of the PSD increment is consumed." EPA, *Prevention of Significant Deterioration Basic Information*, http://www.epa.gov/nsr/prevention-significant-deterioration-basic-information#:~:text=The%20NAAQS%20is%20a%20maximum,baseline%20concentration%20for%20a%20pollutant

[971] Concentrations of pollutants in ambient air are typically expressed as either micrograms per cubic meter ($\mu g/m_3$) or parts per millions (ppm).

[972] 40 C.F.R. Part 51, Appendix W, Table 8-2.

new source or modification is not projected to exceed the SIL, i.e. that it is not "significant," then the impact is too small too matter.

The Clean Air Act unambiguously prohibits the use of Significant Impact Levels ("SILs") to make permit determinations, as well as Modelled Emission Rates for Precursors ("MERP") values that rely upon a SIL. The Act's and Louisiana's PSD provisions require Magnolia to demonstrate that the emissions from its proposed complex will "not cause, or contribute to" an exceedance of any NAAQS or any increment. Congress used mandatory and expansive language throughout Section 7475(a) to make its directive clear for EPA or LDEQ: "no" covered source may be constructed, "unless" that source "demonstrates" that it "will not" "cause, or contribute to," "any" violation of the NAAQS or "any" increment. Congress specifically used the terms "cause" and "contribute" together to ensure the PSD program would prevent increments and the NAAQS from being exceeded by considering all possible violations or contributions to violations. A contribution to an ongoing violation can be either quite small or quite large: the term "contribute," "has no inherent connotation as to the magnitude or importance of the relevant 'share' in the effect; certainly it does not incorporate any 'significance' requirement." Congress left no room to forego demonstrating air quality would meet the NAAQS and increments, simply because an agency believes a facility's emissions would not make a significant enough contribution to any violations.

Advocates have long argued that SILs are simply illegal and contrary to Congress' intent behind the Clean Air Act. EPA, however, has generally approved of SILs, and even approved SILs into its regulations at one point,[973] but litigation forced EPA to reconsider SILs and their future remains somewhat uncertain.[974] Regardless, most states appear to use SILs, which can be a point to challenge a PSD permit. Below is an excerpt of excellent comments by Devin Lowell of Tulane Environmental Law Clinic and Josh Smith of Sierra Club on this issue in relation to Magnolia LNG in Louisiana:[975]

As to how the SILs work in practice, SILs allow a PSD source to conduct Phase I modeling that evaluates only emissions from the proposed facility without any consideration of other sources or the existing air quality; if the results of the Phase I modeling are below the relevant SILs[976]

[973] 40 C.F.R. § 51.166(b)(2).
[974] *See Sierra Club v. EPA*, 705 F.3d 458, 463-64 (D.C. Cir. 2013). In short, EPA has held the view that SILs may be appropriate, and in 2010 attempted to codify SILs for PM2.5 and ozone. Advocates challenged the 2010 rulemaking, and EPA requested that the Court vacate and remand the rules. EPA to date has not attempted new rulemaking, but instead issued non-binding guidance in 2018 establishing recommended SILs for PM2.5 and ozone as the first part in a two-step process it intends to take; EPA states that it intends to study the use of these recommended SILs in step one, before codifying them in step two. *See* EPA, Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program (Apr. 17, 2018), https://www.epa.gov/nsr/significant-impact-levels-ozone-and-fine-particles.
[975] App. 59, Tulane Environmental Law Clinic and Sierra Club's comments on draft air permit for Magnolia LNG (July 29, 2021).
[976] EPA has generally given states discretion to set SILs, and frequently the numerical value of SILs is based on the table found at 40 C.F.R. § 51.165(b)(2), but note that from a legal perspective, the values in this table are not specifically approved as SILs. This table was developed for other permitting purposes, but EPA has referred to these values as SILs in various guidance documents. *See* EPA, *Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program*, at 8-9 (Apr. 17, 2018) ("SIL Guidance"), https://www.epa.gov/nsr/significant-impact-levels-ozone-and-fine-particles.

(established either by EPA guidance,[977] future EPA regulations, or by states), then the agency will assume that the facility will not cause or contribute to any exceedance of the NAAQS or increments. Only if the Phase I modeled emissions exceed the SIL will the source need to conduct a comprehensive Phase II modeling analysis that includes nearby sources and existing air quality.

Note, however, that EPA has stated that permitting authorities will occasionally need to look beyond SILs and require additional measures to assure compliance with the NAAQS and Increments even for emissions that do not exceed the SILs. For example, EPA states that "notwithstanding the existence of a SIL, permitting authorities should determine when it may be appropriate to conclude that even a *de minimis* impact will 'cause or contribute to' an air quality problem and to seek remedial action from the proposed new source or modification."[978]

If advocates are seeing a source attempting to take advantage of SILs, they should consult the full Tulane/Sierra Club Magnolia LNG comments,[979] and would benefit from contacting an expert or Clean Air Act attorney.

v. Additional Impacts Analysis

In addition to directly assessing a project's impacts on air quality through modeling, PSD also requires an analysis of impacts to soil, vegetation, visibility of pollution from the project, as well as an analysis of the impacts on air quality from residential, commercial, and industrial growth that will accompany the project.[980] Note that EPA has taken the position that impacts from greenhouse gas emissions are not considered in the Additional Impacts Analysis.[981] Advocates have not generally found vulnerabilities related to LNG facilities under these Additional Impacts Analysis requirements, but advocates should look for unique aspects of future LNG facilities that may raise innovative impacts arguments.

vi. LNG-Specific PSD Issues to Watch For

This section addresses specific PSD issues that may arise in the context of permitting a major source LNG export facility. There are a number of common units that will need to undergo BACT/LAER at most facilities, but the stationary gas compression turbines are probably the most significant because these are the largest sources of emissions at LNG export facilities, especially of NOx and CO, so particular attention will be given to those units. It should be noted that, from a BACT/LAER perspective, the turbines at LNG export facilities are generally comparable to turbines in use in other industries, such as power plants. Therefore, it is important to consider all industries using turbines in the BACT analysis.

(1) Limits do not reflect BACT

New sources often argue that the most stringent BACT limits that have been achieved in practice should not apply to their particular facility for numerous reasons. Those reasons are discussed below, but the following table shows what we have found to date to be the limits that should often qualify as BACT for simple-cycle combustion turbines. If an applicant is proposing limits higher than these, that is a red flag. Unfortunately, limits are often expressed in different units, meaning comparisons of the

[977] As of March 2022, EPA has established "recommended" SILs in non-binding guidance for PM2.5 and ozone. See *SIL Guidance,* 15.
[978] *SIL Guidance,* 10, *citing* 75 Fed. Reg. 64,864, 64,892.
[979] App. 59, Tulane Environmental Law Clinic and Sierra Club's comments on draft air permit for Magnolia LNG (July 29, 2021).
[980] 40 C.F.R. § 52.21(o).
[981] EPA, *PSD and Title V Permitting Guidance for Greenhouse Gases*, 48 (Mar. 2011).

lowest limits can be difficult; see Section 8.J.4 of this Chapter for a brief guide on how to convert emission rates from one set of units to another.

Table 8.1: Recent BACT Limits for Gas Turbines

NOx limit	CO limit	VOC Limit	SO_2 Limit	PM Limit
2 ppmvd[982] (numerous non-LNG facilities); 2.5 ppmvd at Freeport LNG in Texas.[983]	Limits lower than 1 ppmvd have been implemented at some non-LNG sources, and the lowest limit for LNG plants is 4 ppmvd at Freeport LNG in Texas.[984]	0.0018 lb/MMBtu (non-LNG);[985] 2 ppm at Port Arthur LNG.[986]	0.0011 lb/MMBtu (non-LNG);[987] 2.96 lb/hr at Port Arthur LNG.[988]	0.0033 lb/MMBtu (non LNG);[989] 2.32 lb/hr at Port Arthur LNG.[990]

NOTE: because BACT and LAER are intended to improve control efficiencies as technology evolves over time, the foregoing limits may not represent BACT/LAER in the future. To understand how to find the latest in BACT/LAER limits, see Section 8.J of this chapter.

If it appears that a new LNG facility is attempting to get away with significantly less stringent BACT limits than those set out above, it is recommended that an advocate bring in an experienced Clean Air Act lawyer, an expert engineer, or both. That said, a few common methods of evading true BACT limits are set out below, along with suggestions for how to challenge them:

- Omission of relevant BACT options in Step 1. Sources typically rely on a database called the RACT/BACT/LEAR Clearinghouse (known as the RBLC, because only environmental lawyers can turn a list of acronyms into a meta-acronym). The RBLC attempts to house all case-by-case technology determinations, as reported by state permitting authorities. Yet the RBLC is usually out-of-date and incomplete. Many states fail to enter information into the RBLC and the RBLC only assesses U.S. sources. Thus, a permit applicant that relies solely on the RBLC most likely has not identified all potential control technologies nor the lowest emission rates achieved in practice.

  Specific to LNG export facilities, one argument that advocates have made is that BACT or LAER should include electricity-driven compressors rather than gas turbine-powered compressors in

[982] The full unit here is parts per million value, dry (ppmvd) at 15% oxygen. The parts per million value is the concentration of the pollutant in the exhaust stream; dry means that the water portion of the gas stream has been removed from the ratio, and 15% oxygen is a standard baseline as the ppmvd will change depending on the percentage of oxygen in the exhaust.
[983] RBLC ID No. TX-0678; *see also* https://www.baaqmd.gov/~/media/files/engineering/bact-tbact-workshop/combustion/89-1-3.pdf?la=en.
[984] RBLC ID No. TX-0678.
[985] RBLC ID No. MI-0405.
[986] RBLC ID No. TX-0790.
[987] RBLC ID No. VA-0321.
[988] RBLC ID No. TX-0790.
[989] RBLC ID No. VA-0321; this converts to roughly 11.4 lb/hr, which is relatively high emitting. *See* Section J.4 of this Chapter for how to convert from lb/MMBtu to lb/hr.
[990] RBLC ID No. TX-0790.

the liquefaction trains.[991] By eliminating the gas turbines, emissions of NOx, CO, PM, and other pollutants are significantly reduced. Indeed, at least one major LNG export facility has already opted not to use combustion turbines in its liquefaction trains and instead utilize electric motors powered by the grid.[992] Because these LNG combustion turbines are by-far the largest source of emissions at LNG export facilities, eliminating them from the liquefaction train results in a substantial reduction in source-specific emissions. Thus, advocates argue that electrification should qualify as BACT or LAER.

- BACT dismissed as not Technically Feasible. Sources will often argue that some unique process or design inherent to their facility means that, where other sources, say turbines, have been able to use a particular control, they cannot employ the same technology for some reason. Such claims are worthy of skepticism and further digging.
    - Here's one example from a recent LNG export PSD permit. The applicant, Venture Global LNG, evaluated wet scrubbers for SO2 removal for its turbines, which can achieve 80 to 95% removal rates for SO2. Venture then dismissed the control as not technically feasible because the "optimal" exhaust temperature for wet scrubbers is between 40F and 100F, but the exhaust from Venture Global's turbines would be in the range of 450F to 527F. The applicant dismissed the control as not technically feasible on this basis, without considering that there are feasible methods to cool exhaust gases to the desired range. Ultimately the company proposed (and the state approved) no control technology, and relied instead on "good combustion practices," discussed below.
- Dismissed on environmental, energy, or economic grounds. The key here is that the environmental, energy, or economic issues must be unique to the proposed facility such that the impacts (i.e. cost) will be significantly higher than at the facility or facilities that have implemented the control and demonstrated compliance with the BACT limit. In other words, what makes this source special? Why is it more expensive to use the same technology and meet the same BACT limit that another comparable source has already met?

  Typically, the technique sources use here is to calculate the cost per ton of emissions reduced by using a higher-ranked control technology. States often have informal, unpublished cost/ton thresholds above which a control can be dismissed as too expensive. If a source is dismissing a demonstrated control technology as too expensive, advocates may benefit from having an expert review the BACT determination.
- Using the right technology, but not the lowest limit. In several instances, LNG facilities have selected the highest achieving control technology, evaluated limits based on that control technology, and then proposed higher limits without much, if any, explanation. For instance, Commonwealth LNG in Louisiana noted that using catalytic oxidation, similar combustion turbines had achieved limits of 0.7 ppm for carbon monoxide, and then proposed a limit of 3.0

[991] *See, e.g.*, Public Comments prepared by Devin A. Lowell, Tulane Environmental Law Clinic, and Joshua Smith, Sierra Club, on the draft permit for Magnolia LNG, Magnolia LNG Part 70 Renewal and Proposed PSD AI185639, Permit Number 0520-00481-V1 and PSD-LA-792(M1), and Activity Number PER20200001 and PER20200002 (July 29, 2021), https://edms.deq.louisiana.gov/app/doc/view?doc=12829191.

[992] That facility is Freeport LNG, in Freeport, Texas. Permit documents are available at EIP's Oil and Gas Watch Database: https://oilandgaswatch.org/facility/870.

ppm, nearly three times higher than the lowest limit. Commonwealth did not provide any explanation, and the limit was accepted by LDEQ.

- No short-term limits. BACT is supposed to be a short-term limit,[993] something like 2.5 ppm on a "three-hour basis." This means that at any given time, emissions may exceed that limit, but the limit is only violated if, on average over a given three-hour period, emissions exceed 2.5 ppm. The shorter the averaging period, the less likely it is that spikes of emissions might cause detrimental concentrations of pollutants in the ambient air.

  Unfortunately, many of the BACT limits in LNG export permits do not include short-term limits, and instead implement limits on an averaging basis as long as 30-days, which is problematic. For instance, a limit that is averaged on a 30-day basis allows emissions that greatly exceed the numerical limit for days on end, perhaps because of poor combustion practices, which worsens air quality and potentially causes exceedances of the NAAQS. Yet, as long as average emissions over the 30-days is below the limit, perhaps because the facility addressed the cause of high emission rates, the facility will be in compliance with the limit despite potentially causing NAAQS exceedances.

- Not decided on a case-by-case basis. Some states, including Texas, have made predeterminations for what constitutes BACT for certain sources. This is contrary to the case-by-case nature of BACT, which is meant to "force" new technologies and lower emission limits over time. As such, if you encounter BACT limits that are established broadly by an agency rather than in a source-specific, case-by-case analysis, you should determine whether lower limits have been achieved in practice and argue that those limits must be considered as BACT following EPA's top down method (and again, although Texas uses a different system, both EPA and TCEQ agree that whatever method is used it must ultimately produce the same result as EPA's top-down method).

- Good Combustion Practices, What Does That Mean? Many LNG export facility BACT determinations utilize a combination of technologies (including multiple types of controls in some instances) and some form of "good combustion practices," or often just "good combustion practices" alone. Unfortunately, good combustion practices are rarely defined in a way that results in enforceable permit conditions that require such practices. Commenters should therefore emphasize that this is a vague and ambiguous "control" under BACT, and focus especially on what precise, enforceable permit conditions (and related monitoring provisions) are incorporated into the permit to ensure that the source actually does use good combustion practices. Note that sometimes permitting authorities tack on a "good combustion practices" requirement in addition to specifying an enforceable emission limit based on BACT. So long as the BACT limit is itself adequately justified and enforceable, the inclusion of an additional "good combustion practices" requirement as a backstop likely wouldn't contravene the BACT

[993] BACT emission limits and associated monitoring must "demonstrate protection of short-term ambient standards (limits written in pounds/hour) and be enforceable as a practical matter (contain appropriate averaging times, compliance verification procedures and recordkeeping requirements)." NSR Workshop Manual at B.56; see also In Re ConocoPhilips Co., PSD Appeal No. 07-02, 13 E.A.D. 768, 796 (June 2, 2008). In other words, if a NAAQS is a 1-hour or 8-hour standard, then the BACT limits should approximately match the standard. A 30-day rolling average for a limit, for instance, would not be protective of the short-term NAAQS. Spikes in emissions could readily cause NAAQS exceedances, yet there would not be a permit limit violation.

requirement, though it is still worthwhile to advocate for the permitting authority to make the good combustion practices requirement as clear and enforceable as possible.

- Greenhouse Gases (GHG) BACT. Most major NSR sources will also have to undergo GHG BACT. Universally with LNG facilities, BACT for GHGs has been set as some form of good combustion or other vague operation or design practices. Industry will typically propose something like CCS as an alternative and then dismiss it as not technically feasible, which, while perhaps valid, misses the point. Any steps that a facility can take to increase efficiency should be considered as part of GHG BACT. Electrification, discussed above, may be one valid option. Another argument can be made about the efficiency of control devices, specifically thermal oxidizers. LNG export plants usually use thermal oxidizers as control devices to reduce VOC emissions from certain processes (amine units and/or sweetener units). Thermal oxidizers are essentially large gas-fueled incinerators that burn off organic pollutants; they are conceptually similar in design to a gas grill—a simple box with gas burners. This system loses a significant amount of heat, and therefore energy, in heating the exhaust stream to necessary temperatures. Far more efficient incinerators exist in the form of regenerative and recuperative thermal oxidizers, which serve the same function but using vastly lower amounts of fuel (and therefore emitting far lower levels of GHGs).

  Advocates should note that difference between a traditional BACT analysis and a GHG BACT analysis is that while a traditional BACT analysis considers what constitutes BACT "for *each emissions unit or pollutant-emitting activity at each emissions unit*,"[994] it may be appropriate to select GHG BACT "on a *facility-wide basis* by taking into account operations and equipment which affect the environmental performance of the overall facility."[995] Thus, EPA "recommends that permitting authorities consider technologies or processes that not only maximize the energy efficiency of the individual emission units, but also process improvements that impact the facility's energy utilization."[996] Advocates should consider whether facility-wide process improvements at an LNG export facility could serve to reduce the facility's GHG emissions.

(2) Failure to commence construction within 18 months

PSD regulations require that permits shall become invalid if construction does not commence within 18 months of issuance, and likewise if construction is discontinued for 18 months, or if construction is not completed within a reasonable time.[997] Note that "commencing" construction is a defined term that EPA has interpreted at length to set out what activities qualify as construction, including certain contractual obligations.[998]

This is an important requirement because the control technology determinations and air quality impacts analyses conducted during the permitting process become outdated over time. Yet because many LNG projects are permitted in a speculative manner, it is common for LNG facilities to fail to commence construction within 18 months of permit issuance.

[994] EPA 1990 NSR Workshop Manual at B.4 (emphasis added).
[995] EPA, *PSD and Title V Permitting Guidance for Greenhouse Gases*, Mar. 2011, 23, https://www.epa.gov/sites/default/files/2015-08/documents/ghgguid.pdf (emphasis added).
[996] EPA PSD GHG Guidance at 30.
[997] 40 C.F.R. § 52.21(r)(2), *see also* LAC 33:III.509.R.2 for a state equivalent.
[998] *See, e.g.,* EPA, Memorandum from Director, Division of Stationary Source Enforcement to David Kee, Chief Air Enforcement Branch, Region 5, addressing "'Commence Construction' under PSD" (July 1, 1978), https://www.epa.gov/sites/default/files/2015-07/documents/commence.pdf.

Advocates should therefore watch for opportunities to intervene where a previously permitted source has failed to commence construction; for instance, sources may apply for permit modifications after the PSD permit has expired due to failing to commence construction, and advocates should argue that the source cannot modify an expired permit and must instead apply for a new permit. Worst case, advocates may need to consider filing a citizen suit, discussed in Section 8.B.10, in which advocates can seek to halt construction of a major source without a major NSR permit.

Advocates should be further aware that LNG export facilities must provide status updates on construction progress to FERC that may be valuable resources for gathering information on whether construction has commenced.

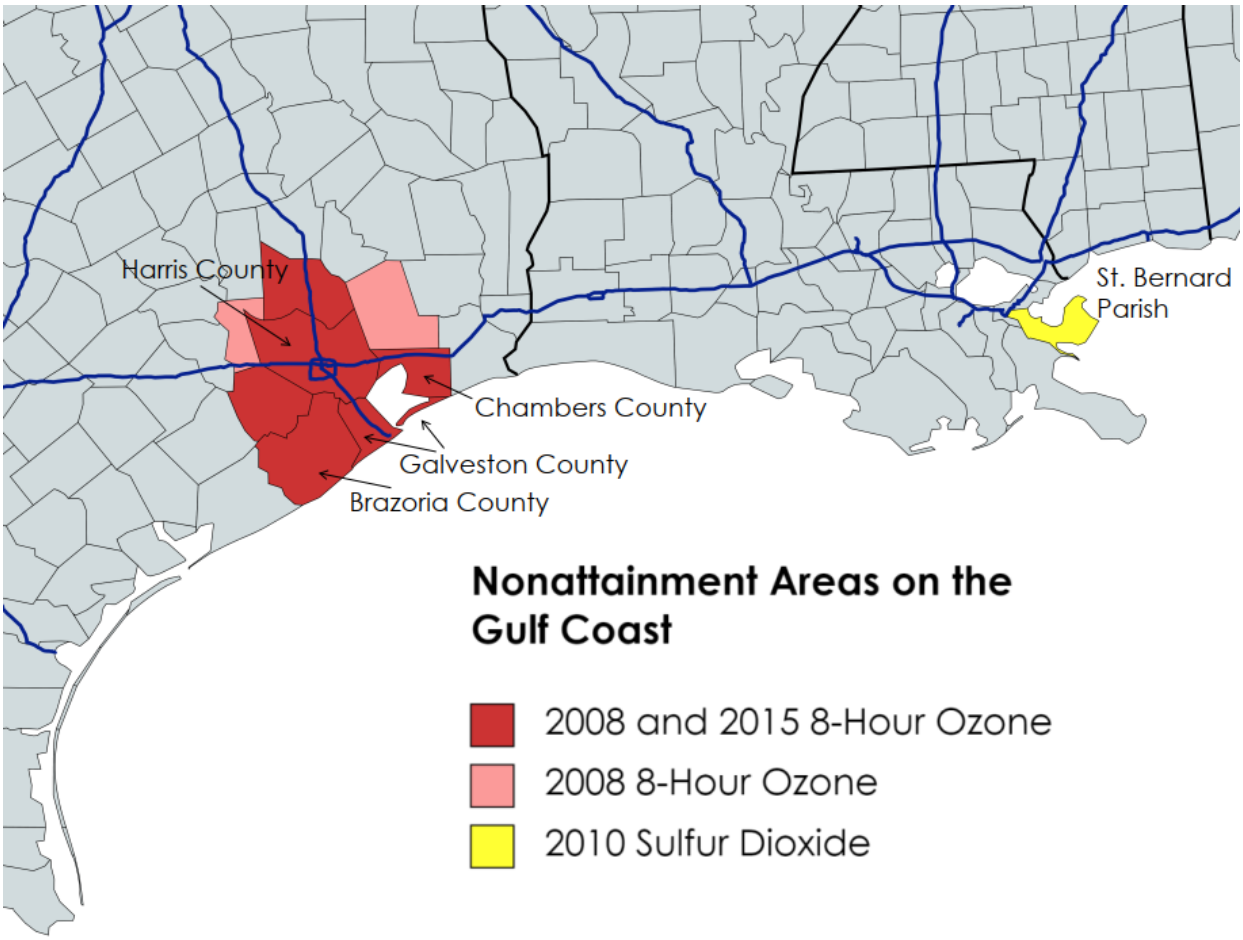
Finally, although sources may seek extensions, EPA has held that there are limits to how many extensions may be granted (usually a second extension is much harder obtain) and in what circumstances.[999] Note also that Texas has specific rules governing extensions, which can be found at 30 TAC § 116.120.

b. Nonattainment NSR requirements applicable in areas that are not achieving a federal ambient air quality standard.

If the area where a major NSR facility is to be located is in nonattainment for a pollutant or multiple pollutants, then the facility must comply with stricter nonattainment NSR (NNSR) requirements for that pollutant. Many of the same requirements set out above for PSD permits, i.e. attainment NSR, will apply in parallel. This section highlights the unique steps required for NNSR.

Most counties in the country are designated as either attainment or unclassifiable (i.e., no data) for all NAAQS, but several key areas relevant to LNG export operations are listed as nonattainment. The map below shows nonattainment areas for the Gulf Coast as of February 2022, but note that if you are looking at a facility in other parts of the nation, especially California and the northeast, additional coastal areas are designated nonattainment.

[999] *See* EPA, Guidance on Extension of Prevention of Significant Deterioration (PSD) Permits under 40 CFR 52.21(r)(2), at 5 (Jan. 31, 2014), https://www.epa.gov/sites/default/files/2015-07/documents/extend14.pdf.



If a new LNG export facility is proposed to be located in one of the ozone nonattainment counties in Texas, the facility will need to undergo NNSR for VOCs and NOx, as these are the precursor pollutants to ozone formation. For other pollutants, a PSD review will also be required. Likewise, any new LNG facilities in St. Bernard Parish in Louisiana would need to undergo NNSR for SO2.

i. Lowest Achievable Emission Rate

The lowest achievable emission rate (LAER) is defined as: "the more stringent [of]…

(A) The most stringent emissions limitation which is contained in [any SIP] for such class or category …, unless the owner or operator … demonstrates that such limitations are not achievable; or

(B) The most stringent emissions limitation which is achieved in practice by such class or category of stationary sources."[1000]

[1000] 40 C.F.R. § 51.165(a)(1)(xiii).

Unlike BACT, LAER does not involve consideration of economic, energy, or other environmental costs; in short, if a similar source has achieved a particular emission rate, that emission rate shall constitute LAER unless particularly exceptional circumstances apply.[1001]

ii. Emission offsets

Another distinction between PSD and NNSR is that new major sources in nonattainment areas must offset their emissions increase of nonattainment pollutants by obtaining so-called "offsets." Offsets are actual reductions in emissions from existing sources within the area. Exactly what qualifies as "actual reductions" is complex, but the reduction must be enforceable, quantifiable, permanent, and approved by the permitting authority.[1002]

At a minimum, all offsets must at least reduce the emissions of the relevant pollutants in a one-to-one ratio (i.e., if your source will emit 75 tons of a pollutant, some other source in the area must agree to reduce its emissions of that same pollutant by at least 75 tons). Most offsets require more, however, and the degree of offsets required depends on the pollutant and the severity of the nonattainment in the area.

All counties in Houston-Galveston-Brazoria ozone nonattainment[1003] areas are designated "serious" nonattainment, meaning they will require an offset of at least 1.2 to 1 for both VOCs and NOx.

iii. Enforceable BACT and LAER Limits.

BACT and LAER emission limits and standards must be enforceable, i.e. coupled with conditions designed to enable the public, EPA, and states to identify violations.

Specifically, the BACT or LAER limit (and the required technology to meet the limit) is must be set forth in the permit. Further, EPA's draft 1990 NSR Workshop Manual states: "[I]t is best to express the emission limits in two different ways, with one value serving as an emissions cap (e.g., lbs/hr.) and the other ensuring continuous compliance at any operating capacity (e.g., lbs/MMBtu)."[1004]

This includes evaluating whether all technology determinations and assumptions in any air quality analysis are included in the permit as enforceable conditions, *e.g.*, type of fuel, hours of operation, and control efficiencies. If the model used an emission rate of, say, 15 lb/hr, the permit must include an emission limit no higher than 15 lb/hr. In general, the permit must define as clearly as possible what is expected of the source.

In order to be enforceable, BACT and LAER limits must also be accompanied by monitoring, recordkeeping, and reporting provisions sufficient to enable the public and regulators to determine whether sources are complying with permit limits and other conditions. Note that this is a separate requirement from Title V monitoring, recordkeeping, and reporting requirements, but many of the

[1001] In short, the only way out of using a given control technology in use by a similar source is if doing so would be so cost-prohibitive that no new major sources of the type could be built. If a source is attempting to dismiss a given LAER on economic grounds, advocates should learn more about LAER with EPA's Draft NSR Workshop Manual.
[1002] *See* 40 C.F.R. Part 51, Appendix S.
[1003] This is based on the 2008 8-Hour Ozone standard; most of the counties in the same area are also "marginal" nonattainment with the 2015 8-Hour Ozone standard as well, however the stricter offset requirement of the "serious" nonattainment with the 2008 standards controls. *See* TCEQ, Fact Sheet – PSD and Nonattainment (2019), 2, https://www.tceq.texas.gov/assets/public/permitting/air/factsheets/factsheet-psd-na-6241.pdf.
[1004] EPA, Draft NSR Workshop Manual, at H.5.

monitoring techniques may be the same. For a discussion on types of monitoring and the overlap with Tile V requirements, see Section 8.G.5.

iv. Additional requirements as needed to assure that the facility will not cause or contribute to a NAAQS violation or exceed the available PSD increments.

If modeling shows that a facility as originally designed could cause or contribute to a NAAQS violation, the permit must include additional limitations and monitoring requirements over and above BACT that will prevent the NAAQS violation.[1005]

At a minimum, all major NSR permits must include limits that constrain operations to those that were included in the NAAQS air dispersion impacts analysis (i.e., if the source modeled ambient air impacts assuming only one emergency engine would be operated at a time, that should be an enforceable permit limit). But where the modeling showed that a facility would cause near-exceedances, or potential exceedances, of the NAAQS, the permit should contain additional requirements that are protective of the NAAQS. For example, LDEQ implemented limits on how many engines (i.e. emergency engines, firewater pumps) may be operated simultaneously at the Magnolia LNG facility, as well as maximum operating times for high-emitting boiler operations.

Advocates should further address whether the existing off-site monitoring is adequate to determine whether the NAAQS are exceeded. Typically, many counties or parishes may only have one or two air monitors (or none at all), so it is highly unlikely these monitors will be located in the right location to assess NAAQS compliance.

Unfortunately, PSD's legal requirements for post-construction ambient air monitoring are relatively vague.[1006] Still, advocates should argue that such monitoring is necessary when a source's emissions could cause exceedances of the NAAQS. Specifically, the facility's air dispersion modelling will show the location of the highest concentrations of pollutants beyond its fence-line. If the modeled concentrations come anywhere close to causing a NAAQS exceedance, advocates should argue that the facility must install and operate an air monitor as close to this location as possible to verify ongoing NAAQS compliance at that location.

Finally, in certain areas with heavy LNG export activity, the county or parish may be designated attainment but modeling from numerous sources shows multiple and severe exceedances of the NAAQS. This is the case, for instance, in the Lake Charles area. In these instances, advocates should consider arguing that the county or parish should be redesignated as nonattainment (and potentially take up separate advocacy work outside of the facility-specific comments towards this end).

10. Modifications

As discussed above, existing (or permitted but not constructed) sources may request to modify their NSR permits. In general, modifications to major NSR sources are treated in a similar manner to a preconstruction permit (and, in fact, in many states, these modifications are also called preconstruction permits), in that PSD or NNSR must be conducted if certain thresholds are met. For sources that are already major and in attainment areas, the thresholds are set out below:

[1005] *See, e.g.,* 42 U.S.C. § 7475(a)(3) (facility may not construct without showing that its emissions will not cause or contribute to a NAAQS violation or an exceedance of the allowable PSD pollution increment).
[1006] *See* 40 C.F.R. § 52.21(m)(2) (requiring a source to perform post-construction monitoring "as the Administrator [or permitting authority] determines is necessary").

- Carbon monoxide: 100 tons per year (tpy)
- Nitrogen oxides: 40 tpy
- Sulfur dioxide: 40 tpy
- Particulate matter: 25 tpy of total particulate matter emissions, 15 tpy of PM_{10}[1007]emissions, 10 tpy of $PM_{2.5}$ emissions; 40 tpy of sulfur dioxide emissions (as a precursor to $PM_{2.5}$); 40 tpy of nitrogen oxide emissions unless demonstrated not to be a $PM_{2.5}$ precursor
- Ozone: 40 tpy of volatile organic compounds or nitrogen oxides
- Lead: 0.6 tpy
- Fluorides: 3 tpy
- Sulfuric acid mist: 7 tpy
- Hydrogen sulfide (H2S): 10 tpy
- Total reduced sulfur (including H_2S): 10 tpy
- Reduced sulfur compounds (including H_2S): 10 tpy

The thresholds for a modification to trigger nonattainment NSR are generally the same as the PSD thresholds—except that lower thresholds apply in serious, severe, and extreme nonattainment areas.[1008]

Although this guide focuses on new facilities rather than modifications, several new LNG export facilities have been located at existing import terminals. These export facilities are therefore permitted as modifications of the existing source, almost always as a major NSR modification.

Finally, as mentioned above with respect to PSD, there are myriad ways for a facility to escape having its modification be classified as "major" even if the planned modification appears to result in an NNSR-triggering emissions increase. *Supra* at Section 8.B.1. The rules governing how to calculate whether a facility modification is subject to NSR are complex and beyond the scope of this guide. Advocates who believe that a facility modification has been improperly excluded from major NSR are strongly encouraged to consult with an experienced Clean Air Act attorney.

11. What are my legal options if the permitting authority rejects my comments on a draft major NSR permit?

If you have identified a defective major NSR permit and raised those issues in public comments, what are your options if the permitting agency rejects your comments? In most states, advocates can challenge a defective major NSR permit in an administrative proceeding established under state law (usually found in a state's version of the Administrative Procedures Act). Often called a "contested case hearing" or similar, the proceeding resembles a civil trial in state court, complete with witnesses, discovery, and pre-trial motions, and is held before an administrative law judge (ALJ). In some states, there may be multiple levels of challenging a permit, for instance an initial contested case hearing before an ALJ, who then makes a recommendation to the director of the agency, and then advocates

[1007] PM_{10} refers to particulate matter 10 microns or smaller in diameter. $PM_{2.5}$ refers to particles 2.5 microns or smaller in diameter.
[1008] *See* 40 C.F.R. § 51.165(a)(1)(x).

can move to appeal the director's decision; finally, state court is usually the final step if all prior options have been exhausted.

Advocates are strongly urged to find an experienced lawyer to bring the case, but a few things to know:

- Typically, there is a firm deadline to file an administrative appeal, perhaps 30 days after final permit issuance, **but it may be sooner.** In fact, as discussed below, in Texas a request for a contested case hearing must be filed even before TCEQ issues a final permit. Thus, an advocate who wishes to mount a legal challenge to a major NSR permit must line up legal representation early in the permit review process;
- Requests for an appeal must be in writing and contain a certain amount of information (see below for Texas' example);
- The legal issues that form the basis of the challenge must have been made with some specificity in public comments, unless basis for the challenge arises after the public comment period or could not have been known to advocates during the public comment period;
- Advocates typically must have legal standing to bring a permit challenge. Standing is the concept that someone bringing the challenge must actually be impacted or potentially impacted by the proposed facility. This usually means individuals who live, work, or recreate near the facility and are concerned about the impacts to air quality;
- Usually, the challenge should be brought by a membership organization focused on the environment that represents the interests of the individuals harmed by the new facility. The organization will then have standing via its members, who spend time near the facility.

Challenging Major NSR Permits in Texas. Challenging air permits in Texas is complex compared to other states. Fortunately, the University of Texas Law School Environmental Clinic has recently published an excellent guide that covers this issue (and public participation in Texas more broadly) in great depth and is available online for free.[1009] As such, this guide will only briefly describe the main avenues to appeal a defective permit. Note that, in general, these administrative procedures must be followed before an advocate can challenge a permit decision in court.

If the permit is issued by TCEQ's Executive Director, the following challenges are applicable:

- **Request for a Contested Case Hearing:** this is the first opportunity to challenge, but the request must be made in writing within **30 days of the issuance of the Notice of Application and Preliminary Decision.** Unfortunately, this means advocates must decide to request a Contested Case Hearing before the agency has considered and responded to public comments. A Contested Case Hearing is an administrative appeal like those described above and is held before an ALJ with the State Office of Administrative Hearings.
- **Request for Reconsideration:** this is a request seeking for the TCEQ Commission to reconsider a final permitting action, and therefore must be made within 30 days of the "decision letter" announcing the agency's decision to issue or deny the permit (i.e. after considering public notice and comment and the result of any Contested Case Hearing).

[1009] University of Texas Law School Environmental Clinic, *Texas Environmental Public Participation Guide* (2017), https://law.utexas.edu/wp-content/uploads/sites/11/2019/01/2017-EC-EnviroPublicParticipationGuide.pdf.

- Motion to Overturn: is similar to a Request for Reconsideration but is only available if no request for a contested case hearing or request for reconsideration has been made (or if the request was rejected). The motion must be made within 23 days of the mailing date of a notice of signed permit.

If a permit is instead issued by the Commission itself, the only administrative appeal is a Motion for Rehearing, which must be made within 25 days of the date the Commission's decision is signed. See the University of Texas Law School Environmental Clinic's guide for more information.[1010]

Challenging Major NSR Permits in Louisiana. Louisiana is somewhat unique in that it does not provide for administrative appeals of final air permits. Instead, the sole remedy is to bring suit in state court. The state court will then act as fact-finder and ultimately decide whether LDEQ has issued the permit in accordance with state law, in particular the state's Administrative Procedure Act.[1011] Issues to note:

- The court will generally only evaluate evidence that is part of the administrative record, therefore if you think you might need to challenge an air permit, it is vital that your public comments are as thorough and detailed as possible;
- Advocates must file suit within 30 days of the notification of final permit action;[1012]
- The suit must be filed in the Nineteenth Judicial Circuit Court for the parish of East Baton Rouge (this is true regardless of the facility's location).[1013]

Citizen Suits: the foregoing legal challenges address appealing a *permit*, but advocates should be aware that the Act also allows advocates to bring a "citizen suit" against a company in federal court for Clean Air Act violations. While citizen suits are often thought of as tools for enforcing violations at existing plants, the Act also allows citizens to sue for constructing a major NSR source without an NSR permit.[1014] For example, if a facility's PSD permit has expired because construction did not commence within 18-months of issuance, but the company starts construction, a citizen suit could be brought against the company.

12. What authority does EPA have to prevent a state with a SIP-approved major NSR permit program from issuing a legally deficient major NSR permit?

The Clean Air Act provides EPA with authority to stop construction of a facility that is not complying with NSR, even under circumstances where a state has approved the construction pursuant to an EPA-approved state NSR program. Specifically, Clean Air Act § 113(a)(5) provides that whenever EPA "finds that a State is not acting in compliance with any requirement or prohibition of [the Act] relating to the construction of new sources or modification of existing sources," EPA may "issue an order prohibiting the construction or modification of any major stationary source in any area to which such requirement applies."[1015] Also, specific to Prevention of Significant Deterioration permitting, Clean Air Act § 167 requires EPA to "take such measures, including issuance of an order, or seeking injunctive relief, as necessary to prevent the construction or modification of a major emitting facility which does not conform to the [PSD] requirements."[1016]

[1010] *Texas Environmental Public Participation Guide,* 10.
[1011] La. R.S. § 30:2050.21(F).
[1012] La. R.S. § 30:2050.21(A).
[1013] La. R.S. § 30:2050.21(A).
[1014] 42 USC §7604(a)(3).
[1015] 42 U.S.C. § 7413(a)(5)(A).
[1016] 42 U.S.C. § 7477.

EPA almost never exercises its statutory authority to block a facility's construction due to a state's issuance of a defective major NSR permit.[1017] However, the possibility that EPA *might* exercise this authority means that states usually listen to whatever feedback EPA gives them regarding major NSR permit applications and draft permits and try to resolve EPA's concerns prior to final permit issuance. *Thus, advocates should consider seeking to persuade EPA to raise concerns with the state permitting authority and the applicant early in the permitting process.*

The Clean Air Act includes specific procedures designed to facilitate EPA's oversight of state major NSR permit programs. First, the statute declares: "Each State shall transmit to the Administrator a copy of each permit application relating to a major emitting facility received by such State and provide notice to the Administrator of every action related to the consideration of such permit."[1018] Second, before issuing an individual permit, a state permitting agency must provide an opportunity for all "interested persons," including "representatives of the [EPA] Administrator" to submit comments to the state on the draft permit.[1019]

Regional EPA offices vary tremendously in the extent to which they participate in major NSR permitting for sources located in areas where state, local, or tribal agencies have federal approval to administer air permitting requirements. For example, EPA Region 4, which oversees Clean Air Act implementation in Florida, Georgia, North Carolina, South Carolina, Tennessee, Alabama, Kentucky, and Mississippi, participates in nearly every major NSR permit proceeding for a proposed new facility in that region. First, EPA's Region 4 air pollution modeling experts review the applicant's proposed modeling protocol and identify what improvements or changes need to be made. Second, Region 4 staff reviews each permit application when it arrives at the agency and gives feedback to the state (and sometimes directly to the applicant) regarding additional information needed to complete the application. In addition, Region 4's modeling experts often re-run the models provided by the applicant to verify the modeling outcomes reported in the permit application. Third, as per an agreement between EPA and most Region 4 states, the permitting agencies provide EPA with an opportunity to review and give informal feedback on draft permits before they are released for the formal public comment period. If the state does not address EPA's feedback before releasing the draft permit for public comment (or if the state fails to provide EPA with an opportunity to comment prior to the start of the comment period), EPA will submit formal comments to the state permitting agency during the comment period, and these comments become part of the administrative record for the permitting action.

At present, in marked contrast to EPA Region 4's heavy involvement in reviewing state major NSR permits prior to their issuance, EPA Region 6, which oversees major NSR permitting in Texas, Louisiana, Arkansas, New Mexico, and Oklahoma, reports that it rarely reviews major NSR applications or draft permits for sources proposing to locate in the region. Instead, Region 6 focuses its oversight efforts on periodic evaluations of each state's implementation of Clean Air Act permitting programs. While most proposed LNG export facilities are likely to be located within the boundaries of EPA Region 6, the fact that Region 6 does not typically get involved in individual major

[1017] One prominent example in which EPA used this authority resulted in litigation that reached the U.S. Supreme Court. In *Alaska Dep't of Envtl. Conserv. v. EPA*, 540 U.S. 461 (2004), the Supreme Court affirmed EPA's orders prohibiting the Alaska environmental permitting agency from issuing a defective PSD permit and prohibiting the permittee from commencing construction under that permit.
[1018] 42 U.S.C. § 7475(d).
[1019] 42 U.S.C. 7475(a)(2).

NSR permit proceedings does not mean that EPA cannot get involved. Rather, it just means that you need to devote more resources toward persuading Region 6 that its involvement is necessary.

As an initial matter, even before an application is filed with the state and EPA, you should consider meeting with regional EPA staff to discuss your concerns and request that EPA review the application and modeling protocol when it is submitted. Note that a major NSR permit applicant typically submits its modeling protocol to government authorities well before submitting its permit application, because the permit application must include the actual modeling results. In fact, most, if not all, state permitting authorities require an applicant to provide them with a proposed modeling protocol early in the application process. If you discover that an applicant has submitted a modeling protocol to the state permitting authority, you could request that EPA review the protocol. If the relevant EPA regional office does not have anyone available to review the modeling protocol, you could suggest that the Region to ask for assistance from the Region 4 modeling section, which sometimes reviews modeling protocols for other regions. In addition, if you can enlist your own modeler to review the protocol, you could meet with EPA to discuss any flaws that you uncover and, if EPA agrees with your assessment, request that EPA send a letter to the state and the applicant detailing those flaws. If you get involved early in the process, you are more likely to be able to persuade EPA to insist upon the source performing more extensive modeling of the source's anticipated air quality impacts. Such modeling could uncover problems that make it less likely that the project will move forward.

Likewise, EPA's early involvement in reviewing and identifying deficiencies in an applicant's permit application could also be helpful. Sometimes, a project's funders tie their investment to the applicant meeting certain milestones, such as submitting a complete permit application. That might cause an applicant to apply for its permit before it has all of the necessary details so as to signal to funders that the project is moving forward. Persuading EPA to weigh in with the state regarding aspects of the application that are deficient could result in the state determining that the application is incomplete, perhaps casting doubt amongst funders as to the project's viability and slowing its progress.

Persuading EPA to weigh in on deficiencies in the draft permit also can be very valuable, especially if EPA's comments are in writing and placed in the permit record. If the state fails to correct the deficiencies identified by EPA, you could use EPA's objections to support your own challenge. Be aware that when EPA provides feedback to a state on a draft major NSR permit, it often provides that feedback on a "pre-draft" version of the permit before the draft permit is released for public comment. Furthermore, EPA often provides its comments via a telephone call with state permitting staff rather than in writing. If you can persuade EPA to provide its comments in writing, you could obtain those comments and place them in the permitting record yourself if EPA does not do so. Ideally, if the state has not addressed EPA's concerns by the time it releases a draft permit for public comment, EPA will file formal comments with the state agency during the comment period. Those comments would then be included in the administrative record for the permitting action and could be used in any subsequent challenge to the permit.

Finally, if you have a strong argument that a major NSR permit issued by a state agency does not comply with federal requirements, you can try to persuade EPA to use its statutory authority to block construction of the facility pursuant to the deficient permit. As noted above, EPA rarely exercises this authority, and if EPA did not at least send in comments to the state during the public comment

period identifying the alleged permit deficiencies, the likelihood of EPA blocking a facility's construction is pretty much zero. But if EPA did identify deficiencies and the state failed to correct them, it is worth advocating for EPA to issue an order prohibiting the source's construction.

13. Challenging Major NSR Permits in "Delegated" States

Most states implement major NSR permitting pursuant to their EPA-approved state implementation plans, which provide avenues for challenging major NSR permits at the state level as described above. A few states, however, have opted instead to issue major NSR permits pursuant to EPA's delegated authority.[1020] In these states, the state agency issues permits as if the agency is standing in the shoes of EPA. Delegated-authority states that may have LNG export facilities are Connecticut, Maryland, Massachusetts, New Jersey, and Washington (but, in Washington, only the GHG portion of PSD permits are issued under delegated authority). Challenging a major NSR permit issued by a state pursuant to federally delegated authority is different than challenging a permit issued by a state operating its own federally approved NSR program; the key difference is that challenges to a permit issued pursuant to federally delegated authority are heard by EPA's Environmental Appeals Board, and appeals are heard in federal district court. If an advocate wishes to challenge a major NSR permit before the Environmental Appeals Board, they should consult with an environmental attorney.

C. Minor NSR permits

New facilities (or modifications of existing facilities) with emissions that will not exceed the major NSR threshold generally still need to obtain a preconstruction permit under a state's minor NSR permit program. This will be true for all LNG export facilities (other than major sources, of course). Unfortunately, the statute and EPA's regulations are sparse on what is required in minor NSR permit programs, and permits and requirements therefore vary from state to state.

As discussed above, most new LNG export facilities will be major NSR sources. But consideration of minor NSR permitting is relevant as some smaller LNG export facilities, especially those without on-site combustion turbines or only a small number of turbines, may genuinely qualify as minor sources, or at least claim to be. Likewise, major NSR facilities may have non-collocated support facilities, like a pretreatment facility, that is a minor source. Additionally, certain modifications may be permitted as minor NSR modifications.

1. How will I know when a proposed facility has applied for a minor NSR permit?

Unfortunately, there typically is no public notice required when a new source applies for a minor NSR permit. See the section above as to major NSR for tips on how to track new applications as the methods are largely the same.

2. Will I be able to comment on a draft minor NSR permit?

Although federal regulations require public notice and comment on all minor NSR permits,[1021] in practice some states do not allow for public notice and comment on any minor NSR permits, or perhaps only certain types of minor NSR permits. Others, like Georgia, instead allow for public

[1020] *See* 40 C.F.R. § 52.21(u).
[1021] 40 C.F.R. § 51.161.

comment on minor NSR *applications* but refuse to grant public notice and comment on the draft permit, practices that advocates are currently fighting.[1022]

Even where a state does not allow for public notice and comment on draft NSR permits, it is still worth requesting notice and comment in writing with the permitting authority and likewise raising any potential issues as though you were submitting formal comments.

Public notice and comment on minor NSR permits in Texas. Texas does provide public notice and an opportunity for comment on most minor NSR permits, with exceptions for certain administrative amendments or minor permit modifications. The public notice locations and relevant mailing lists are the same as those listed above for major NSR permits.

Public notice and comment on minor NSR permits in Louisiana. If a proposed facility is a major source for purposes of the Clean Air Act's Title V operating permit program but a minor source for NSR (because, in some circumstances, the Title V applicability threshold is lower than the major NSR threshold), Louisiana requires public notice and comment under its Title V rules.[1023] This is because Louisiana issues joint pre-construction and Title V permits (if a facility qualifies for Title V). Almost any LNG export facility will likely be a major source for Title V, so this should cover most LNG export facilities. If a source will be minor for both NSR and Title V, then public notice and comment will be provided only at the discretion of LDEQ.[1024]

The public notice locations and relevant mailing lists are the same as those listed above for major NSR permits.

3. What issues should I look for in minor and synthetic minor NSR permits?

With all minor NSR permits, the biggest question is whether they are truly minor sources, and this is especially relevant with so-called "synthetic minor" sources. A synthetic minor source is one that would otherwise be major and require major NSR permitting, but that has sought permit limits (known as "synthetic minor limits") that reduce potential emissions to below the major source threshold.

a. Potential to Emit Calculations

Major source applicability (for NSR, Title V, and NESHAP) depends on the facility's estimated "potential to emit" (PTE). As courts have explained, "PTE is not to be confused with actual emissions, which may be significantly lower."[1025] Stated more plainly, PTE is a "worst case emissions calculation."[1026] Note, however, that PTE calculations will take into account control technology that the facility is required to use as well as other enforceable production or operation limits.

In other words, if a facility is designed to process 1,000,000 tons of LNG per year, but anticipates it will only process 800,000, PTE must be calculated based on 1,000,000 tons unless the permit has

[1022] Environmental Integrity Project, et al., Petition to (1) Require Compliance with Georgia's Clean Air Act State Implementation Plan Requirement That the Public Have an Opportunity to Comment for on Draft Synthetic Minor Permits and (2) Find Inadequate and Correct Georgia's Deficient Minor New Source Review Rules, at 13 (Mar. 18, 2021), https://environmentalintegrity.org/wp-content/uploads/2021/03/Final-Petition-Seeking-EPA-Orders-Requiring-Public-Comment-on-Draft-Minor-Source-Air-Permits-RBG-3_18_21.pdf.
[1023] 33 LAC:III:531(A)(2).
[1024] 33 LAC:III:531(A)(1).
[1025] *Voigt v. Coyote Creek Mining Co., LLC*, No. 1:15-cv-00109, 2018 U.S. Dist. LEXIS 111913, at *84 (D.N.D. July 3, 2018).
[1026] *In re Peabody Western Coal Co.*, 12 E.A.D. 22, 37 (E.P.A. February 18, 2005).

an enforceable synthetic minor limit that restricts processing to 800,000 tpy. Synthetic minor limits are discussed in the next section.

PTE calculations are usually made using emission factors, and it is important to ensure those emission factors (discussed below in Section 8.I.2) are representative of worst-case emissions. For instance, if AP-42 (again, discussed below) emission factors are used (which is common in the LNG industry), this is by default not a "worst case" calculation since the emission factor is based on an average of measured emission rates; roughly half of tested sources emitted more than the AP-42 emission factor.

One way to conceptualize PTE calculations is sort of a reverse BACT determination: what is the worst-emitting similar source? That should be the basis for PTE calculations unless the source can justify something unique about its operations that will reduce potential emissions.

b. Synthetic Minor Limits

If a source's PTE exceeds the major source threshold, they may opt to utilize controls and/or take limits on the operating or production rates or parameters of the facility that reduce PTE to below the major source threshold. These are synthetic minor limits. Synthetic minor limits may only be considered valid and as part of the PTE calculation if they are "enforceable as a practical matter;" as EPA has consistently explained, a limit intended to restrict PTE "can be relied upon . . . only if it is legally and practicably enforceable."[1027] EPA has further explained practical enforceability as such:

In order to be considered practically enforceable, an emissions limit must be accompanied by terms and conditions that require a source to effectively constrain its operations so as to not exceed the relevant emissions threshold. These terms and conditions must also be sufficient to enable regulators and citizens to determine whether the limit has been exceeded and, if so, to take appropriate enforcement action.[1028]

In short, a synthetic minor limit is only valid if it will actually constrain emissions to below the major source threshold. Note that the limit should usually constrain actual operations, not simply emissions; for instance, a limit that simply says NOx emissions shall not exceed 249 tpy (just below the default major source threshold) has been held inadequate unless the facility uses continuous emissions monitoring systems (CEMS, discussed in Section 8.G.5.a). Thus, in most instances, the synthetic minor limit should look something like a limit on the hours of operations or the production rate, and must be accompanied by monitoring, recordkeeping, and reporting requirements to enforceable.

c. General Permits

General permits are a broad category of permits implemented by states that usually apply to common and relatively lower-emitting sources, perhaps one to five tons of emissions of criteria pollutants per year at most. They vary somewhat from state to state, but the general idea is that state agencies will develop rules setting forth the requirements for what may qualify for a general permit. Applicants often need only send the agency a notification that they intend to construct and/or operate small sources of emissions pursuant to a general permit and do not need to wait for

[1027] *In the Matter of Kentucky Syngas, LLC*, Order on Petition No. IV-2010-9, at 30 (E.P.A. June 22, 2013), https://www.epa.gov/sites/production/files/2015-08/documents/kentuckysyngas_response2010.pdf.
[1028] *In the Matter of Orange Recycling & Ethanol Prod. Facility, Pencor-Masada Oxynol, llc.*, Order on Petition No. II-2001-05, at 7 (E.P.A. Apr. 8, 2002), https://www.epa.gov/sites/production/files/2015-08/documents/masada-2_decision2001.pdf; *see also In re Piedmont Green Power, LLC*, Order on Petition No. IV-2015-2 (Dec. 13, 2016), at 14.

approval (and indeed, approval may not even be required). General permits will not involve public notice and comment (other than when a state promulgates the rules for the permit).

Although LNG export facilities may occasionally contain units that qualify for coverage under general permits, even the smallest LNG export facilities will need an NSR permit to construct (either a major, minor, or synthetic minor). As such, challenging general permits will not typically be a fruitful avenue to pursue for advocates, but advocates should be on the lookout for any particularly large source of emissions (roughly 5 tpy or greater) that is being permitted under a general permit.

One critical note, however, is that even if a source at an LNG facility is covered by a general permit, the source's emissions must still be included in the overall facility's PTE calculations.

4. How can I challenge a deficient minor NSR permit if my comments are ignored?

Generally, most states allow for administrative appeals on minor NSR permits under the same general provisions set out above for major NSR permit challenges. This is true for both Louisiana and Texas, and advocates should refer to the major NSR permit challenge section above.

Insofar as your concerns pertain to enforceability or inadequate monitoring, you likely can also raise these concerns through the Title V operating permit process, as described in more detail below. As mentioned previously, Louisiana issues a facility's minor NSR permit in tandem with its Title V operating permit, so you will have an opportunity to challenge the facility's Title V operating permit prior to the facility's construction. In most states, including Texas, however, a facility need not apply for a Title V operating permit until after construction. Thus, while you can still use Title V procedures to challenge a Texas minor NSR permit, such challenge is not part of a strategy to prevent the facility's initial construction.

D. Offshore Air Permitting

Who controls air permitting and what requirements apply when an LNG export facility proposes to construct in the ocean or the Gulf of Mexico? The answer depends on where the facility will be located.

First, all sources located in "state waters" will be permitted by the closest state's permitting authority and must comply with that state's regulations. In other words, within state waters, the facility will be permitted as if it were on land in the closest state. Most states' state waters extend 3 nautical miles from the coastline, but importantly, Texas' and the Gulf Coast of Florida's state waters extend the equivalent of 9 miles.[1029]

For sources beyond state waters, EPA is the permitting authority (note that certain types of facilities that are not generally part of LNG infrastructure will be permitted by the Department of the Interior).[1030] Specifically, EPA's regional office covering the closest onshore state will issue the permit.

So, what law applies to sources in federal waters? According EPA, it issues air permits in federal waters "based on the Clean Air Act and the air regulations that would otherwise be applicable in the

[1029] Congressional Research Service, *Controlling Air Emissions from Outer Continental Shelf Sources: A Comparison of Two Programs—EPA and DOI*, Nov. 26, 2012, 7, https://sgp.fas.org/crs/misc/R42123.pdf.
[1030] Note that permitting authority in the western Gulf of Mexico is complex and has at times fallen to DOI, but at present EPA issues all relevant offshore permits.

nearest adjacent coastal state, as long as the state or local requirements are applicable and not inconsistent with federal law."[1031] Note that, despite the foregoing, beyond 25 miles from state waters, EPA need only apply federal law, but may in practice attempt to adhere to the state regulations of the nearest state.[1032]

What to know about EPA permitting:

Generally, permitting under EPA will be similar to permitting under state agencies, but there are a few key distinctions to watch for:

- Public Notice: EPA's public notices are available at https://www.epa.gov/publicnotices. Note that you can sign up for an electronic mailing list as well at the same address;
- Availability of Documents: Once EPA issues a public notice, it will create an online docket at regulations.gov that contains the application and other relevant documents;
- Challenging a major NSR permit issued by EPA: Permit appeals are heard by EPA's Environmental Appeals Board, and are similar to the administrative challenged described in Section 8.B.10; if the EAB rules against an advocate, then review is available in federal court (in the federal district court having jurisdiction).

E. Hazardous Air Pollutants and Air Toxics

The Clean Air Act's NAAQS and major NSR programs seek to protect and improve air quality from the most common pollutants that cause poor air quality like smog and haze. But what about other air pollutants that are toxic or carcinogenic even in small quantities, such as benzene and formaldehyde? This is where regulations on hazardous air pollutants (HAPs) come into play, which are also sometimes referred to as air toxics. HAPs are regulated under the Clean Air Act and consist of 184 pollutants designated by Congress.[1033] Pursuant to Clean Air Act § 112, EPA promulgated federal HAP regulations known as the National Emission Standards for Hazardous Air Pollutants (NESHAP). These standards apply directly to sources in specified source categories and are included by some states in construction permits (including typically both Louisiana and Texas). States often also have their own state-law standards that apply to many of the pollutants on the federal HAP list, as well as some that aren't on the federal list. State programs usually call these pollutants "toxic" pollutants or "air toxics."

1. National Emission Standards for Hazardous Air Pollutants

NESHAP is a set of federal standards promulgated by EPA that govern minimum emission and operating standards, as well as monitoring, recordkeeping, and reporting requirements, for particular types of emission sources that emit HAPs. For instance, stationary combustion turbines like those at LNG export facilities are subject to NESHAP Subpart YYYY. Such technology standards are referred to as "Maximum Achievable Control Technology" (MACT) standards; unlike BACT standards,

[1031] EPA, Liquefied Natural Gas Regulatory Roadmap, at viii (Nov. 2006), https://www.epa.gov/sites/default/files/2015-08/documents/lng_regulatory_roadmap.pdf.
[1032] *See* 40 C.F.R. § 55.3(b).
[1033] Congress initially listed 188 pollutants as HAPs and gave EPA authority to add or remove pollutants from the list. To date, EPA has only added one HAP and has removed five. The current list is available at: https://www.epa.gov/haps/initial-list-hazardous-air-pollutants-modifications.

however, these control determinations are established by EPA in rulemaking rather than on a case-by-case basis, except in certain unique situations.[1034]

Like NSR and Title V, sources are divided between major and "area" sources (the term "area is often used interchangeably with "minor," but with HAPs, the technical term is "area"), and applicability is determined in a similar manner based on PTE. Major sources are those facilities that have the potential to emit more than 25 tpy of all HAPs in the aggregate, or any single HAP in rates greater than 10 tpy.[1035] For example, a source is major if it emits a HAP such as formaldehyde in rates equal to or greater than 10 tpy, or if all of the HAPs emitted by the facility are equal to or greater than 25 tpy.

The key question advocates should consider with regard to NESHAP is whether the facility is properly designated as either a major or area (or has enforceable synthetic minor limits, discussed above). Although there are some standards applicable to certain units at area sources, in many instances there is either no area source standard or if there is, it is less stringent. With regard to LNG facilities, for example, combustion turbines at major source facilities are subject to the NESHAP standards at 40 C.F.R. 63 Subpart YYYY, but if the facility is an area source, those same combustion turbines would not be subject to *any* NESHAP standards. Note that the applicability determination is based on the entire facility's HAP PTE, not the individual units subject to NESHAP.

In practice, most large LNG export facilities with on-site combustion turbines will qualify as major sources under NESHAP. Generally, these sources will exceed both the 25 tpy aggregate HAP threshold as well as the 10 tpy individual HAP threshold for formaldehyde.

That said, some small to medium-sized facilities, especially those without on-site combustion turbines, have been permitted as area or synthetic minor sources. Estimated emissions at these facilities are quite close to the major source thresholds; with formaldehyde estimated to be at around 8 or 9 tpy and total HAPs at around 20 to 22 tpy. As such, further scrutiny is warranted for these types of facilities. Generally, seeking the advice of an expert reviewer is the best course of action, but the following is a brief checklist for advocates to use to assess the emission estimates:

- Are all relevant pollutants accounted for? There are 184 HAPs to consider, and while most of these are not emitted in significant quantities by LNG facilities, *all* HAPs that are emitted must be included in calculating PTE. It is not uncommon for applicants to omit pollutants that are emitted in relatively low quantities, but if the facility is estimated to emit close to the major source threshold, these additional emissions can mean the facility is really a major source.
- Are fugitive emission sources included? All fugitive emissions must be included;[1036]
- Are emissions from planned startup, shutdown, maintenance included? A facility's PTE calculation must be based on the worst-case scenario and include emissions that can occur

[1034] For major sources of HAPs that are not subject to a NESHAP standard, permitting agencies must require MACT-level emission control technology on a case-by-case basis. *See* 42 U.S.C. § 112(g)(2)(b). And unlike BACT, there are no exceptions for economic, environmental, or other considerations; if a control technology has been implemented at a similar source and is technically feasible, it *must* be required as MACT.

[1035] 42 U.S.C. § 7412(a)(1).

[1036] Unlike certain major NSR applicability determinations that exempt fugitive emissions, the major source definition under NESHAP does not contain any such carve-out and fugitive emissions must be included. 42 U.S.C. § 7412(a)(1).

during all operational modes.[1037] It is not uncommon that a source will improperly exclude emissions associated with anticipated startup, shutdown, and maintenance activities, which can be substantial.[1038] Notably, in combustion sources like turbines, when the source is starting up or shutting down and the combustion level is low, most HAP emissions actually increase. This is because many HAPs are destroyed by incineration and proper combustion, so lower levels of combustion or temperature tends to increase emissions (especially of organic HAPs such as formaldehyde) as less of the HAPs are destroyed.

- Are destruction efficiency estimates for control technology appropriate? Destruction efficiency is the rate at which a control technology destroys pollutants, and it is often factored into an applicant's emission estimates. If an applicant claims that a flare (which are particularly finicky control devices) will destroy 99% of all emissions, but in reality it will only destroy 98%, that will actually mean that emissions *double*; if the flare instead only achieves 95% destruction, emissions will be five times–or 400%--higher than the applicant claims. As such, claims associated with destruction efficiencies should be well-supported. *See* Section 8.I.4 for more information on control technology.
- Are the emission factors reliable? *See* Section 8.I.2 for a discussion on emission factors.
- If the facility is seeking synthetic minor limits, are they enforceable? *See* Section 8.C.3.ii for more information on synthetic minor limits.

NESHAPs applicable at LNG facilities: Below is a list of NESHAP standards that commonly apply to LNG export facilities:

- Subpart A: General Provisions. This will apply to any LNG source that triggers one of the following subparts.
- Subpart EEEE: Organic Liquids Distribution (Non-Gasoline). This subpart establishes standards applicable to the storage, transfer, blending, and other handling operations of organic liquids. Here, that includes liquid natural gas as well as other liquid organics removed during the LNG process.
- Subpart YYYY: Stationary Combustion Turbines. This subpart establishes minimum operating requirements for combustion turbines and establishes an emission limit for formaldehyde (91 ppb), along with source testing requirements. Note that this will only apply to turbines located at major sources of HAPs; there is no NESHAP standard for turbines located at area sources.
- Subpart ZZZZ: Reciprocating Internal Combustion Engines. This subpart will cover stationary reciprocating internal combustion engines—in short, all of the stationary diesel or gasoline engines at the facility, such as emergency engines, generators, and firewater pumps.
- If the facility handles significant quantities of gasoline, it may also be subject to Subparts R, BBBBBB, and CCCCCC.

[1037] EPA, Accounting for Emergency Generators in the Estimate of Potential to Emit, at 2 (Feb. 14, 2006) ("to determine PTE, a source must estimate its emissions based on the worst-case scenario taking into account startups, shutdowns and malfunctions.").
[1038] After a facility is constructed and operating, all of its emissions, including those that occur during malfunction, must be counted when determining whether a facility operates in compliance with a PTE limit. Since malfunctions are unplanned, however, state policies vary regarding whether and the extent to which malfunction emissions must be included in a facility's preconstruction PTE calculation.

Generally, applicants will list which subparts it believes are applicable in the "Regulatory Applicability" portion of the application. Advocates should watch for any instances where an applicant argues that a certain subpart does not apply and the reasons stated.

2. State Air Toxics Requirements

Prior to the Clean Air Act Amendments of 1990, EPA did little to regulate most of the pollutants listed as HAPs. As a result, states often implemented their own regulatory framework for many of these same pollutants (and others that are still today not listed as HAPs), usually referred to as Toxic Air Pollutants. These programs continue to exist today in many states. Because they are state creations, they vary somewhat (and some states have no air toxics regulations), and importantly they are "state-only" requirements, meaning EPA has no oversight or enforcement authority, and the public is usually also cut off from enforcement. That said, they are still usually open to comments when permits are out for public notice and comment.

In general, most state air toxics programs establish health-based ambient air concentration thresholds for each air toxic based on its toxicity, then require that a new or modified source quantify their emissions of listed air toxics and conduct air dispersion modeling to see whether the source's emissions will cause exceedances of the health-based thresholds.

Many of the same issues related to PSD modeling discussed above are relevant for reviewing these air toxics modeling reports. For instance, are reported concentrations close to the threshold? If so, advocates should consult an expert in air dispersion modeling.

Texas Air Toxics

In Texas, air toxics impacts must be assessed for any new or modified source that will emit new or increased levels of air toxics, unless certain exceptions apply. The list of air toxics is defined as any pollutant subject to an "effects screening level," or ESL. A full guide to Texas air toxics requirements, including the ESL lists, is provided in a document titled "Modeling and Effects Review Applicability (MERA)."[1039] Although the screening and modeling requirements can be complex, in short, any facility whose emissions increases of air toxics are above qualifying thresholds must conduct air dispersion modeling to demonstrate that air toxics emissions from the source or project will not result in ambient concentrations above health-based concentrations, aka the ESLs.

Louisiana Air Toxics

LDEQ implements a state-only air toxics program that regulates all HAPs (i.e. those pollutants listed at 42 U.S.C. § 7412(b)) as air toxics, as well as 14 additional air toxics not listed as HAPs.1040 The rules are set out at LAC:33:III.Chapter 51. Unfortunately, it is unlikely LNG export facilities will trigger LDEQ's air toxics rules. First, only major sources of HAPs are subject to Louisiana's Chapter 51 air toxics rules, i.e. those with the potential to emit 25 tpy or more of HAPs in the aggregate or 10 tpy or more of any individual HAP or air toxic.1041 Although larger LNG export facilities, such as Sabine Pass LNG, are indeed major sources of HAPs, the rules further provide a carveout for emissions from

[1039] TCEQ, Air Permit Reviewer Reference Guide, APDG 5874, Modeling Effects and Review Applicability (MERA) (Mar. 2018), https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/mera.pdf.
[1040] The full list can be found at LAC 33:III.Chapter 51, Tables 51.1 - 51.3.
[1041] LAC 33:III.Chapter 51, § 5109(B).

combustion of "virgin fossil fuels," which includes combustion of natural gas in turbines.1042 Thus, when an LNG export facility calculates its HAP emissions for purposes of determining whether the Chapter 51 air toxics regulations apply, they can subtract emissions from the combustion turbines, which results in a significant reduction in HAP emissions that is ultimately below the major source threshold.

If a facility is subject to the Chapter 51 air toxics rules, however, it must quantify emission rates of all air toxics and compare those emission rates to the Chapter 51, Table 51.1 list of Minimum Emission Rates (MERs). Any air toxics emitted in rates that exceed the MERs must be modeled to demonstrate compliance with the corresponding Ambient Air Standards (Table 51.2).

F. New Source Performance Standards

As discussed above, the New Source Performance Standards are unlike New Source Review, despite the similarity in names. NSR involves a case-by-case, facility-specific application of potential control technologies. NSPS, on the other hand, are standards that EPA develops by rule for specific types of units and operations, e.g., gas turbines. They are conceptually similar to NESHAPs but apply instead to criteria pollutants. The NSPS standards are set out at 40 C.F.R. 60.

NSPS at LNG facilities

Below is a list of NSPS standards that commonly apply to LNG export facilities:

- Subpart A: General Provisions. This will apply to any LNG source that triggers one of the following subparts.
- Subpart Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels.
- Subpart IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.
- Subpart KKKK: Standards of Performance for Stationary Combustion Turbines.

As above with NESHAPs, the question for a permit review is whether the applicant is attempting to evade any potentially relevant NSPS.

G. Title V Operating Permits

Congress enacted Title V, 42 U.S.C. §§ 7661-7661f, as part of the Clean Air Act Amendments of 1990. Title V's purpose is to simplify enforcement an promote compliance by requiring each major stationary air pollution source (and certain smaller sources) to obtain an operating permit that identifies all applicable Clean Air Act requirements as well as monitoring, recordkeeping, and compliance certification requirements to assure the source's compliance with those requirements. A Title V permit also must include an enforcement schedule of compliance for any source that will not be in compliance at the time of permit issuance.

[1042] LAC 33:III.Chapter 51, § 5105(B).

EXISTING ADVOCATE GUIDE FOR TITLE V PERMITTING

A guide for advocates called "The Proof is in the Permit: How to Make Sure a Facility in Your Community Gets an Effective Title V Air Pollution Permit"[1] covers Title V permitting in depth and is aimed towards a similar audience as this guide. As such, this section will focus largely on LNG-specific Title V issues and provide a more minimal overview of Title V generally. The guide is available for free at: http://www.cacwny.org/docs/Title%20V%20-%20The%20proof%20is%20in%20the%20permit.PDF.

Because Title V permits are operating permits rather than construction permits, federal Title V rules contemplate that a source will apply for a Title V permit after commencing operations (but no later than 12 months1043). Some states, however, require issuance of a combined preconstruction and Title V operating permit prior to construction, including Louisiana.

EPA's Title V regulations, which contain (among other things) the minimum requirements for state Title V programs, are found at 40 C.F.R. Part 70. As such, Title V is also referred to as Part 70 requirements, or federal operating permits (even though they are implemented by states in most cases).

1. Who needs a Title V permit?

In short, all LNG export facilities and most support facilities will likely require a Title V permit. The Title V threshold is relatively straight-forward: any source with a PTE for the main criteria pollutants (i.e. NOx, CO, PM, VOCs, and SO2) of 100 tpy or more is a Title V source. Major sources of HAPs are also required to obtain a Title V permit, i.e., sources with the potential to emit more than 10 tons of any single HAP or 25 tons of total HAPs per year.

2. Does a new facility subject to Title V have to obtain a Title V permit prior to construction?

Title V permit regulations (40 C.F.R. Part 70) generally contemplate that a new source will apply for a Title V permit *after* commencing operation, usually needing to submit a complete application within 12 months of commencing operations. This timeframe is implemented in many, if not most, states. However, Texas and Louisiana have implemented different deadlines that do require certain Title V applications or approvals prior to either construction of a new source or operation of new sources.

Louisiana is one state that typically does require a new source to obtain a Title V permit prior to construction.[1044] At a minimum, a source must submit a complete Title V application prior to commencing construction. LDEQ may allow construction to commence prior to issuance of a Title V permit if certain conditions are met under LAC 33:III.501.C.3. Those conditions give discretion to LDEQ to "issue authorization to construct to an owner or operator in appropriate circumstances where there is a positive human health or environmental benefit, provided such an authorization is not precluded by any federally applicable requirement or by 40 C.F.R. Part 70." Because the Part 70 rules do not require issuance of a Title V permit prior to construction, it is unlikely that these Part 70 regulations would prevent LDEQ from authorizing construction prior to issuance of a Title V permit.

Texas does not require the *issuance* of a Title V permit prior to commencing construction, but it does require a new source that will be subject to Title V to submit something known as an "abbreviated

[1043] 40 C.F.R. § 70.5(a)(1)(i).
[1044] *See* LAC 33:III:507:C:2.

application" before commencing operations.[1045] The abbreviated application must **"**include at a minimum, a general application form containing identifying information regarding the site and the applicant and a certification by a responsible official."[1046]

3. What opportunity is there to comment on a draft permit? Is the permitting authority required to hold a public hearing?

Other than permit revisions that qualify as "administrative" or "minor," all Title V permits and permit revisions must undergo public notice and comment, including all initial Title V permits (this is particularly relevant in Louisiana, where LNG export facilities will almost certainly be permitted via joint Title V and Major NSR permits). This public comment period must be at least 30 days long, and all application material as well as the "statement of basis"[1047] must be available to the public for the entire 30-days.

Advocates may request a public hearing at any time during the 30-day public comment period; if an agency holds a public hearing, it must provide at least 30-days' notice.

In addition to public-notice-and-comment requirements, Title V also requires that EPA to review proposed Title V permits and object to defective permits. After submitting comments, advocates can petition EPA to object, as discussed below.

4. State and EPA review procedures for Title V Permits; recent rulemaking.

In general, the Proof is in the Permit guide referenced above is largely up to date, however EPA recently issued rules formalizing the procedures that states and EPA must follow in reviewing draft permits and responding to public comments. Below is the process and timeline that states and EPA must follow when significant comments are received:

- Once the permitting authority has prepared a draft permit and statement of basis, it shall release the draft permit for 30 days of public notice and comment;
- If significant comments are received, the agency must prepare a response to comments addressing comments;
- After completing the response to comments, if no permit revisions are made, the agency may transmit the proposed permit, i.e., the permit the agency proposes to issue, along with the response to comments and statement of basis for the permit conditions, to EPA for its 45-day-review period.
- If significant permit revisions are made, the agency must usually allow for another 30-day public notice and comment on the new draft permit, restarting the timeline.
- Once an agency transmits the draft permit to EPA, EPA then has 45 days to review the proposed permit and record and decide whether to object (typically they will not);
- After the conclusion of EPA's 45-day review period, commenters have 60 days to file a petition asking EPA to object. EPA then has 60 days to consider the petition, but in practice EPA almost

[1045] 30 TAC § 122.130(b)(1).
[1046] 30 TAC § 122.132(c).
[1047] Title V requires that permitting authorities prepare a "statement of basis" that "sets forth the legal and factual basis for the draft permit conditions (including references to the applicable statutory or regulatory provisions)." 40 C.F.R. § 70.7(a)(5).

never acts within this time period. Petitioners may need to sue EPA for missing this deadline to force action on the petition.

5. What issues should I cover in my comments on the draft permit?

The most critical thing to know about making public comments on Title V permits is that, if you intend to petition EPA to object to a Title V permit, you must lay the foundation for that petition in your public comments. If a particular deficiency is not identified in public comments submitted during the comment period (by you or someone else), you are generally prohibited from seeking an objection on that same basis (unless you can demonstrate that "it was impracticable to raise such objections within such period, or unless the grounds for such objection arose after such period"[1048], perhaps if new information is made available after the close of the comment period).

More generally, Title V permits are primarily designed to assure a facility complies with existing Clean Air Act requirements. As such, the most effective Title V permits will be those that address requirements that have been improperly omitted from or misstated in the permit, or that address the lack of sufficient compliance-assurance conditions like monitoring, recordkeeping, and reporting requirements.

Note again that the *Proof is in the Permit* guide is a great resource for how to spot Title V issues and address them in comments.

a. Does the monitoring, recordkeeping, reporting assure compliance?

In short, Title V permits must enable the public, EPA, and permitting authorities to promptly ascertain the "applicable requirement[s]" for a facility and whether the facility is complying with these requirements. The term "applicable requirement" is defined at 40 C.F.R. 70.2, but in general it is any Clean Air Act-related requirement, such as NSR limits, NESHAP standards, or NSPS standards. The only exception that might be encountered are "state-only" requirements that are outside the scope of the Clean Air Act and its regulations; one common example is state air toxics regulations.

In other words, almost every limit, standard, or operating condition contained in any Clean Air Act permit, in the relevant state implementation plan, or in an applicable Clean Air Act federal regulation must be wrapped into the Title V permit and paired with adequate monitoring, recordkeeping, and reporting requirements to assure the facility will comply with the condition and that violations are readily discovered and reported.

For instance, if a PSD permit establishes a limit of 1 lb/hr of NOx, but the PSD permit does not include any way to monitor the facility's NOx emissions (which itself is a separate deficiency under NSR, generally speaking), the Title V permit must include monitoring, recordkeeping, and reporting requirements.

<u>What monitoring is common at LNG plants?</u>

There are various devices and methods used to monitor compliance with emission limits or other requirements, and they can be arranged in a rough hierarchy in terms of their ability to assure continuous compliance. At LNG plants, the requisite monitoring is often set forth in NESHAP and NSPS requirements, but advocates should remember that these monitoring requirements are the "floor" of what is required, especially in Title V permits, which must supplement existing monitoring

[1048] 40 C.F.R. § 70.8(d).

requirements if they are not sufficient to assure compliance. This is especially relevant in Louisiana because that state issues combined initial Title V permits and pre-construction NSR permits.

Continuous Emission Monitoring Systems (CEMS): CEMS are generally the best method for directly monitoring emission rates. These are devices installed in a unit's smokestack that directly and continuously measure the emission rate of specific pollutants. For instance, NSPS subpart KKKK requires combustion turbines to install and operate CEMS for NOx emissions.

Stack Testing is the practice of periodically measuring the emission rate of a pollutant or pollutants directly from the stack. Stack testing may be the only requirement to measure actual emission rates of certain pollutants, or may be used to verify the accuracy of CEMS devices. Typically, where a permit requires stack testing, it will require an initial test within a certain date of initial operations, and then periodic testing thereafter. Note that stack testing alone is inherently deficient to assure compliance with short-term limits. For instance, if a unit is subject to an emission limit on an hourly basis, stack testing once per year will not alone assure compliance with the hourly limit. Although CEMS is ideal in such situations, if stack testing alone is used to demonstrate compliance, it must be paired with continuous parametric monitoring, as described below.

Continuous Parametric Monitoring Systems (CPMS) are devices or systems that monitor the operating parameters that influence emissions. For example, the combustion temperature in a turbine directly influences CO emissions, so a CPMS for CO emissions will measure and correlate temperature and other parameters to calculate estimated CO emission rates. Ideally, these parameters will be verified via stack testing; i.e., all of the relevant measurements will be monitored during a stack test and used to calculate emissions between stack tests.

Continuous Opacity Measurement Systems (COMS) are devices similar to CEMS that directly and continuously measure the opacity of a source's emissions. Almost all units at LNG plants will be subject to limits on opacity, which is a surrogate for PM emissions, and therefore permits must contain monitoring that ensures compliance with the opacity limits. COMS are ideal as compared to the alternative Method 9 measurement set out below.

Method 9 is EPA's methodology for having humans visually observe a source's opacity. Observers typically must attend a Method 9 training and receive certification, after which permits will require periodic Method 9 monitoring. In practice, this means a person will follow the procedures to determine what the opacity level is of a given source, perhaps on a daily, weekly, or even quarterly basis. This is problematic for several reasons; first, the source is usually free to choose when to make Method 9 observations, and may choose to do so only when the unit is operating optimally. Second, although Method 9 can produce accurate opacity measurements, it is still a subjective measurement and prone to human error. As such, COMS are preferable.

Equations and recordkeeping: permits may also "monitor" emissions by requiring the facility to use calculations and emission factors (described below in Section 8.I.2). For example, a permit might set out an equation that requires a source to multiply the tonnage of LNG produced by an emission factor to calculate an emission rate and determine compliance with an emission limit. This method is only as good as the emission factor utilized, which often is deficient. At a minimum, such monitoring should be paired with periodic stack testing to determine a "worst case" emission factor that represents maximum emissions.

b. Can I comment on substantive NSR issues in a Title V permit?

Title V permits are primarily intended to assure compliance with existing requirements, such as emission limits established in NSR permits. As such, permitting agencies typically hold that commenters may address Title V's compliance assurance related to those limits, but that the limit itself or related NSR requirements are not open to comment in the Title V context. For example, commenting that a Title V permit needs more monitoring related to a BACT limit is valid, but arguing that the BACT limit itself is defective (perhaps because the facility did not choose the lowest BACT limit) should have been raised in comments at the time of the NSR permit issuance, and is no longer an issue open to comment.

Historically, EPA generally agreed with states that concerns regarding what constitutes BACT and other substantive determinations made during a major NSR permit proceeding must be raised in that proceeding rather than in a later Title V proceeding. However, EPA made two exceptions: (1) if the deficiencies in the major NSR permit are so significant that the permit does not meet the fundamental requirement that a source obtain a major NSR permit prior to construction, or (2) if the state has chosen to issue a combined Title V and major NSR permit. It does not appear that EPA has ever identified a circumstance under which the first exception applies. As for the second exception, EPA changed its position in 2017 and declared in an order responding to a Title V petition that even when a state issues a combined Title V/NSR permit, Title V procedures are not available for challenging a substantive determination (e.g., BACT limit) established in a major NSR permit.[1049] EPA's change in position was controversial when made and potentially could change again.

Obviously, if an advocate is participating in a state permit proceeding where the state is simultaneously issuing and NSR permit and a Title V permit, or perhaps even issuing one combined NSR/Title V permit, there is no reason why the advocate cannot raise NSR concerns. But even if an advocate is commenting on a draft Title V permit at some point after the state has issued the major NSR permit in question, it does no harm to raise these in comments. A state agency always has discretion to correct its own errors. Furthermore, EPA potentially could be persuaded to change its position.

Also in 2017, EPA began declaring in response to citizen petitions to object to particular Title V permits that Title V procedures cannot be used to challenge a state's prior determination that a facility is *not* subject to major NSR.[1050] Environmental groups challenged two such EPA orders, one in the U.S. Court of Appeals for the Fifth Circuit, in Texas, and the other in the U.S. Court of Appeals for the Tenth Circuit, in Colorado. While the Fifth Circuit upheld EPA's new Title V interpretation, the Tenth Circuit found EPA's interpretation to be unlawful and struck it down.[1051] Subsequently, EPA explained in another order pertaining to a particular permit that it would not (and could not) apply the challenged interpretation in the Tenth Circuit (which includes Oklahoma, Kansas, New Mexico, Colorado, Wyoming, and Utah), but that it would continue to apply the interpretation in all other states, including Texas and Louisiana. Advocates are hopeful that EPA will reconsider that decision and authorize clean air advocates nationwide to utilize Title V permit procedures to challenge a state's prior, erroneous determination that a source's construction or modification did not trigger

[1049] *In the Matter of Big River Steel, LLC*, Order on Petition No. VI-2013-10 (Oct. 31, 2017), https://www.epa.gov/sites/default/files/2017-10/documents/big_river_steel_response2013.pdf.
[1050] *See, e.g., In the Matter of PacifiCorp Energy Hunter Power Plant*, Order on Petition No. VIII-2016-4 (Oct. 16, 2017), https://www.epa.gov/sites/default/files/2021-03/documents/hunter_order_10-16-2017.pdf.
[1051] *Sierra Club v. U.S. EPA*, 964 F.3d 882 (10th Cir. 2020).

major NSR applicability. Regardless, this issue is fairly unlikely to arise in the context of challenges to permits authorizing construction of LNG export facilities because major NSR applicability is likely to be clear.

4. Title V Petitions

One unique aspect of Title V permits as opposed to major or minor NSR permits is that states are statutorily prohibited from issuing a Title V permit without first providing EPA with a 45-day review period, and if EPA objects to its issuance, the state may not issue the permit until the basis for the objection is remedied. In practice, EPA rarely objects to a permit on its own, however the Act also allows advocates to petition EPA to object. EPA must grant a petition to object if the petitioner demonstrates that the permit does not comply with the Act or the requirements of the Title V regulations. The timeline for petitioning EPA is set out above at Section 8.G.2.

When filing a Title V petition, advocates should understand that the petitioner bears the burden of demonstrating that the permit is deficient; petitioners are further expected to acknowledge the state's response to comments and explain why the response is insufficient.

Importantly, advocates must be aware that any issue that they raise in a Title V petition must have been raised with reasonable specificity in their public comments on the draft permit, except in rare circumstances.[1052] If there is some reason why it was impracticable or impossible to raise a particular issue in comments on the draft permit, e.g., the information was only made publicly available after the close of the public comment period, the petitioner must make that demonstration in the petition. Do not expect for EPA to fill in the blanks.

You do not need to be a lawyer to file a Title V petition. Nonetheless, an advocate who plans to file a Title V petition is encouraged to consult with an experienced Clean Air Act lawyer who can advise on how to craft arguments in a way that is most likely to result in an EPA objection.

Advocates should also be aware that historically, it has taken EPA far longer than the 60-day deadline set forth in the Clean Air Act to respond to Title V petitions. Moreover, about two-thirds of EPA's responses have come only after the petitioner files a lawsuit in federal court to force EPA to Act. Fortunately, the Act provides for attorney fee recovery from the government in a successful citizen suit. Furthermore, assuming that the petition was filed on time, a lawsuit against the government for missing the response deadline is fairly straightforward. Thus, it should not be that difficult to find a lawyer willing to file the case.

Examples of Title V petitions as well as EPA's responses can be found at EPA's Title V Petition Database.[1053] Finally, advocates should be aware that EPA has recently set out minimum requirements for the format and contents of Title V petitions.[1054]

H. Effective comment drafting

This section provides a brief outline of what the authors consider to be best practices when reviewing an air permit for a new facility. Other experienced advocates may have different approaches, but this approach is premised on the back-and-forth nature of the permitting process,

[1052] As discussed above, if petitioners could not reasonably have raised the issue in the public comments, EPA may consider new arguments in Title V petitions. 40 C.F.R. § 70.8(d).
[1053] Available at: https://www.epa.gov/title-v-operating-permits/title-v-petition-database.
[1054] 85 Fed. Reg. 6,431 (Feb. 5, 2020), https://www.govinfo.gov/content/pkg/FR-2020-02-05/pdf/2020-01099.pdf.

which can be viewed as an adversarial proceeding between the applicant, the state, and finally the public.

- Start with the application(s). This is where the company will set out the details of the proposed project, which Clean Air Act requirements they believe apply, and, most critically, which do not, according to them. If there is a close question of applicability for any given requirement, the company will tend to advocate for non-applicability. The concept of "the lady doth protest too much" is a general guiding principle when reviewing permit applications. If the applicant expends significant amounts of ink justifying why something doesn't apply to them, it's worth asking why.

  A review of the application may also include a hard look at emission rates (i.e. emission factors, discussed below) and operating assumptions if the source is claiming certain requirements like major NSR doesn't apply to them.

  In sum, a deep read of the application and communications between the applicant and the agency is the best way to familiarize yourself with the context of the draft permit.

A TIP FOR SEARCHING VOLUMINOUS APPLICATION FILES

Often there may be dozens or even hundreds of individual PDF documents that form the application or permitting record, each of which may contain relevant information to a particular issue. Reading through each page of all such documents may simply not be feasible or advisable when reviewing a draft permit on short notice.

One method to speed the review process is to combine all PDFs into one single PDF. Then, targeted word searches can help learn about a given subject; of the documents are not initially word-searchable, many PDF viewers and online services provide for "OCR" to convert imaged PDFs to searchable text PDFs.

- Next, read the agency's technical review document. Regardless of the permit type, almost all agencies will provide a document wherein they state their interpretation of the application, whether or not they agreed with the applicant's claims, and how they drafted the permit and its conditions based on the application.
- In many instances, it can be very valuable to review other, similar sources. For instance, what technology and limits have been applied to this type of facility? Has the applicant and state included all similar sources, and not just those in the RBLC (discussed above)?
- What emission rates have been demonstrated in practice at similar sources? Note that this can cut both ways, if another source has achieved lower emissions, that should probably be included in setting limits for your source; alternatively, if a source is claiming it will be a minor or synthetic minor source, but similar sources have been found to emit higher rates than the applicant claims for its facility, is your source trying to evade major source requirements?
- Finally, review the draft permit. Now that you have a grasp on what the applicant is asking for, and how the agency has responded, look at the draft permit itself to see if it contains enforceable conditions related to the applicant's claims and the agency's interpretations. Also look to see if all of the assumptions made in the permitting process are reflected in the permit; if they performed

modeling assuming, say, 5,000 hours of operations per year, is there a permit limit reflecting this?

Again, it can be helpful to review permits for similar sources. Are those permits including limits and requirements that are not included in the permit you're reviewing? If so, why not?

I. Pollutants and Technology at LNG Export Facilities.

This section serves as a rough overview of the pollutants emitted by LNG export facilities as well as the applicable air pollution control technologies.

1. Pollutants emitted by LNG facilities.

This section gives a quick overview of the major pollutants emitted by LNG facilities and why they are regulated.

NOx: Nitrogen Oxides combine with VOCs and sunlight to cause ground-level ozone, also known as smog. Breathing ground-level ozone is harmful to anyone, but especially the elderly, children, and individuals with lung conditions such as asthma. Constituents of NOx also cause acid rain.

CO: Carbon Monoxide displaces oxygen and can result in health impacts; the greatest concern is for individuals with certain medical conditions, especially heart conditions, whose ability to get oxygen to their hearts may be especially sensitive.

VOCs: Volatile Organic Compounds, like NOx, contribute to ground-level ozone and smog. VOCs are a vast mix of individual chemical compounds, many of which are also hazardous air pollutants (HAPs), meaning they are toxic or carcinogenic even in small quantities. For instance, LNG plants emit the HAP formaldehyde, a known human carcinogen, which is also a VOC.

PM: particulate matter, especially fine particulate matter, or PM2.5 (meaning particles smaller than 2.5 micrometers in diameter) is particularly harmful to any individual because these particles are small enough to cross through the lungs into the blood stream. Exposure to PM2.5 has been linked to increased rates of heart disease and premature death.

HAPs: As discussed above, HAPs are those pollutants listed by Congress as toxic and/or carcinogenic even in small quantities. LNG plants emit a large amount of the HAP formaldehyde, which is a known carcinogen. Additionally, while the plants emit lower levels of the HAP acrolein, that particular pollutant is so acutely toxic that even vastly lower emission rates may still be a risk to public health.

2. Emission factors.

Prior to constructing a new facility, there will obviously be no direct measurements of the facility's emissions. Yet, to determine what requirements apply (e.g. Title V, Major vs. Minor NSR, NESHAP standards, etc.), applicants must estimate potential emissions for dozens of pollutants from many different types of processes. Emission factors are the most common method of calculating these potential emissions.

An emission factor is the rate a pollutant is emitted per unit of production, throughput, combustion, or other measurable, planned activity. A simple example would be that for every ton of coal burned in a power plant, the plant emits nine pounds of NOx; the emission factor here would be expressed as 9 lb/ton. If a planned coal power plant intends to burn 1 million tons of coal per year, that emission

factor would indicate the plant will emit 9 million pounds of NOx (9 * 1,000,000 = 9,000,000), or 4,500 tons of NOx per year.

Another example, a bit more complex but fundamentally the same idea and relevant to LNG facilities, would be that for every unit of heat input in a combustion turbine (expressed as million metric British thermal units, or "MMBtus"), the turbine will emit 0.32 pounds of NOx, or 0.32 lb/MMBtu. If a planned new turbine will have a maximum heat input rating of 300 MMBtu per hour (a fairly typical rating), that means the turbine operating at full capacity for the full year will emit 8,409,600 pounds of NOx (4,200 tons) per year: 300 MMBtu/hr * 8760 hours (the number of hours in a year) * 0.32 lb/MMBtu (the emission factor) = 8,409,600 pounds/year; to convert to tons per year, divide by 2,000.

Because these emission factors are so central to estimating emissions, which in turn is vital to regulatory applicability and accurate modeling analyses (after all, if a facility is underestimating emissions, then the model will not be representative), emission factors must be well supported in the record and, more than anything, represent the facility's true PTE.

AP-42: In this industry, and in many others, the most common source of emission factors is EPA's compilation of emission factors known as AP-42. EPA periodically surveys existing data on emission rates (e.g., stack tests) from various industries, puts them together into vast excel documents, and averages the results into emission factors. For instance, AP-42 Chapter 3.1 contains EPA's emission factors for combustion turbines.

The problem with averages and emission factors is that, generally speaking, about 50% of all sources within a source category will have emission rates that are higher than the average emission factor, perhaps vastly so. As such, EPA itself has repeatedly warned against using AP-42 emission factors in applicability determinations.[1055] Despite that, applicants and states routinely do just so. As discussed above, this is improper.

Trade Association Data: Some LNG applications rely on emission factors developed by trade associations, in particular the American Petroleum Institute (API). These emission factors are similar to AP-42 emission factors in that they are averages of multiple tests and sources, and therefore likewise do not represent potential emissions. Worse yet, with trade association emission factors, the underlying data is often not publicly available as it is treated as proprietary; even permitting agencies may not have access to the underlying data. Advocates should argue that use of such opaque emission factors does not meet the various requirements that require applicants to set forth the basis for a source's emissions calculations.

Manufacturer data: Another common source of emission factors is "manufacturer data" or "manufacturer's guarantee" or something similar. Almost universally, these emission factors will be listed without any supporting information and a mere footnote stating the basis is some iteration of the foregoing. This is problematic as the opaqueness of these emission factors makes it impossible for the public or permit writers to scrutinize how these emission factors were derived. The lack of transparency alone is grounds for comments that the applicant has not provided sufficient data on emissions calculations.

[1055] U.S. EPA, Enforcement Alert, "EPA Reminder About Inappropriate Use of AP-42 Emission Factors," Publication No. 325-N-20-001 (Nov. 2020), https://www.epa.gov/sites/default/files/2021-01/documents/ap42-enforcementalert.pdf.

Moreover, as to manufacturer "guarantees," these guarantees are typically only made one the basis of very specific operation parameters. Yet those parameters are known only to the manufacturer and the applicant, and not the agency or public. To properly rely on that guarantee, the permit should include such operating parameters as enforceable conditions, but almost never do.

Finally, and perhaps most troublesome, is the recurring pattern of applicants listing "manufacturer's data/guarantee" while simultaneously listing the manufacturer as "TBD" in the application forms. Most states require that applicants supply the make and model of each unit in their permit application forms, yet it is quite common to see an applicant simultaneously list the make and model as "TBD" then claim emission factors are based on this unknown manufacturer's guarantee. This is obviously a major contradiction: how can the source have manufacturer's data if they don't know who the manufacturer is?

Engineering estimates: Similar to manufacturer's data above, emission factors are often based in "engineering estimates." And, as above, the bases for these emission factors are largely omitted from the application record. Even if the engineering estimate is a good-faith effort at quantifying emission rates, the bases of the engineer's estimates should be included in the application and any assumptions about the facility's design or operation must be included as enforceable conditions in the permit.

3. Fugitive emissions

Fugitive emissions are defined as "those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening."[1056] In the context of LNG export facilities, most fugitive emissions are VOCs and greenhouse gases (methane in particular) emitted from leaks in valves, flanges, and connectors and from certain venting activities. Note that fugitive emissions must be considered in BACT and LAER analyses; industry typically argues that proper design and maintenance is BACT/LAER, but advocates should be aware that technology exists to reduce or eliminate leaks, such as "leakless" valves and fully-welded connections.[1057] Additionally, permits should contain monitoring to detect and fix leaks (usually referred to as "Leak Detection and Repair," or LDAR); advocates have argued that optical gas imaging is a necessary component of adequate monitoring. Note that monitoring itself can qualify as part of BACT/LAER, as better monitoring will reduce emissions.

4. Control technologies at LNG plants

The following provides an overview of control technology that is commonly used at LNG plants, or that could potentially be used to provide greater level of control. Note that while 'control' may invoke add-on filters that scrub an exhaust stream, in the section "control" means any technology or technique that reduces emissions, regardless of where it is used in the process.

Controls for combustion turbines:

NOx controls for turbines:

[1056] 40 C.F.R. § 52.21(b)(20).
[1057] For examples, see TCEQ's Air Permit Technical Guidance for Chemical Sources Fugitive Guidance, APDG 6422 (June 2018).

- Selective Catalytic Reduction (SCR) is an add-on control that uses a spray of ammonia in conjunction with a catalyst bed to selectively reduce NO_x to nitrogen and water. SCR's control efficiency is often cited as 70 to 90% or greater.
- Selective Non-Catalytic Reduction (SNCR) is an add-on control similar to SCR but without the use of a catalyst bed. Control efficiency is typically cited as 30 to 50%.
- Low-NO_x Burners or Dry Low NO_x Burners (LNB or DLNB) are a variety of burner designs that engineer combustion so as to reduce NOx formation. These burners can achieve up to 75% or more reduction in NO_x formation. Note that LNB and DLNB can be paired with SCR or other add-on controls to achieve even further emissions reduction.
- Water or steam injection: NO_x pollution is generally increased as the temperature of combustion increases, therefore injecting water or steam into the combustion chamber to lower the combustion temperature will decrease NO_x formation (but may increase CO emissions).
- Electrification: this is the most significant form of NO_x reduction; replacing combustion turbines with electric compressors will reduce NO_x emissions to zero.
- Other proprietary controls: there are a wide range of proprietary NO_x controls, such as EMx, NO_xOUT, or LoTO$_x$ (all trademarked) that typically include some combination of the foregoing techniques to reduce NO_x and potentially other pollutants.

  Other controls for turbines:

- VOCs and CO: Catalytic oxidation is, to date, the only add-on technology considered appropriate for turbines. Control efficiencies for CO and VOCs have been cited at rates well above 90%.[1058]
- PM controls for turbines are generally non-existent. While add-on controls may be feasible, industry has argued that combusting natural gas in turbines produces sufficiently low levels of PM that add on controls are not warranted.
- SO_2 controls include flue gas desulfurization (FGD) and wet scrubbers have been proposed for controls on turbines, but have not been required to date.

Controls for units other than turbines:

Flares: Flares are used to burn-off (incinerate) waste gases such as methane. LNG export facilities operate several types of flares depending on the type of process being controlled. One key issue common to flares at LNG plants is overestimating the destruction efficiency of flares, which results in underestimating emissions. For more on this, see the Affidavit of Dr. Ranajit Sahu, attached to Sierra Club's 2021 comments on the draft permit for Magnolia LNG.[1059]

Thermal Incinerators (also known as thermal oxidizers) are conceptually similar to flares except that they combust supplemental fuel (usually natural gas or propane) to incinerate a waste stream, and combustion occurs inside a controlled environment rather than at the tip of a smokestack. At LNG plants, thermal incinerators are used to control the amine units (sometimes referred to as the gas sweetening units) for destruction of hydrogen sulfide and carbonyl sulfide.

[1058] EPA, Hazardous Air Pollutant Emission Control Technology for New Stationary Combustion Turbines, at 1 (Aug. 21, 2001), https://www.mdeq.ms.gov/wp-content/uploads/2017/06/CT_HAP.pdf.
[1059] App. 60, at 13.

J. Sources of data and information broadly

This section provides resources for advocates looking to learn more about air permitting generally and LNG air permitting in particular.

1. Online State Agency Databases

Many states maintain online databases where the state agencies provide access to facility-specific documents, including everything from applications and permits to, in some instances, all communications between a company and the state.

HOW TO BULK DOWNLOAD DOCUMENTS FROM ELECTRONIC DATABASES

Advocates may find it easiest to bulk download files from electronic databases for review, and while some databases allow for this, many do not. However, if an electronic database provides links to documents (perhaps several hundred at a time), browser extensions such as Chrome's Batch Link Downloader can save a tremendous amount of time.

Texas

TCEQ maintains several overlapping, and frankly confusing, online databases for permit related material:

- TCEQ Central File Room Online: This is the electronic version of TCEQ's physical central file room and will contain many documents related to a facility, including air permits, applications, enforcement and investigation files, and so. In the experience of this author, the online Central File Room may be incomplete or not up to date, but is still relatively useful. If you suspect files are missing, you may need to file a public records request. Available at: https://www.tceq.texas.gov/agency/data/records-services.
- New Source Review and Title V Operating Permits Database: these two parallel databases allow advocates to search for all NSR (including minor NSR) and Title V permits issued in Texas or in particular counties. This includes some pending permits that have yet to be issued. Unfortunately, the actual permits are not available for download here, but instead you can find permit numbers and permitting dates. Available at: https://www2.tceq.texas.gov/airperm/index.cfm.
- TCEQ Commissioners' Integrated Database: this database lists filing dates and agency action on air permits. Typically the only documents available here are public comments, hearing requests, motions to overturn, and other similar communication from the public. Available at: https://www.tceq.texas.gov/agency/decisions/cc/cc_db.html.

Louisiana

Louisiana provides one comprehensive database which contains almost all documents relevant to air sources; applications, investigations, permits, public comments, etc. The database is called the Electronic Document Management System and is available at https://www.deq.louisiana.gov/page/edms.

2. How to find public comments, petitions, and other advocacy material

A great way to quickly learn about issues with a particular industry is to look at what other advocates have identified as issues in public comments or other documents.

First, we have compiled the few public comments made to date on LNG export facilities at Appendices 59 through 67. Second, advocates can search for public comments in online databases in many states, as detailed above. Third, advocates should be aware of EPA's Title V petition database, which hosts all advocate's petitions to EPA to object to Title V permits (see the next section for more details).

3. Legal guides and resources

EPA's (Draft) NSR Manual: Although the Manual is not considered legally binding, it is recognized as the best resource for EPA's interpretation of NSR regulations and requirements. Many of those interpretations have been included in other EPA's documents or decisions that are binding, such as decisions by EPA's Environmental Appeals Board or in Title V petition orders. The manual is currently available at: https://www.epa.gov/nsr/nsr-workshop-manual-draft-october-1990.

EPA's New Source Review Policy and Guidance Document Index: EPA has issued hundreds of guidance and policy documents related to NSR since 1976. These include numerous source-specific determinations that may provide valuable citations for concepts set forth in the Draft NSR Manual—and unlike the Manual, these decisions do have legal authority. EPA maintains a comprehensive online Index as well as a search tool to search all such guidance, available at https://www.epa.gov/nsr/new-source-review-policy-and-guidance-document-index.

EPA's Environmental Appeals Board (EAB) Decisions: These decisions are essentially administrative "case law" issued by the EAB when someone challenges certain NSR permits (primarily those issued by EPA or in permits in states with delegated authority). The primary type of issue heard by EAB is PSD permit appeals, so this resource is most valuable for researching PSD issues like BACT or applicability determinations. Advocates can search these decisions online at: https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/Board+Decisions?OpenPage.

Title V permitting: The Proof is in the Permit: This is an excellent guide to all things related to Title V permitting, and is available at: http://www.cacwny.org/docs/Title%20V%20-%20The%20proof%20is%20in%20the%20permit.PDF.

EPA's Title V Petition Database: Title V petitions, and particularly EPA's orders on petitions, can be a valuable tool for researching Title V permit issues. Although only EPA's orders carry legal authority, petitions can also be valuable for assessing how other advocates have made legal arguments. A searchable database of all petitions and orders is at: https://www.epa.gov/title-v-operating-permits/title-v-petition-database.

4. Technical Guides and Resources

This section briefly provides several helpful tools for reviewing the technical aspects of a permit, e.g. emissions calculations.

RACT/BACT/LAER Clearinghouse (RBLC): is a database of air pollution controls that have been required as RACT, BACT, or LAER at new sources. Note that RBLC is notoriously incomplete and should not be relied upon solely when determining RACT/BACT/LAER. Available at: https://cfpub.epa.gov/RBLC/index.cfm?action=Home.Home&lang=en.

AP-42: As discussed above, AP-42 is a compilation of emission factors for various types of sources. Although use of AP-42 emission factors is often inappropriate, the AP-42 database contains

informative descriptions of various operations and sources, and the emission factors may still be useful to compare a source's estimates to what stack tests at similar sources have produced. Note that each section of emission factors is accompanied by an excel spreadsheet that provides details on each stack test that was used to formulate an emission factor. This can be valuable for getting more specific emission rates. Available at https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors.

EPA Control Technology Fact Sheets: A good starting point for learning about a certain control technology is EPA's control technology fact sheets, available at: https://www.epa.gov/catc/clean-air-technology-center-products.

Converting emission rates: Frequently emission rates at LNG plants are expressed in one of two emission rates: ppm and lb/MMBtu. This can make it difficult to compare emission rates from one source to another. A handy excel spreadsheet developed by the Santa Barbara County Air Pollution Control District can help convert between the two: https://www.ourair.org/wp-content/uploads/PPMV-to-lb-per-MMBTU.xlsx.

Additionally, some emission rates may be expressed in lb/hr rather than ppm or lb/MMBtu. To convert from lb/hr to either of the two other units, first convert from lb/hr to lb/MMBtu by dividing the lb/hr rate by the MMBtu value of the turbine or combustion source. For instance, if a turbine is rated for 500 MMBtu/hr, and the hourly emission rate is 10 pounds of pollutants per hour, divide 10 by 500 to get lb/MMBtu. Then, if necessary, to convert to ppm, use the above tool to convert from lb/MMBtu to ppm.