December 22, 2025

REPORT#E25-508

Stand-Alone Fan Manufacturer Representative & Specifier Market Activity Research

Prepared For NEEA:
Chris Cardiel, Sr. MRE Scientist

Prepared By:
Chris Dyson, Principal Consultant
Ari Michelson, Director

DNV Energy Insights, Inc.
621 SW Morrison Street, Suite 500
Portland OR 97205

By accessing or downloading any Content from NEEA's Sites, you acknowledge and agree you read, understand, and will comply with NEEA's Privacy and Terms of Use and further understand NEEA retains all rights of ownership, title, and interests in the Sites and Content. You may not share, sell, or use the Content except as expressly permitted by NEEA's Privacy and Terms of Use without NEEA's prior written consent of its legal counsel.

©2025 Copyright NEEA

Northwest Energy Efficiency Alliance
PHONE
503-688-5400
EMAIL
info@neea.org

Table of contents

List of figures

List of tables

EXECUTIVE SUMMARY

Background

NEEA has developed an Efficient Fans Program (the "Program") to encourage wider adoption of energy efficient commercial and industrial (C&I) fan systems in the Northwest. The Program will focus on accelerating the adoption of stand-alone fan systems—efficient fan system products that are not embedded in larger equipment with additional operating functions such as HVAC, Make-Up Air, or Outdoor-Air unit systems.[1]

This study is designed to deepen the knowledge of the NEEA program staff about the Northwest C&I fan market. The study team analyzed the findings from this current study alongside prior research results. Previously, the study team had conducted three other fan market studies including the 2021 Commercial & Industrial Stand-Alone Fans Market Research,[2] the 2022 NEEA Fan Manufacturer Regional Market Share Research study,[3] and the 2024 Fan System Market Characterization Study.[4]

Methodology

As part of the data collection process, the study team first developed sample frames of manufacturer representatives and fan specifiers operating in the Northwest. From these lists, the team recruited market actors to interview. The study team completed in-depth interviews with 20 fan market actors (14 fan specifiers and six manufacturer representatives), These interviews were the primary sources of information for the current study.

Summary of Key Findings

This section summarizes the study's key findings and maps them to the study's research objectives. Additional details regarding each of these findings appear in the main body of this report.

- *Research objective 1: Identify and document key communication and relationship dynamics between market actors (including particularly influential sources of information):*
    - *The frequency of competitive fan bids:* Manufacturer reps reported that, on average, 68% of their stand-alone fan sales were won through competition in an open bid. The remainder of their sales were either sole source contracts (15%) or other scenarios such as direct outreach from end users and facility owners.
    - *The frequency of fan pre-specification:* Manufacturer reps estimated that, on average, 23% of their new construction or major renovation jobs included all fan features pre-specified, while an average of 51% of jobs included some pre-specified fan features. The most frequently pre-specified features included energy efficiency (EE), noise, cost, and variable frequency drives (VFDs)/controls. The fact that only about a quarter of the fans have totally pre-specified features likely increases the opportunities to recommend EE as a fan feature since the efficiency of the fan is not already predetermined by a prescribed fan model.

[1] It should be noted there is likely some degree of subjectivity in market actor responses to these definitions, and therefore some of the manufacturers represented may sell fans that end up getting embedded later on downstream.

[2] DNV. December 9, 2021. *Commercial & Industrial Stand-Alone Fans Market Research* (Report #E21-432). Portland, OR: Northwest Energy Efficiency Alliance. Retrieved from Commercial & Industrial Stand-Alone Fans Market Research - Northwest Energy Efficiency Alliance (NEEA).

[3] DNV, April 3, 2023, *Fan Manufacturer Regional Market Research*, (Report #E23-460) retrieved from Northwest Energy Efficiency Alliance (NEEA) | Fan Manufacturer…

[4] DNV, March 18, 2024, *Fan Systems Market Characterization,* (Report #E24-479) retrieved from Fan Systems Market Characterization - Northwest Energy Efficiency Alliance (NEEA)

- *The frequency of fan specification in isolation from non-fan equipment:* Nearly two-thirds (64%) of fan specifiers said that fans are always specified as part of a larger project.
- *Who requests fan specification services:* The fan specifiers most frequently named building owners (71% of respondents) followed by designers/architects from outside firms (57%).
- *Who reps discuss fan choices with:* All the manufacturer reps reported discussing fan choices with specifying engineers and half also cited discussions with installation contractors. No reps reported discussing fan choices with architects or general contractors.
- *Fan factors considered by specifiers:* When asked which factors they consider when recommending a stand-alone fan, specifiers listed EE (43% of respondents), available space (43%), manufacturer/brand (36%), fan application (36%), product availability (29%), and cost (14%).
- *Fan factors that manufacturer reps consider:* The top factors that manufacturer reps consider when recommending a stand-alone fan include fan application (83% of respondents), cost (83%), and available space for fan operation (67%). Half also listed product availability, EE, and brand.
- *How specifiers choose the fan manufacturers they work with:* Most specifiers reported working with a short list of two to three manufacturers, citing that they gave greater weight to the manufacturer's customer relations (71% of respondents) and product reliability (50%) than costs (31%) or aftermarket services (29%).
- *Projects for which specification process differs from typical (manufacturer rep perspective):* When asked what sorts of new construction or major renovation projects involved interactions with specifying engineers that deviated from standard practices, manufacturer reps listed high-performance buildings, projects in the military and retail sectors, design/build scenarios, laboratories, and projects with tight budgets.
- *Projects for which the fan specification process differs from typical (fan specifier perspective):* When asked to describe the characteristics of new construction or major renovation projects for which the fan specification process differed from typical practices, specifiers mentioned larger projects, fans made of non-typical materials, ventilating commercial kitchens, projects with federal safety requirements, and projects involving efficiently removing particulates in mill facilities. For example, projects requiring fans of non-typical materials can force specifiers to rely on the assistance of fan manufacturers more than normal to find the products they need.
- *The use of fan selection software:* Twelve of the fourteen specifiers (86%) and five of six manufacturer reps (83%) reported using software for discussing fan selection with clients. Half reported using Loren Cook's CookSelect software and half mentioned Greenheck's CAPS/eCAPS® software.

  Two reps said that their software presents EE information in a user-friendly manner, while two indicated that it depends on which software they are using. Two reported that EE information is not made visible in the software they use.

- *Research objective 2: Confirm program hypothesis of the existence of specific "pain points" endemic to the stand-alone fan specification, sale, and installation process, and characterize the market actors, process points, and reasons associated with these pain points:*

- *Challenging fan specification projects (manufacturer rep perspective):* Manufacturer reps (83%) were more likely than specifiers (36%) to describe challenging projects. Reps identified projects where specifying engineers provided inadequate information about fan applications or requirements, fan applications being difficult to design, and challenges coordinating the schedules.
- *Challenging fan specification projects (fan specifier perspective):* Two specifiers observed that projects with specialty fan types or applications were challenging, while others identified last-minute changes in project specifications for mechanical equipment making it difficult to access the manufacturer's fan selection software in a timely manner to make these changes.

- *Research objective 3: Solicit input from regionally active stand-alone fan manufacturer representatives and specifying engineers regarding the clarity, sensibility, and appropriateness of programmatic language and terminology related to in-scope fan systems.* The study team asked manufacturer reps and specifiers whether the term "stand alone fan" and the NEEA definition for this term would enable them to understand which types of fans were being referred to. Five of the six reps (83%) and nine of the 14 specifiers (64%) said "Yes" to this question.

  The study team then asked the manufacturer reps and specifiers whether the term "stand-alone fan" is commonly misunderstood or incorrectly applied in the industry. All six reps said "No" to this question, but one rep said: "Not misunderstood, but people don't typically say 'stand-alone' but rather just a 'fan' for X Y Z application." However, the fan specifiers had a more mixed reaction to this question. Four specifiers said "No," three said "Yes," and the remaining seven said they were not sure.

  When asked if it would it be difficult to distinguish the sales of stand-alone fans (as defined by NEEA) from other fans when reviewing their sales data, three manufacturer reps said "Yes" and three said "No." Multiple reps said they rarely use the term "stand-alone" and instead define fans by application,

Conclusions

The following are some key conclusions from this study.

- *The market research indicates that there are opportunities for increasing the specification of EE fans in the Northwest region:* Both the fan manufacturer reps and specifiers indicated that pre-specification of fan features was rare. In addition, when asked which fan features were most frequently pre-specified, the specifiers most frequently identified EE. These specifiers also indicated that EE is being discussed more than in the past due to sustainability policies, interest in LEED buildings, and building codes. Some manufacturer reps indicated they are already looking for opportunities to improve EE. One manufacturer rep indicated that more customer education, such as webinars and lunch & learns, could increase EE specification.

  Finally, the research indicated that manufacturer reps and specifying engineers were the most important market actors for fan specification. This means that the NEEA program can reasonably focus its market engagement efforts on a constrained number of market actor groups in order to influence the fan specification process.

- *However, significant challenges remain for NEEA to increase the specification of EE fans.* While pre-specification of fan features was rare, the manufacturer reps reported that, on average, 68% of their stand-alone fan sales were won through competition. In addition, 84% of the reps said they discuss fan costs with their clients. Drawing attention to fan costs could put EE fans at a disadvantage since they

tend to have higher upfront costs than standard efficiency fans which might lead to a reluctance to specify or select them. Half of the manufacturer reps and 43% of the specifiers identified EE as a fan feature they discuss regularly with clients.

Another challenge is that fan selection software is the favored information-sharing interface for both manufacturer reps and specifiers. Yet only two of the six reps said the software they use allows "energy efficiency to be easily presented to customers." Finally, the solution that the reps suggested most often for encouraging more specifications – rebates/incentives – is one that requires careful and targeted usage within a market transformation framework.

- *Interviewed market actors found NEEA's definition of stand-alone fans to be reasonably clear, but noted that "stand alone" is not a commonly used term in the industry.* Five of the six manufacturer reps (83%) and nine of the 14 specifiers (64%) said the NEEA definition for stand-alone fans would enable them to understand which types of fans were being referred to. However, when asked whether they thought that the term "stand-alone fan" is commonly misunderstood or incorrectly applied in the industry, three specifiers said "Yes," four said "No," and the remaining seven indicating that they were not sure. Many interviewees preferred that fans be labeled by their application.

1 INTRODUCTION

1.1 Study purpose and objectives

The primary purpose of this study was to provide information that will help NEEA's Efficient Fans Program (the Program) develop and implement market transformation strategies for the C&I fan system market in the Northwest (Idaho, Montana, Oregon, and Washington). The specific research objectives for this study were as follows:

1. *Develop a robust list of C&I stand-alone fan manufacturers' representatives and specifying engineers active in the Northwest Region.*
2. *Identify and document key communication and relationship dynamics between market actors (including particularly influential sources of information).*
3. *Confirm program hypothesis of the existence of specific "pain points" endemic to the stand-alone fan specification, sale, and installation process, and characterize the market actors, process points, and reasons associated with these pain points.*
4. *Solicit input from regionally active stand-alone fan manufacturer representatives and specifying engineers regarding the clarity, sensibility, and appropriateness of programmatic language and terminology related to in-scope fan systems.*

1.2 Study background

The study kicked off in December 2024, progressing through the following project milestones:

- *January–April 2025:* The study team developed sample frames, interview guides, and recruiting scripts and finalized them after NEEA review.
- *May–July 2025:* The study team fielded both the fan specifier and manufacturer rep guides and completed 20 in-depth interviews.
- *August–November 2025:* The study team analyzed the interview responses from both market actor groups and summarized the findings in a presentation to NEEA staff. The team then developed the current report.

2 METHODOLOGY

This section describes the methodology for the primary activities conducted during the present study.

2.1 Sample design and market actor lists

The study team developed a sampling approach to target the fan manufacturer reps and fan specifiers. The starting point for the sample frames was existing lists of manufacturer reps and specifiers that DNV had developed on behalf of NEEA for earlier studies of the regional fan market. The study team first removed any contacts from these lists that had completed an interview in 2023 and designated as lower priority targets any contacts who had refused an interview in 2023. It then used the NAICS codes from the 2023 lists to search in the ZoomInfo B2B database for new companies in the Northwest that had been added in the subsequent two years. Because the NAICS codes for fan specifiers captured a wide range of design engineering firms, the study team searched websites to identify and remove firms that did not appear relevant to this study. Finally, the study team added two manufacturer reps to the contact lists based on referrals from Program staff.

2.2 Interview guides and data collection

The study team developed separate in-depth interview guides for the manufacturer reps and fan specifiers. The guides had matrices to ensure that the interview questions covered all the research objectives. Both interview guides covered the following topics:

- *Interview background:* Respondents were asked about their roles in their companies and how many years they had been specifying stand-alone fans.
- *Familiarity with stand-alone fans:* Respondents were asked whether their companies specified stand-alone fans and how familiar they were with these types of fans
- *Geographic coverage and company size:* Respondents were asked which Northwestern states their companies served and how many employees were active in the Northwest region.
- *Target sectors:* Respondents were asked whether there were market sectors or customer types they did more business with than others.
- *Project characteristics:* Respondents were asked what proportion of their 2024 fan specifications fell within new construction, major renovation, emergency replacement, or planned replacement projects.
- *Actors in the specification process:* Respondents were asked which project actors they typically interact with during the fan specification process for new construction and major renovation projects and whether there were projects where the project actors were different than typical.
- *Pre-specification of fan features:* Respondents were asked which fan features, if any, were typically pre-specified for new construction and major renovation projects.
- *Fan features discussed:* Respondents were asked which fan features were typically discussed during the fan specification process for new construction and major renovation projects.
- *Fan selection software usage:* Respondents were asked whether and how they used fan selection software.
- *Other information sources for fan specification:* Respondents were asked what information they use to guide fan specification discussions with clients for new construction and major renovation projects.

- *Challenging fan specification projects:* Respondents were asked which fan specification projects, if any, were more than challenging than others, and in what ways these challenges manifested.
- *Fan specification process for replacement scenarios:* Respondents were asked whether the fan specification practices were different for fan replacement scenarios.
- *Fan terminology:* Respondents were asked whether the NEEA definition of stand-alone fans is recognizable and whether there is alternative market-resonant terminology for these types of fans.

Besides these question topics that both interview guides shared, each interview guide also had some unique questions that are covered in this report.

Following interview guide approval, DNV recruited market actors and completed in-depth interviews. The study team offered potential respondents a gift card incentive of $250 for interview participation, along with an assurance that the confidentiality of any sensitive market information provided during the interviews would be protected. Table 2-1 summarizes the interviews completed with each market actor group for the study as well as the target number of completed interviews for each group.

Table 2-1. 2025 fan systems market characterization interview completes

Market Actor	Target Number of Completes	Interview Completes
Manufacturers' representatives	20	6
Specifiers	20	14
Total	**40**	**20**

It is important to note that the study team had developed the target numbers of completed interviews in the proposal process before compiling their sample frames. The team later learned that the manufacturer rep sample frame was much smaller than anticipated with only 44 unique companies active in the Northwest. While the fan specifier sample frame was much larger than this, when the study team interviewers began developing this list, they discovered that a large percentage of identified firms did not offer C&I fan specification.

The study team identified the following additional dynamics for consideration when planning and attempting future similar recruitment efforts:

- *Fan-specific professionals represent an inherently difficult market to reach:* In contrast to other energy-consuming end uses, such as lighting or heating/cooling equipment, fans are often overlooked by both market actors and EE programs. This challenge is exacerbated when the focus is narrowed from fans in general to stand-alone fans.
- *For some market actor categories, it is difficult to find specific NAICS codes that matched well with the target market actor groups:* This was a significant barrier for identifying the fan specifiers.
- *Blind recruiting brings both advantages and challenges:* Except for two manufacturer reps who had a working relationship with NEEA staff, the study team did not identify NEEA as the sponsor of the research in recruiting emails or phone calls. NEEA requested this "blind recruiting" to reduce possible bias. However, it likely reduced the chances of recruiting market actors who were familiar with NEEA and had positive attitudes toward the organization. In addition, even in cases where the target interviewees were not familiar with NEEA, explaining that the research is sponsored by a non-profit organization would likely

have reduced market actor concerns about sharing information (as opposed to sharing information with a private company like DNV).

2.3 Analysis and integration of prior study findings

The study team analyzed the interview results alongside prior research results and findings to develop findings and recommendations for the fan market. Many of these prior research results and findings came from previous DNV-led NEEA fan market studies:

1. The 2021 Commercial & Industrial Stand-Alone Fans Market Research study informed NEEA on the fans market through 27 in-depth interviews with market actors that manufacture, sell, select, and install non-embedded fans. The objective of this study was to develop a fundamental understanding of the Northwest C&I fan market including who the key market actor groups are, how they interact with each other, and what market barriers prevent wider adoption of energy-efficient fans.
2. The 2022 NEEA Fan Manufacturer Regional Market Share Research study completed in-depth interviews with six of the largest manufacturers of stand-alone fans in the Northwest. It also analyzed C&I fan sales data that one of these manufacturers provided. This study's objectives included estimating the size of the Northwest market for stand-alone C&I as well as developing market share estimates for different aspects of the market (e.g., geography, sector, motor size, prevalence of fan controls, prevalence of FEI certification, etc.).
3. The 2024 Fan System Market Characterization Study provided the Program with additional information on the Northwest C&I fan market. This study completed in-depth interviews with 31 C&I fan market actors including fan manufacturers, fan manufacturer reps, fan specifiers, fan installers, building maintenance managers, and system integrators. It also included a review of secondary literature on the fan markets. Key objectives of this research included updating the size estimates of the Northwest C&I stand-alone market from the 2022 study, determining where most of the fan sales activity was occurring (e.g., new construction vs. retrofit), gauging the level of FEI awareness among fan market actors, estimating the proportion of stand-alone fans with controls (especially VFDs), building on the information of the C&I fan specification process that the 2021 study had compiled, and getting the C&I fan market actors to weigh in on which of the energy-efficient stand-alone fan market barriers identified in the 2021 study were most significant.

3 DETAILED FINDINGS

This section of the report describes the detailed findings of the fan systems market characterization study.

3.1 Characterizing the market actors

The study team asked the fan manufacturer reps and specifiers several questions about themselves and their companies, including:

- *Level of experience:* Both groups of fan market actors were highly experienced. The manufacturer reps reported an average of 17 years of experience selling or specifying stand-alone fans, and the specifiers reported an average of 14 years of experience specifying stand-alone fans.
- *Knowledge of stand-alone fans:* All the fan manufacturer reps and 79% of the specifiers reported being "very familiar" with stand-alone fans. The remainder of the fan specifiers said they were "moderately familiar" with such fans.
- *Company size:* Fan manufacturer reps reported an average of 82 employees active in the Northwest, while specifiers reported an average of 43.
- *Target markets:* Manufacturer reps identified industrial (6 mentions), commercial (6), education (4), data centers (4), offices (2), retail (2), and multifamily (2) as particular market sectors/customer types with which their firms engage, while specifiers listed federal government/military (4 mentions), healthcare (3), education (3), wastewater (3), and multifamily (2). Other subsectors that just a single specifier cited included pulp & paper, urban infrastructure projects, dams, large free-standing metal buildings ranging from tap houses to pickleball courts, parking garages, industrial facilities, general commercial buildings including office and multi-use spaces, and commercial kitchens.
- *Company services:* The study team gave the fan manufacturer reps a list of possible services and asked them to indicate which ones their companies offered. All the reps said that they sold fan systems to mechanical/installation contractors. Half reported specifying fans for builders and half reported offering fan specification for end users. Half also reported selling fans to end users. Other services they identified included fan sales to retailers (one respondent) and fan "setup services" (one respondent).[5] None of the manufacturer reps reported offering fan installations.

  The team asked the fan specifiers an open-ended question about their services. The specifiers most frequently identified mechanical, electrical, and plumbing (MEP) consulting services, while some reported that they also offer fire protection consulting services.

The study team also addressed some firmographic questions only to the fan manufacturer reps. These included:

- *Competitive characteristics:* The study team asked the fan manufacturer reps about their companies' competitive characteristics. When given the choice of describing their companies as independent vs. being part of a national chain or a publicly owned company, all six reps identified their companies as independent. However, one reported that their company was being acquired by another company. The study team also asked the reps if they represented multiple fan manufacturers or a single manufacturer. Five of the six respondents said that they were reps for multiple fan manufacturers. Finally, when the team asked the reps:

[5] The vendor's website described this service as: "Expert setup and initialization of systems to ensure optimal performance from day one. Includes system checks and adjustments to match your specific operational requirements."

"Does any of your service territory include areas where you have exclusive rights to sell stand-alone fans from your manufacturer?" all the reps said there were at least some areas where they had exclusive rights.

- *Fan market sectors with growth potential:* The study team asked the fan manufacturer reps: "Are there any emerging market sectors where you expect sales of stand-alone fans will increase in the future?" Only one market sector—data centers—was cited by multiple (4) manufacturer reps. Fan market sectors with growth potential that received just a single mention included the fan retrofit market (due to aging infrastructure), wastewater plants, university labs, hyperscalers, chip manufacturers, and the commercial sector in general. One rep reported that the warehouse sector had been growing for many years, but that has slowed recently.

NEEA staff were also interested in segmentation of this list by state, sector, and/or sales channel. The study team asked the fan manufacturer reps and the fan specifiers which Northwest states they served. Table 3-1 shows that Oregon and Washington had the most coverage by the market actors but that all the Northwest states had good coverage by the combination of market actor groups.

Table 3-1: Northwest states served by market actor group

State	Manufacturer Reps (% who sell/specify in state)	Fan Specifiers (% who specify in state)
Idaho	83%	57%
Montana	16%	71%
Oregon	100%	57%
Washington	67%	86%

Finally, the study team asked respondents which project types accounted for which shares of their stand-alone fan sales or specifications in the Northwest region.
Table 3-2 shows that the fan manufacturer reps and specifiers both reported that about two-thirds of their stand-alone fan sales/specifications were for new construction projects with major renovation projects being a distant second in frequency of mention. This breakdown of project types mirrors what fan market actors reported in the 2024 NEEA fan study.

Table 3-2: Project types covered by market actor group

Project Type	Manufacturer Reps (% of stand-alone fan projects)	Fan Specifiers (% of stand-alone projects)
New construction	68%	65%
Major renovation	19%	25%
Planned replacement	10%	9%
Emergency replacement	5%	3%

3.2 The fan specification process

This section describes the stand-alone fan specification process from the perspectives of both fan manufacturer reps and specifiers, including both standard practices and occasional departures from such practices. These questions were primarily focused on the relationship between manufacturer reps and fan specifiers and also sought to provide insights into the information sources used during the fan specification process.

3.2.1 Fan specification practices

The study team asked the fan manufacturer reps and specifiers about the following aspects of the stand-alone fan specification process:

- *The frequency of competitive fan bids:* The study team was interested in learning from the fan manufacturer reps how frequently stand-alone fan bids for new construction or major renovation projects were competitive bids vs. sole source solicitations. This is an important question since competitive bids are usually cost driven, which can constrain sales of more expensive high-efficiency fans. The reps reported that, on average, 68% of their stand-alone fan sales were won through competition with other fan manufacturers in an open bid. They also reported that, on average, 15% of their stand-alone fan sales were sole-source contracts based on a prior relationship with a builder or general contractors. The remainder of their stand-alone fan sales occurred under different scenarios such as direct outreach from end users and facility owners where the fans were either added to an existing mechanical equipment contract or the interviewee did not specify the alternative contract arrangements.

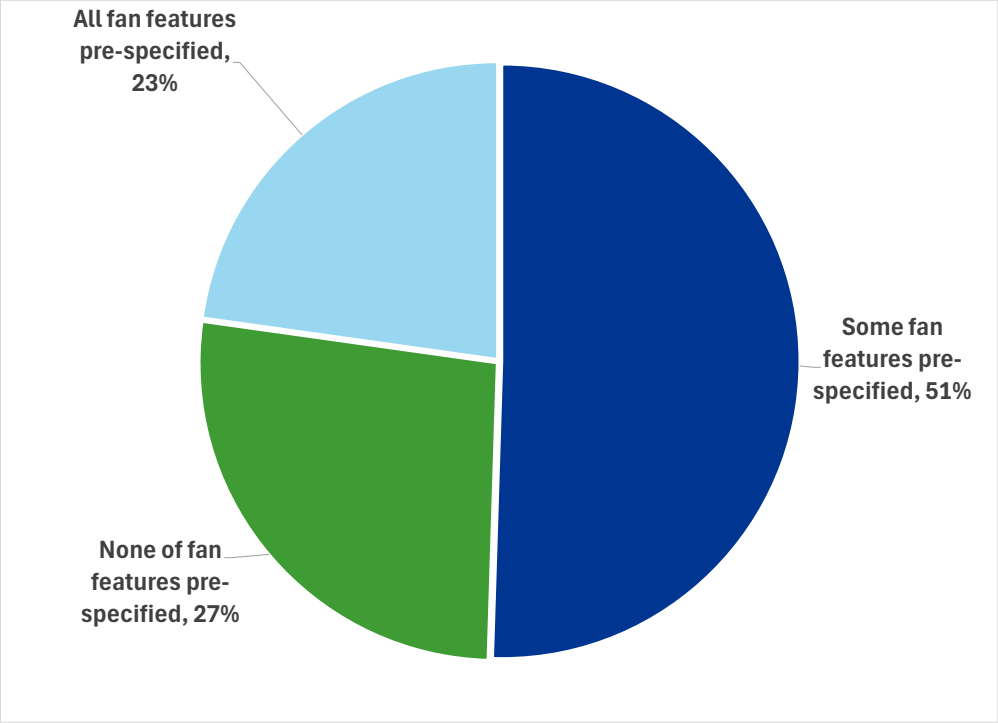
  Moving beyond these averages, there was stark separation in the market between manufacturer reps who focused on competitive bids and those who relied on sole-source contracts. For instance, three of the six reps said that 90–100% of their stand-alone fan sales were from competitive bids, while two other reps said that only 25–40% of their stand-alone fan sales were from competitive bids (the sixth rep gave an estimate of 65%). It is logical to assume that an opportunity exists to encourage sales of high-efficiency fans among manufacturers reps with sole-source contracts, since they presumably would have more flexibility in which fan types they recommended and fewer worries about price-based competition. However, it is unclear how such vendors can be easily identified.

- *The frequency of fan pre-specification:* The study team was also interested in learning from the fan manufacturer reps how frequently stand-alone fan features are pre-specified in a bid, as too much pre-

specification likely makes it difficult for fan manufacturer reps to recommend alternative models, including more energy-efficient models. The manufacturer reps reported that, on average, only about a quarter of their new construction or major renovation jobs were ones where all the fan features were pre-specified (Figure 3-1). Most frequent were jobs for which just some of the fan features were pre-specified.

As was the case with the frequency of competitive fan bids, there was much variability in the responses of the manufacturer reps. For example, when asked to estimate what percentage of their new construction/ major renovation jobs had some fan features pre-specified, two reps gave estimates in the 0–5% range while the remaining four had estimates in the 70–80% range. It is likely that these large differences are due to which markets these manufacturer reps target. Some reps favor the high risk/high reward competitive markets, while others gravitate towards relationship-based sole-source models.

Figure 3-1: The frequency of fan pre-specification



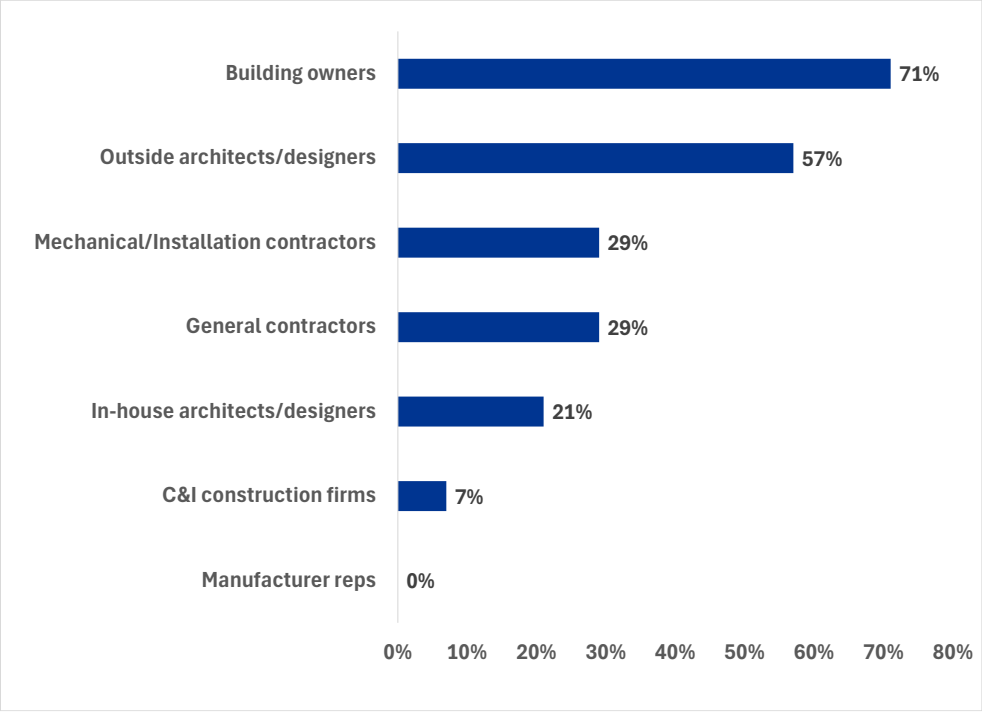
The study team also asked the fan specifiers which stand-alone fan features their clients typically pre-specify. The specifiers said that there were very few pre-specified fan features. The most common pre-specified features cited were EE (5 mentions), noise (3 mentions), cost (2 mentions), and VFD/controls (2 mentions). Other pre-specified fan features that only a single respondent identified included fan type, revolutions per minute (RPM), max amperage draw, warranty, materials, air changes per hour (ACH), cubic feet per minute (CFM), volume, pressure differentials (for pulling vacuums), robustness of design, replacement ease, and fan dimensions. Three commented on the EE pre-specification:

- "For the past two years [EE] has been coming up more [as a topic]. Margins are tight with energy use accounting for 3–5% [of operating costs] in some facilities. There is a major use of power by saw systems."

- "Hitting energy goals [is discussed]. But customers don't mention FEI, instead the [energy goals] are driven by LEED or code"
- "In Washington there are [EE/FEI] code requirements."

- *Whether fan specifiers specialize in just fans:* The study team explored whether specifying engineers only specified stand-alone fans or whether they also specified other types of mechanical equipment, such as HVAC or water heating equipment. All but one of the specifiers said they specify other types of mechanical equipment in addition to fans. As one respondent noted, "We make sure everyone here knows everything."
- *Whether fans are ever specified in isolation from non-fan equipment:* The study team also assessed whether stand-alone fans were ever specified in isolation from other equipment. Nearly two-thirds (64%) of fan specifiers said that fans are always specified as part of a larger project. The remainder cited scenarios where fans were specified separately, including planned or emergency replacement of fan systems, parking garage exhaust fans, cooling for mechanical rooms, COVID-related ventilation, and some military applications.
- *Who requests fan specification services:* The study team asked the fan specifiers what types of project actors typically reach out to them for stand-alone fan specification services for new construction or major renovation projects. As shown in Figure 3-2, respondents most frequently identified building owners (71%), followed by designers/architects from outside firms (57%). Less than a third of the fan specifiers named other project actors requesting their services.

Figure 3-2: Fan specification request frequency by market actor group

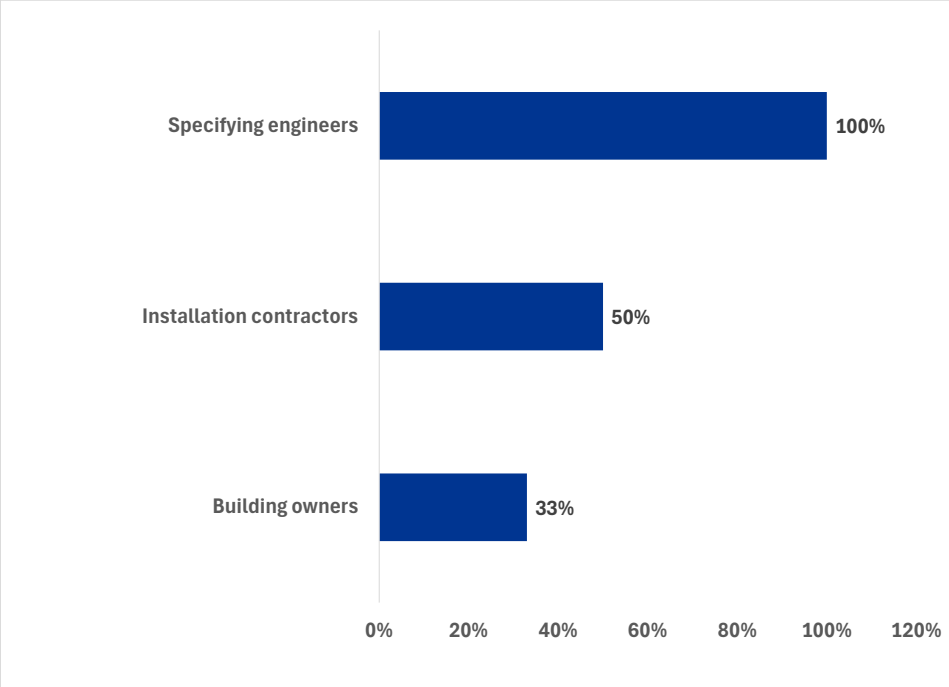


The study team then asked the fan specifiers about new construction or major renovation projects where the project actors reaching out for fan specification services were not typical. Only three of the fourteen specifiers reported such exceptions, noting that for design-build projects, the contractor often reaches out to

them for help in fan specification, while major renovation projects with a primary HVAC focus will sometimes see specifiers taking on the role of general contractor. Specifiers also noted that for large projects or those requiring fans made of certain materials, they may have to rely more on manufacturer reps.

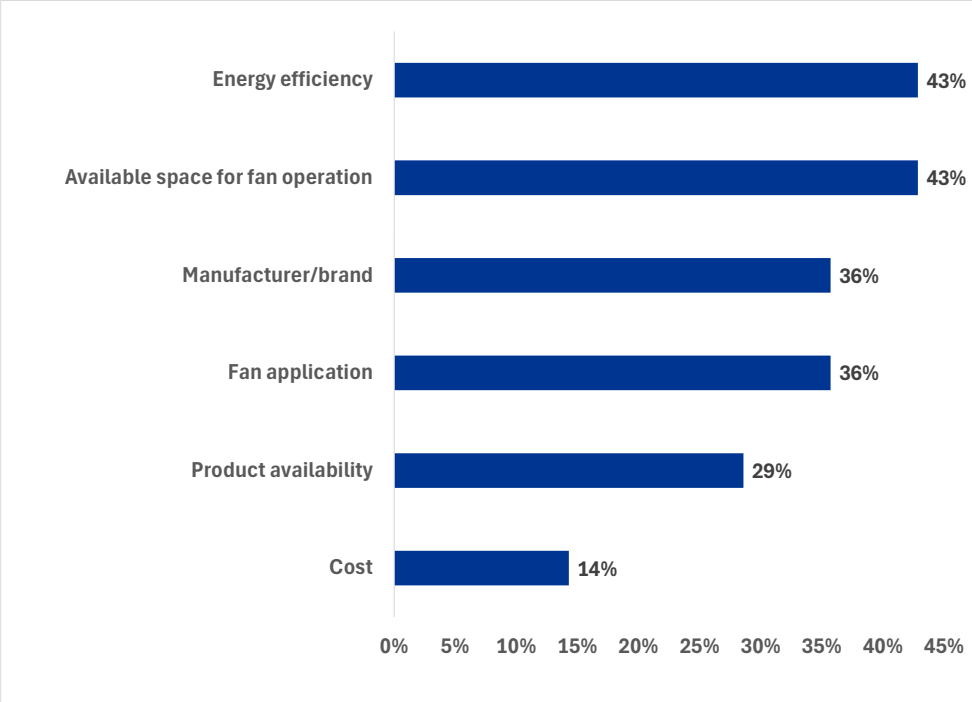
- *Who reps are discussing fan choices with:* The study team asked fan manufacturer reps which construction team members they most often discuss stand-alone fan choices with. All the reps identified specifying engineers and half also mentioned installation contractors (Figure 3-3). None of the reps said they discussed fan choices with architects or general contractors.

Figure 3-3: Manufacturer rep fan choice discussion participants by market actor group



- *Fan factors considered by specifiers:* The study team asked the fan specifiers which factors they consider when recommending a stand-alone fan (Figure 3-4). Respondents indicated that they consider EE and available space for fan operation most frequently, with manufacturer/brand and fan application also frequently cited.

Figure 3-4: Factors specifiers consider when recommending fans

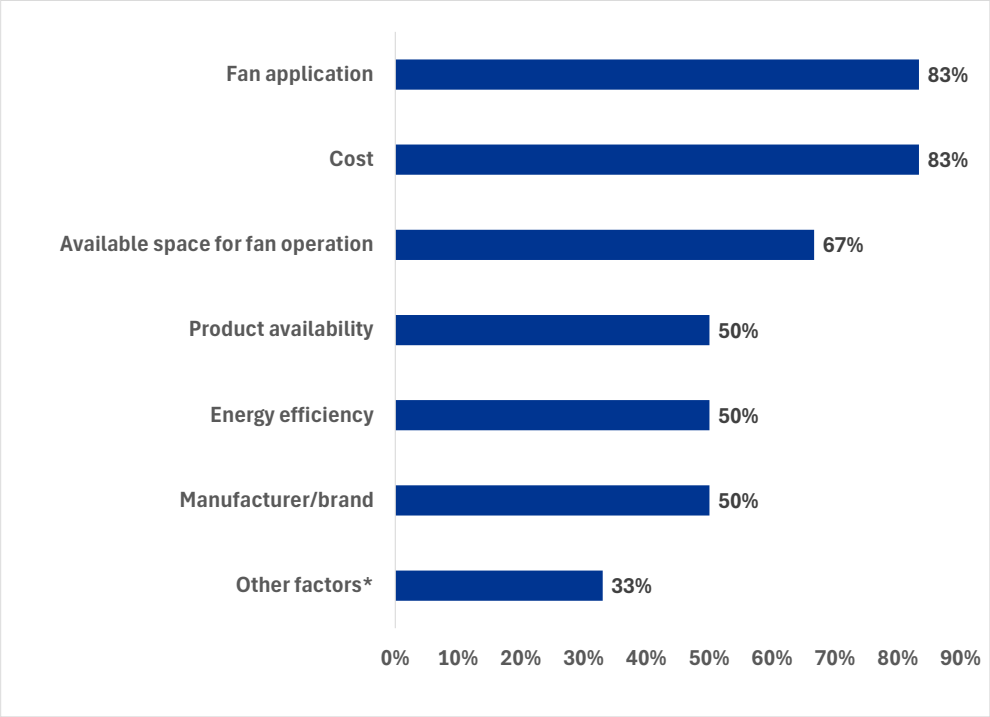


- *Fan factors considered by manufacturer reps:* The study team also asked fan manufacturer reps which factors they consider when recommending a stand-alone fan (Figure 3-5). Comparing these responses to those from fan specifiers reveals both similarities and differences. Both specifiers and manufacturer reps frequently cited "available space for fan operation," "fan application," and "manufacturer/brand" as factors, and also cited "energy efficiency" with similar frequency (43% vs. 50% of respondents).

  However, there were also some noteworthy differences between the specifiers' and the manufacturer reps' responses. Most notably, 83% of the manufacturer reps reported "cost" as a factor they consider, compared with only 14% of specifiers. One possible explanation is that fan manufacturer reps, as discussed above, are usually providing information about their fans for competitive bids. Since cost considerations are important in such bids, they likely have no choice but to discuss the cost of their fans. While the fan specifiers cannot totally ignore cost, by the time a building owner or outside architectural firm seeks their specification services, the fan cost issues have likely already been settled.

  The fact that the manufacturer reps must usually operate in a competitive bid environment may also explain why they cited more fan factors than the specifiers did. In such a competitive environment, the manufacturer reps likely must bring up more of their fan characteristics so that they can better differentiate their products from those of their competitors.

Figure 3-5: Factors manufacturer reps consider when recommending fans



*Other factors include spark resistance, materials, and UL rating

The study team asked the manufacturer reps not only what factors they brought up when recommending a fan, but how they would prioritize these factors (

Table 3-3). Respondents indicated that "fan application" and "cost" are the most important factors. These responses also suggest that while respondents reported "EE," "manufacturer/brand," and "product availability" with equal frequency, they regarded EE as more important than these other factors with regard to prioritization.

Table 3-3: Fan factor prioritization by manufacturer reps

Factor	Average prioritization (1=highest)
Fan application	1.2
Cost	2.2
Available space for fan operation	2.5
EE	2.6
Manufacturer/brand	3.5
Product availability	4.3

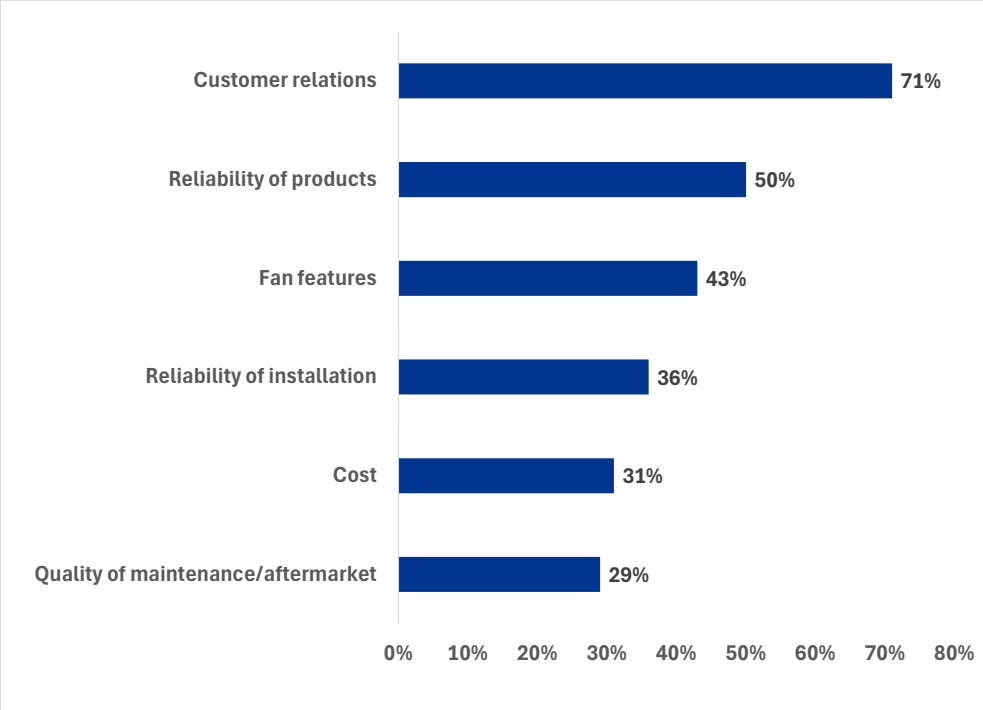
How manufacturer reps typically interact with fan specifiers: The study team assessed how manufacturer reps typically interact with specifiers. The reps described four typical stages for these interactions (shown in sequential order):

1. *Initial fan specification request:* In this stage, specifying engineers send information to manufacturer reps about the fan applications and any desired specs for the project. One rep noted "Typically, I am given application criteria [for] making sure we meet the criteria and code compliance (e.g., FEI minimum =1.0)," while another stated "The [specifying] engineers typically do the math and load calculations to determine the voltage, etc. Then they go to the manufacturer rep to get the selection."
2. *Clarifying questions from reps:* In this stage, manufacturer reps ask specifiers to clarify information on the initial fan specification request, if needed. For example, one rep indicated that they typically ask whether "the [fan] application is clean air or material handling." Some reps indicated that for complicated projects, they may do site visits to better understand the operating parameters for the fan systems.
3. *Reps show fan specifiers equipment options using software:* In this stage, manufacturer reps use fan selection software to communicate possible fan system options to the specifiers that would meet their specifications. "It's easy to explain the options to specifying engineers; software is available to show them," said one rep.
4. *Equipment selection:* In this stage, specifiers and manufacturer reps agree on the stand-alone fan models to be installed for the project. The reps indicated that at this stage there is usually substantial discussion about specifications between the specifying engineers and the reps. "There's back-and-forth regarding specifics during the time of design," one rep noted. Sometimes a site visit might trigger such a discussion. "If we notice an issue during a site visit, we then have an ongoing exchange [with the specifying engineers] until we identify the solution," said another rep.

   Several manufacturer reps observed that this is the stage where they frequently suggest possible equipment upgrades or substitutions, including more EE fans. "If there is an opportunity to exceed that [FEI minimum], we offer that option," said one rep. "We send curves for a couple different opportunities, trying to get them a fairly high efficient fan for most applications. Fan noise is a large driving factor for selection," said another rep.

- *How specifiers choose the fan manufacturers they work with:* The study team asked the fan specifiers how many fan manufacturers they typically work with. The large majority said they only work with a short list of 2–3 manufacturers. The team then asked the specifiers why they relied on these particular manufacturers. As Figure 3-6 shows, the specifiers valued the manufacturer's customer relations and product reliability much more than costs or aftermarket services. The specifiers defined "customer relations" as including factors such as whether they responded promptly to phone calls, the efficiency of their communications, the user-friendliness of their websites, their level of familiarity with their products, the accessibility of literature on their products, the strength of their custom outreach, their willingness to assist with fan project design decisions, and "the availability of support and representation locally." It should be noted that while none of the manufacturer reps interviewed for this study did installations, other manufacturer reps active in the market may offer such services, contributing to the inclusion of this factor in the following figure.

Figure 3-6: What specifiers value in their fan manufacturers



- *Projects for which fan specification process differs from typical (manufacturer rep perspective):* The study team asked manufacturer reps to describe any new construction or major renovation projects in which their interactions with the specifying engineers might deviate from the typical interactions described above. Reps listed high-performance buildings, projects in the military sector, projects in the retail sector, design/build scenarios, laboratories, and projects with tight budgets. As described by one rep, "Where customers are absolutely price driven, often you end up with a fan that is not the first choice to save a small amount of dollars. Usually, individual owners trying to squeeze every dollar but typically fans aren't a major part of the capital expenses."

  The study team also asked manufacturer reps to describe any new construction or major renovation projects where the specifying engineers were *more* likely to rely on their knowledge and advice for fan selection. The reps mentioned complex industrial or commercial projects such as data centers, government projects with associated sustainability goals, dust collection systems, projects with space limitations, and projects where the specifying engineers have simply run out of ideas. Some representative verbatims include:

  - "Maybe if it's an application where it's a head scratcher how to fit something in limited space, [and the specifying engineers are] looking for options, looking for best scenario and have run out of ideas – non-typical scenarios."
  - "Government because they are looking to maximize efficiencies – [they are] held to carbon reduction goals or efficiency mandates."
  - "Complex commercial and industrial projects - usually with VRF designs. E.g., data centers."
  - "We sell a fair number of dust collection systems, and [the fan specifiers] rely on our knowledge of the entire collector plus fan systems."

Finally, the study team asked manufacturer reps to describe any new construction or major renovation projects where the specifying engineers were *less* likely to rely on their knowledge and advice for fan selection. The most common response was fan replacement projects where there is a tendency toward like-for-like fan system replacements. However, one respondent indicated that even for those scenarios there are still opportunities for product substitution or upgrade.

- *Projects for which the fan specification process differs from typical (fan specifier perspective):* The study team also asked specifiers to describe any new construction or major renovation projects in which the fan specification process differs from typical practices. They provided the following examples:
  - *Larger projects:* "We typically know what we need although if it is a larger project this will require a bit more involvement from the manufacturer rep and research."
  - *Fans made of non-typical materials:* "Some fan manufacturers can't offer the different materials we need and there are only a few places I can go to. When we are in need of something special, I might engage [the manufacturers] directly and ask for their assistance to help get the product I need."
  - *Ventilating commercial kitchens: "*Sometimes with commercial kitchens a client will come in and they have a new build or renovation and want to bring their old equipment to the new space. These decisions are a bit less uniform than our standard process."
  - *Projects with federal safety requirements:* "[The fan specification process is different] in spaces where there are OSHA requirements."
  - *Efficiently removing particulates in mill facilities: "*These air systems have so many opportunities to improve, there's been one [for which] I've been fishing for support, know there's a market opportunity, but I can't find support. For example, low volume air handling [that is] still able to remove high particulate size, geared for attaching areas in mills that require manual cleanup to lower cleaning head count. In the market today solutions move veneers and panels and use vacuum belt systems (giant waste of energy). [We] need variable speed [controls] based on load to reduce total demand on the system. Typically, in the industry there are no elegant designs, just brute force. [We] don't see available tools and partners. We don't see anybody that would be able to start to help us."
- *How fan specification process differs for fan replacement projects:* While the study team focused most of the interviews on the more common new construction or major renovation projects, they also asked the fan manufacturer reps and fan specifiers how the fan specification differed for projects that involved the planned or emergency replacement of existing fan systems. One general theme from the manufacturer rep interviews was that like-for-like replacements are more common due to the constraints of space and application. "They are much more interested in the physicality of the fan. Is it going to fit? Is it going to perform?" said one rep. "There could be like-for-like replacements." "Though you may find a more efficient fan, you will need to fit it in where the other fan was," said another rep. "It needs to be dimensionally the same." "[We are often] held to the same electrical specs so there is no room to deviate from conductor sizes," said a third rep. "So, it's typically a like-for-like replacement."

  Another theme was that these replacement projects can often have short turnaround times. "[T]ypically, [standard practice is] to get the new equipment in as soon as possible," said one rep. "Lead time is fast tracked while cost is the least of their concerns," said another rep. However, one rep worried that these accelerated installations could increase the risk of a fan mismatch. "There's less information in an

emergency replacement," this rep observed. "They're just telling you the bare minimum and you're taking a risk that your solution works and fulfills the requirements. There is a risk of mismatch."

Several fan specifiers indicated that they were not involved with fan replacement projects and that HVAC installation contractors were more involved with these decisions. "We don't do emergency replacements, that is typically going to be dealt with by a HVAC engineer or contractor," said one specifier. "[Fan replacement] that's usually HVAC contractor associated," said another. "When we're working on [determining] air flow and static pressure, the fan brand is pre-selected."

Like the reps, those specifiers who were involved in fan replacement projects emphasized the need to select fans that were compatible with the existing systems or applications. "The first step would be to offer a compatible fan system. We would have to gain a lot of knowledge about the fan application," said one specifier.

Other specifiers stressed the importance of selecting fan systems that were reliable or which the customer was familiar with. "If we are familiar with the [fan] vendors they like, we will go with these as it will be easier for them to operate," said one specifier. "They're going [to want to avoid] incumbent systems with high failure rates" another specifier observed. "We want to tackle specific maintenance or performance issues."

3.2.2 What information is used to aid fan selection

A key research objective for this study was to learn more about which information sources were used during the fan specification process.

- *The use of fan selection software:* The study team asked specifiers whether they used fan selection software. Twelve of the fourteen specifiers (86%) indicated that they use such software to discuss fan selection with clients. When the team asked the specifiers what fan software they used, half identified Loren Cook's Cook Select software and half named Greenheck's CAPS/eCAPS software. One specifier reported using Captive Air software for commercial kitchens while using Cook Select software for other building types.

  One specifier used the fan selection software for initial design purposes but acknowledged that the fan models that were eventually selected for installation might deviate from the software suggestions due to recommendations from manufacturer reps. "For the design and schedule on the drawings we will use software. However, often the contractors are suggesting the actual make and model and brand."

  Other specifiers indicated that they did not have the software in-house but relied on manufacturer reps to demonstrate the software. "Typically, the vendor is consulted after we provide the [fan] application, and they run through the selection software for us," one specifier reported.

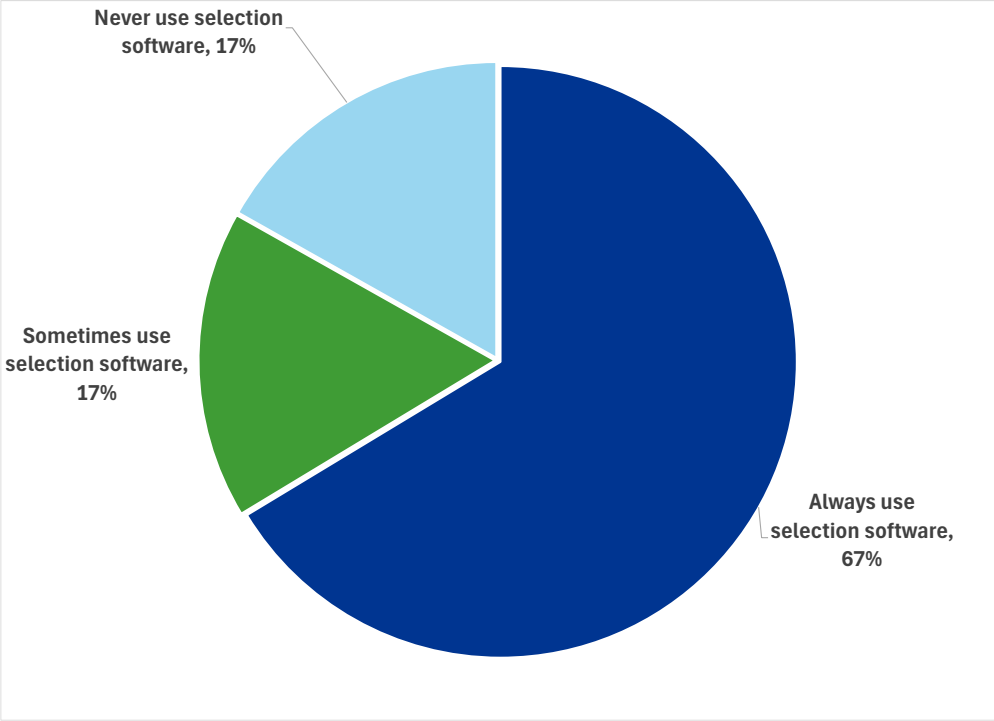
  Some specifiers described how they use the fan selection software to inform client conversations either for payback considerations or to compare different features such as horsepower or noise levels across fan options:

  - "[The Cook Select software] provides details and information such as the payback and that often drives the conversation with the customer. Do they want [a fan system] that's going to last 5 years? Or a more expensive one that has a longer life."
  - "The lifecycle and payback [cost information] drives the [client] conversation which ties in the purchase price within their budget. We price it out with the manufacturer's software."

- "[We share information on] fan ratings, fan loss calculations. It is an iterative process where we compare ratings metrics across different suppliers. Some manufacturer software has resources that allow you to compare features across products e.g., horsepower, sound levels, etc. There are 2-3 [fan selection software products] who we work with that do this."
- "We use the output from the [fan selection] software query to help [the client] pick a product and consider in the discussion the noise level and size."

The manufacturer reps also reported frequently using fan selection software (Figure 3-7). Four of the six manufacturer reps said that they always use fan selection software in fan specification conversations with clients and a fifth rep reported sometimes using the software in these client conversations.

Figure 3-7: Frequency of fan selection software by manufacturer reps



The study team also asked manufacturer reps whether the fan selection software they used allowed fan EE (e.g., FEI rating) to be easily presented to customers. Only two reps said that their software presented EE information in a user-friendly manner. Two other reps said that it depends on which software they are using, and two stated that such information is not available. One rep who said that their software does include EE information further indicated that they do not show this information to their customers, primarily due to clients prioritizing other selection factors.

- *Other information that fan specifiers use:* The study team asked specifiers to describe the information sources used when working with clients to specify fans for new construction or major renovation projects. Several specifiers indicated they often relied on the fan selection software as an information source for client conversations. However, they also cited other information sources and approaches. One specifier indicated that a key component of customer information was making the fan performance criteria "easily

digestible" for the client. "We use 3-D modeling to show how part of system fits into the whole," this specifier explained. Another specifier said they share with their customers "the vendor's brochure with the fan or blower curves."

A couple of specifiers emphasized the importance of having specific fan information that the client needs for a particular application. "For the mechanical engineers it always comes down to room requirements for the owner's equipment e.g., ventilation or air exchange requirements, humidity, whatever environmental requirements that are defined for the space," said one specifier. "These might be in a freezer, warehouse. cooler, etc." "[We follow] owner preference, [the owner might say] 'we need the system to operate in this way e.g., dry the space in under 30 minutes after complete wash down,'" said another specifier.

Some specifiers indicated that they do not spend much time discussing fan choices with their clients, either because they know what they want based on experience or because the clients are simply not very interested in fans. As described by one specifier, "No one gets into the weeds about fans; they are more concerned with major pieces of equipment vs. ancillary [equipment]. But generally, our decision process is based on whether we have had success with a product in the last [project]. Or, more importantly, making sure to not use products for which we have had poor success with. Internally we maintain a log."

The study team also asked manufacturer reps where specifiers get their information when they were doing their own fan selection.[6] Reps most frequently identified fan selection software and manufacturing websites as information sources for specifiers; however, one rep speculated that some specifiers might be getting fan information from "copying from old [fan manufacturer] schedules or paper catalogues that are out of date." Another rep stated that the fan selection software the specifiers had access to was "at a lower level or trial version" compared to the more sophisticated software the manufacturer reps possessed.

3.2.3 Challenging fan specification projects

A key research objective for this study was finding out what parts of the fan specification, sale, and installation process are most challenging and burdensome. The study team asked both manufacturer reps fan specifiers to describe aspects of the new construction/major renovation specification process that they find particularly difficult; manufacturer reps (83%) were more likely than the fan specifiers (36%) to identify and describe examples of challenging projects.

Two reps identified projects where the specifying engineers provided insufficient information about fan applications or requirements, with one rep noting "[A challenging project is one] when the customer or engineer does not really know the application details. Sometimes the customer doesn't know what the application is, and we work with them to determine what the application and parameters are and developing application data." Two reps pointed to specific fan applications as being difficult to design, with these scenarios including laboratory exhaust fan projects and those involving the design of fan walls in existing air handling units. Another rep suggested that coordinating the schedules of the specifying engineers and the reps can be challenging, stating that "Coordinating schedules upfront is better."

The study team also asked manufacturer reps to reflect on any changes they wish they could make to the typical process of specifying, selling, and installing stand-alone fans. The two overarching themes that arose in response to this prompt were (a) earlier rep engagement by clients and (b) clients not expecting reps to bring expertise in highly specialized applications. Regarding the first theme, one respondent stated, "The

[6] The full question language was: "In new construction or major renovation projects where the specifying engineers do their own fan selection, do you know where they typically get the information to guide their decisions?"

manufacturer [rep] should be brought in earlier to the design process, even if it's via a [Microsoft] Teams meeting where we can see the bigger picture and make sure [the specifying engineers] don't make something up or make a request the manufacturing facility can't actually do." Another rep shared this perspective but cautioned that "This early engagement and integration have been challenging since mistrust is a big thing. All the prices are public, but if everybody trusted each other it could be a lot better." Regarding the second theme, one rep stated "There are times when professionally trained engineers are asking us to make decisions on these industrial projects like a wastewater treatment plant…It's a bit of a disconnect because they should be the ones making those decisions as trained professionals, not us salesmen."

Among the five specifiers who cited examples of challenging projects, the most common themes were projects with long lead times and cost escalations. Other challenges noted by specifiers included delays in getting technical information about fan applications to the manufacturer reps, the difficulty of designing a fan array for an air handler, and the challenge of dealing with acoustics on a project which involved hiring an acoustics consultant.

The team also asked the specifiers to describe projects where their processes for working with manufacturers and/or reps were challenging or burdensome, with responses including the following:

- "Most of [the manufacturer reps] are challenging, because they know there are few options for clients. The bar is set very low for customer service, they have a 'take it or leave it' superior attitude."
- "This is where having engineers being able to access selection software is key. Sometimes it's difficult to get fan changes made in time. [Getting access to the software is key] so we can get in and make quick changes on the fly such as architects changing area [designs] a few days before its due. On 80% of projects some sort of HVAC equipment needs to be adjusted at the end."
- "Sometimes we have issues with specialty fan type, e.g., accommodating high CFM in a small space. Or [we have] communication issues with vendors."
- "When you get into some kind of specialty order and the manufacturer reps do not have experience, we might need an answer from the manufacturer which takes a week to get what should take overnight. And waiting a week can affect a project schedule quite a lot."

3.3 Stand-alone fan terminology

The final research objective for the study was to solicit input from regionally active stand-alone fan manufacturer representatives and specifying engineers regarding the clarity, sensibility, and appropriateness of programmatic language and terminology related to in-scope fan systems. Key areas of inquiry included (a) which terminology is the most widely understood, and (b) how stand-alone fans (as defined by NEEA) can best be identified in sales data. The study team asked manufacturer reps and specifiers whether the term "stand-alone fan" and the NEEA definition for this term would allow them to understand which types of fans were being referred to.[7] Five of the six reps (83%) and nine of the 14 specifiers (64%) said "Yes" to this question.

The study team then asked the manufacturer reps and specifiers: "Do you think the term "stand-alone fan" is commonly misunderstood or incorrectly applied in the industry?" All six reps said "No" to this question, with one rep clarifying that the term is "Not misunderstood, but people don't typically say 'stand-alone' but rather

[7] The exact survey question language was: "In this interview we have been using the term "stand-alone fan" to refer to fans sold and installed in a stand-alone capacity that are not included in another piece of equipment, or fans sold and installed in another piece of packaged equipment where that packaged equipment is not rated by any efficiency metrics, such as AFUE, HSPF, SEER, etc. Based on this definition, would you be able to say whether a given fan is, or is not, considered a stand-alone fan?"

just a 'fan' for X Y Z application." However, the fan specifiers had a more mixed reaction to this question, with four specifiers saying "No," three saying "Yes," and the remaining seven indicating that they were not sure.

Finally, the study team asked the manufacturer reps whether it would it be difficult to distinguish the sales of stand-alone fans (as defined by NEEA) from other fans when reviewing their sales data. The reps were evenly divided on this question, with three saying "Yes" and three saying "No." Multiple reps said that they rarely use the term "stand-alone" and instead define fans by application, with one stating "There are about 50 different types of fans they are all labeled based on their application, e.g., exhaust fan, supply fan, fan coils."

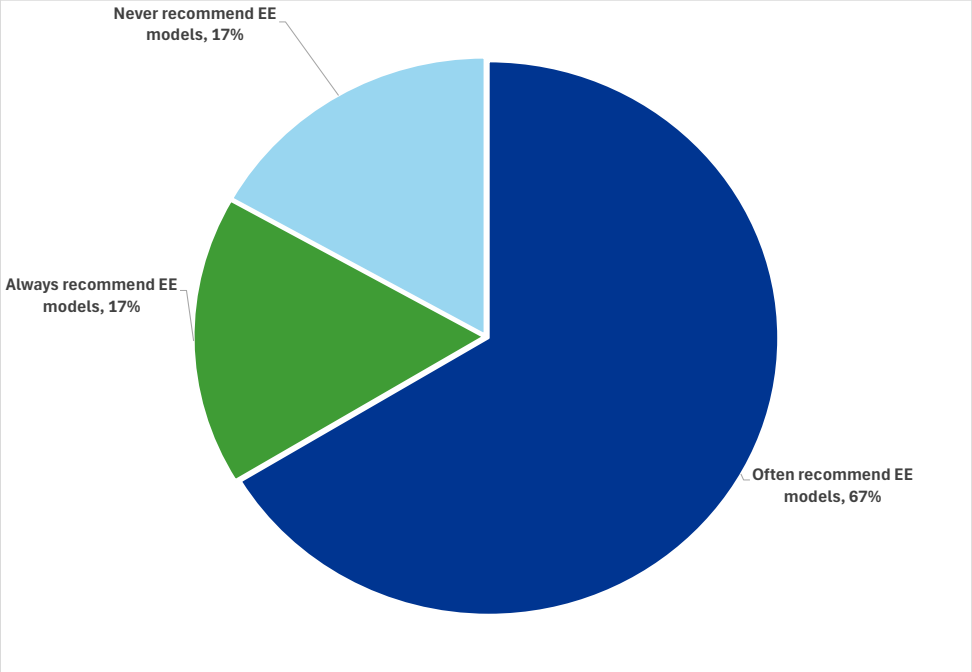
3.4 The role of energy efficiency

Although the research objectives for this study did not focus on EE per se, given NEEA's programmatic focus on transforming the regional market to increase the adoption of efficient fans, the study team added a few questions concerning the role of EE in stand-alone fan specification and sales. The team asked the fan manufacturer reps to reflect on whether there any market sectors or customer types that prioritize EE more than others when specifying stand-alone fans. The reps identified several customer sectors with few common themes except for the existence of corporate or organizational sustainability goals. Their responses included:

- "More so specific end users, not necessarily market sector or customer type."
- "The commercial market and government entities with sustainability goals, carbon reduction goals, and code requirements. The retail sector is not as interested."
- "The private sector prioritizes [EE] such as office renovations for Fortune 500 companies which have [carbon reduction] targets and requirements. Also, the K–12 market. Washington, in general, has [EE] requirements"
- "Schools and universities often use energy recovery ventilation (ERV)."
- "Data centers and chip manufacturing."

The study team also asked manufacturer reps to reflect on scenarios in which clients have some flexibility in the stand-alone fans being specified and to estimate the frequency with which they recommend more EE fan models. As shown in Figure 3-8, while only one manufacturer rep reported always recommending EE models, two-thirds of the reps said that they often recommend EE models.

Figure 3-8: Frequency that reps recommend EE



The team asked the five manufacturer reps who do not always recommend EE models why they do not recommend them more often than they do, with cost considerations being most frequently cited (33%), along with product availability concerns and the relatively low power costs present in the Northwest.

Lastly, the team asked manufacturer reps what factors might encourage them to recommend EE fans more frequently to their customers. Five of the six reps indicated that rebates or incentives would encourage more frequent recommendations, with one noting "We typically have that [EE] information. If there were financial incentives for the end users / customers where it is being pushed upstream in the incentivizing process, it would be better. Rebates and incentive packages drive owner decision-making from the start. They want to see all fans meet X level of efficiency to achieve X incentive." Additionally, one rep suggested "Maybe more education, training, lunch and learns, seminars for specifying engineers. Also, government incentives."

4 CONCLUSIONS

The following are some key conclusions from this study.

- *The market research indicates that there are opportunities for increasing the specification of EE fans in the Northwest region:* Both the fan manufacturer reps and specifiers indicated that pre-specification of fan features was rare. In addition, when asked which fan features were most frequently pre-specified, the specifiers most frequently identified EE. These specifiers also indicated that EE is being discussed more than in the past due to sustainability policies, interest in LEED buildings, and building codes. Some manufacturer reps indicated they are already looking for opportunities to improve EE. One manufacturer rep indicated that more customer education, such as webinars and lunch & learns, could increase EE specification.

  Finally, the research indicated that manufacturer reps and specifying engineers were the most important market actors for fan specification. This means that the NEEA program can reasonably focus its market engagement efforts on a constrained number of market actor groups in order to influence the fan specification process.

- *However, significant challenges remain for NEEA to increase the specification of EE fans.* While pre-specification of fan features was rare, the manufacturer reps reported that, on average, 68% of their stand-alone fan sales were won through competition. In addition, 84% of the reps said they discuss fan costs with their clients. Drawing attention to fan costs could put EE fans at a disadvantage since they tend to have higher upfront costs than standard efficiency fans which might lead to a reluctance to specify or select them. Half of the manufacturer reps and 43% of the specifiers identified EE as a fan feature they discuss regularly with clients.

  Another challenge is that fan selection software is the favored information-sharing interface for both manufacturer reps and specifiers. Yet only two of the six reps said the software they use allows "energy efficiency to be easily presented to customers." Finally, the solution that the reps suggested most often for encouraging more specifications – rebates/incentives – is one that requires careful and targeted usage within a market transformation framework.

- *Interviewed market actors found NEEA's definition of stand-alone fans to be reasonably clear, but noted that "stand alone" is not a commonly used term in the industry.* Five of the six manufacturer reps (83%) and nine of the 14 specifiers (64%) said the NEEA definition for stand-alone fans would enable them to understand which types of fans were being referred to. However, when asked whether they thought that the term "stand-alone fan" is commonly misunderstood or incorrectly applied in the industry, three specifiers said "Yes," four said "No," and the remaining seven indicating that they were not sure. Many interviewees preferred that fans be labeled by their application.

About DNV

DNV is a global quality assurance and risk management company. Driven by our purpose of safeguarding life, property and the environment, we enable our customers to advance the safety and sustainability of their business. We provide classification, technical assurance, software and independent expert advisory services to the maritime, oil & gas, power and renewables industries. We also provide certification, supply chain and data management services to customers across a wide range of industries. Operating in more than 100 countries, our experts are dedicated to helping customers make the world safer, smarter and greener.