

# November 15, 2022

**REPORT #E22-455** 

# Extended Motor Products Regional Market Share Study

Prepared For NEEA: Chris Cardiel, MRE Scientist

Prepared by: Ryan Bliss, Principal Nathaniel Albers, Senior Evaluations Researcher

ADM Associates, Inc. 3239 Ramos Circle Sacramento, CA 95827

and

Katherine Johnson, President

Johnson Consulting Group 12766 SW Bugle Ct, Tigard, OR 97224

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

## Contents

Evecuti	ive Summary	ii
	ntroduction	
	1ethodology	
2.1	Develop List of Manufacturers' Representatives	
2.2	Instrument Development	
2.3	Fielding the Survey	
	esults	
3.1	Summary of Nonparticipant-Respondent (NPR) Firms	
3.2	Summary of Non-Participant Non-Respondent (NPNR) Firms	
3.3	Comparison of Participant Firms with Nonparticipants	9
4 Co	onclusions	
	dix	
Table:	1: Initial Recruitment Effort Disposition Summary	
	·	
	2: Final Disposition Summary	
	3: Comparison of NPR1 to Participant Mean Total Circulator Sales	
rabie 2	4: Comparison of NPR1 to Participant Mean Circulator Sales by Category	9
Figure	es	
Figure	1: Disposition of Firms Initially Identified as Possibly in Population of Interest	7
Figure	2: States Served by Participants and Nonparticipants	10
Figure	3: Sectors Served by Participants and Nonparticipants	11

ADM Associates Contents | i

# **Executive Summary**

This report presents research conducted for the Northwest Energy Efficiency Alliance (NEEA) on the clean water pumps and circulators market in the Northwest. The specific research objectives are to: 1) estimate the size of the clean water pumps and circulators market in the Northwest; 2) assess NEEA's estimates of the market share held by participants in its Extended Motors Products (XMP) program; and 3) identify characteristics of companies associated with participation or nonparticipation in XMP pilot activities.

NEEA created the XMP program to accelerate the adoption of energy-efficient pumps and circulators sold in the Commercial and Industrial (C&I) market in the Northwest. The program provides support and services to clean-water pump and circulator manufacturers' representatives working in the region. Manufacturers' representatives form a valuable lever for influencing the market for several reasons: they typically sell a line of additional products that also may be needed for applications that use pumps and circulators; they often serve as a local technical expert for customers regarding the equipment types; and they offer equipment repair services in addition to sales.

NEEA already has attracted and retained eight participating representatives who support some of the largest pumps and controls manufacturers in the Northwest. Prior to the present study, NEEA, in collaboration with Cadeo Group, used the dollar amount of sales of certain pump/circulator brands to estimate the market share collectively represented by participating firms. NEEA selected ADM Associates (ADM), in partnership with Johnson Consulting Group, to conduct primary research to assess the validity of those estimates and identify characteristics of companies associated with participation or nonparticipation in XMP pilot activities.

ADM identified 41 firms as possibly being manufacturers' representatives for clean-water pumps and circulators in the Northwest region. Initial contact confirmed 12 firms as likely being in this population. One firm provided sales data on circulators (this firm does not sell pumps); ADM obtained more general information about other firms.

Information collected by the above means generated the following findings:

- The firm that provided sales data has overall sales on the low end of the range of participant firms that handle circulators. Those sales, however, appear to account for a reasonable share of sales within certain niches of the circulator market.
- Information gleaned from websites identified four additional firms as potential candidates for XMP program engagement.
- The nonparticipant firms were somewhat less likely to serve Washington and more likely to serve Idaho, compared to participant firms.
- The nonparticipant firms were as likely as the participants to work in the commercial sector but somewhat more likely to work outside the commercial sector (primarily in the industrial and residential sectors) as well.

Pumps and Circulators Market Sizing Research

While the results of our research are not sufficient to conclusively confirm or disconfirm NEEA's prior estimates of market share by XMP participants, the information from the one firm that provided sales data does not challenge those estimates.

## 1 Introduction

The Northwest Energy Efficiency Alliance (NEEA) created the Extended Motors Products (XMP) program to accelerate the adoption of clean-water energy efficient pumps and circulators¹ sold in the Commercial and Industrial (C&I) market in the Northwest. The XMP program focuses on the Northwest, specifically Idaho (ID), Montana (MT), Oregon (OR), and Washington (WA). Through its investments in the XMP Pilot Initiative, NEEA has already developed a successful recruitment and outreach strategy to attract and retain participating manufacturers' representatives who support some of the largest pumps and controls manufacturers in the Northwest. NEEA works closely with eight representatives who are directly affiliated with a manufacturer and promote that product line in a defined geographic region.

The focus on manufacturers' representatives, rather than other actors in the pumps and circulators supply chain, is important to understand. Manufacturers' representatives may represent numerous manufacturers, but they will sell a certain type of equipment (e.g., pumps and circulators) for only a single manufacturer. That is, they do not handle competing inventory. A value of focusing on manufacturers' representatives in the program is that they typically sell a line of products that may be needed for a given type of application. They also often serve as a local technical expert for customers regarding the equipment types and offer equipment repair services in addition to sales. This constellation of characteristics makes them a valuable lever for influencing the market.

As a component of NEEA's commitment to its regional funders and stakeholders, NEEA estimates energy savings associated with market changes supported by its program activities, with such estimates relying upon calculations of multiple technical and market-level factors. In the case of the XMP program, NEEA receives full-category sales data from participating manufacturers' representatives, which serve as a key input for the calculation of market-wide savings. One key assumption underlying these calculations is that the manufacturers' representatives enrolled in the program collectively represent approximately 70% of the market share for commercial pumps and 30% of the market share for circulators (inclusive of all applications) in the alliance's four-state region (ID, MT, OR, and WA). NEEA staff developed these estimates of market share based on the dollar amount of sales of certain pump/circulator brands by XMP participants compared to regional sales data for those brands obtained from the Hydraulics Institute.

To support the precision of savings estimations for the XMP program and truly understand the full market potential, NEEA required a third-party assessment of the above assumptions. NEEA selected ADM Associates (ADM), in partnership with Johnson Consulting Group, to conduct primary research to assess those assumptions. The goal of this research study was to estimate the overall size of the pumps and circulators market, which include the estimated market shares of participating and nonparticipating manufacturers' representatives. This research had four key objectives:

ADM Associates Introduction | 1

\_

<sup>&</sup>lt;sup>1</sup> That is, not chemical pumps, sewage pumps, slurry pumps, or any other pump type.

- 1. Develop a comprehensive list of circulator and pump manufacturers' representatives (MR) in ID, MT, OR, and WA.
- 2. Estimate the annual total sales of commercial pumps and circulators in the region.
- 3. Calculate participant and nonparticipant share of the market.
- 4. Identify characteristics of companies that are related to participation or nonparticipation in XMP.

The research team began this work on April 19, 2022, with a kickoff meeting to verify and refine the objectives of this research and to clarify what types of companies, equipment types, and markets should and should not be considered part of the population of interest.

# 2 Methodology

This section describes the methodologies we used to achieve the four research objectives identified in the previous section. The first objective was essentially the development of the sample frame for the primary research. The last three objectives come largely from the data gathered by interviewing nonparticipating manufacturers' representatives and secondary data collection, such as by reviewing company websites.

Below, we describe the steps we took to carry out the research – specifically, developing the list of manufacturers' representatives, developing the guide for interviewing the nonparticipating representatives, and fielding the data collection.

#### 2.1 Develop List of Manufacturers' Representatives

The first step in this project was to develop a comprehensive list of manufacturers' representatives operating in the Northwest. We used multiple sources to identify potential companies to include in the research:

- Manufacturer websites: Some manufacturers identify their sales representatives on their website. We used three sources to identify pump and circulator manufacturers for website review:
  - Department of Energy (DOE) Compliance Certification Database of Pumps: This list showed 17,055 pump and circulator models as of May 6, 2022. Manufacturers submitted these models to the DOE and are subject to DOE standards.
  - Hydraulic Institute (HI) Manufacturer Members.
  - "Cold" web search for pump/circulator manufacturers.
- Manufacturers' Agents National Association (MANA): The MANA membership database lists manufacturers' representatives, searchable by equipment types handled and areas of operation.

- Supplier listing services: We identified two online services—PumpScout™ and Thomasnet™
  —that identify various types of equipment and service suppliers, including pump and circulator suppliers.
- NEEA Sources and Experts: We received insights from NEEA staff and experts in the pump and circulator market. In addition to providing the list of eight participants, NEEA staff and experts identified additional firms to investigate.

It is important to note that multiple types of entities operate within the supply chain for pumps and circulators and that some of the above sources do not make a clear distinction among them. In particular, some sources did not clearly distinguish among manufacturers' representatives, distributors, and wholesalers. The XMP program focuses on manufacturers' representatives, with the primary distinctions between them being that this market actor group does not handle competing inventory for a given equipment type, often handles a line of products that may be needed for a given type of application (in this case, handling product types that might be needed in an application that uses pumps or circulators), often serves as a local technical expert for customers, and offers equipment repair services in addition to sales.

Since these sources did not always distinguish between the types of companies that represent the XMP program's target market actor group (i.e., manufacturers' representatives) and other types of suppliers, we began by casting a wide net to ensure that we did not miss a company of interest. With this wide net, our review of these sources resulted in a list of 99 possible firms. We reviewed the websites of the possible firms to further refine the list. Based on our review, we categorized each firm as:

- Most likely of interest to NEEA (n = 32). These firms either clearly identified themselves as manufacturers' representatives of clean-water pumps and/or circulators on their websites or provided information that suggested it was likely they were (e.g., they referred to being a "representative" of a manufacturer).
- Possibly of interest to NEEA (n = 45). These include distributors that sell all kinds of pump and/or circulator equipment and may sell competing lines.
- Clearly not of interest to NEEA (n = 22). For example, a firm might be a plumbing fixture representative that does not sell pumps or might be a wholesaler or manufacturer.

The ADM team sent this list to the NEEA team for their review to identify, based on their experience in the pump market, any obvious omissions or required changes. The NEEA team agreed with the identification of 32 firms as clearly of interest and the other firms as not likely of interest. Further review provided by a NEEA-identified industry expert after our initial round of recruitment (see Section 2.3) added nine firms to the "of interest" list, for a total of 41.

#### 2.2 Instrument Development

We designed the interview guide for nonparticipating manufacturers' representatives to provide information that can be compared meaningfully to the data NEEA has on the participating representatives. The guide covered the following topics:

#### Pumps and Circulators Market Sizing Research

- Respondent and company background (title, role, tenure with company, company activities).
- Firmographics (headquarter location, states/regions served, number of employees, whether the firm represents manufacturers of clean water pumps and circulators).
- Pump and circulator manufacturers represented.
- Industries served through pump and circulator sales.
- Quantity and average price of pumps of various size (HP) ranges sold in the past 12 months, and percentage of constant speed and variable speed pumps sold in each size range.
- Quantity of domestic hot water circulators and hydronic heating circulators sold in the past 12 months.

We designed the questions about the quantity and price of pumps and circulators based on a review of the program sales data for participating XMP MRs and further discussion with program staff.

#### 2.3 Fielding the Survey

The team reached out to our initial target of 32 firms in late May and June.

Accessing sales data from nonparticipants is a daunting task. First, nonparticipants may be hesitant to share the sales data by category, as this is highly confidential information. Second, there is no immediate incentive to the nonparticipants for sharing this market information, even if confidentiality is guaranteed. We did the following to overcome these challenges and encourage participation:

- Offered a \$500 stipend as compensation for the time and effort required to provide this information. This stipend acknowledges that their time and information is of great value to NEEA.
- Offered a confidential copy of the final report that will compare their position in the pumps and circulators market relative to the other market actors.

The team first reached out to nonparticipants via email. The email recruitment message provided the following information:

- The purpose of the research.
- The information that would be requested, specifically, the business types served, the number of pump and circulator units sold annually in the region, and the types of units sold.
- All provided information would be treated as confidential.
- We would provide a \$500 stipend and a confidential copy of our final report showing a snapshot of the respondent firm's market share relative to the overall market.

The full recruitment message is included in the Appendix.

We followed up with telephone calls and emails, making up to five attempts to reach a single contact at a targeted firm. Once the ADM interviewers identified an appropriate contact at each

firm, they again explained the purpose of the research and the types of questions we had for them.

Throughout the process, the ADM team took notes on each recruitment attempt and each survey completion, including any challenges in collecting the desired data. Through formal weekly checkin calls and informal emails and communications, the ADM team kept the NEEA Project Manager informed of any recruitment challenges and successes and what their implications were for the research project.

Through our recruitment efforts, we determined that 18 firms were not in our target group of manufacturers' representatives of clean water pumps operating in the Northwest or were out of business. We were unable to reach 12 of the identified firms. Of the remaining two firms in our list, one refused to be interviewed and we completed only one interview (Table 1).

Disposition	Count
Complete	1
Refused	1
No response	12
Out of business	1
Did not pass screening – not in target population	17
TOTAL	32

Table 1: Initial Recruitment Effort Disposition Summary

The ADM team, in consultation with the NEEA Project Manager, modified the survey guide and recruitment process. We adjusted the questionnaire to make participating potentially less intimidating to prospective respondents. Instead of asking for sales data that potential respondents may have been reluctant to provide, the team asked for more general information about their company and the market conditions for pumps and circulators in the region.

After revising the instrument, we sent an updated recruitment email to the individuals who did not respond to our initial attempt. The revised email acknowledged that they may be reluctant to share detailed sales data but that we still wanted to understand more generally about their company, in particular, about the markets served and their perspectives on the pumps and circulators market in the Northwest. The revised email repeated the offer of a \$500 gift card.

The full revised recruitment message is included in the Appendix.

In addition, the team interviewed a pump market expert about her experiences in the field and asked for the names of firms we should add to our list. As indicated above, the expert identified a total of nine firms we had not considered for outreach in our initial approach. Specifically, she provided six new firm names we had not found in our initial research and reclassified three firms we had initially ruled out of our investigation. Combining those nine records with our initial list of 32 brought the total list to 41 firms.

After implementing the revised recruitment approach with nine new firms and the 12 we had been unable to reach in the first phase of data collection, we were able to complete one more interview using the adjusted interview guide. We identified an additional firm that was out of

business and 10 firms that were not in our target group. Our cumulative recruitment efforts identified a population of 12 eligible firms, from which we completed two interviews (Table 2).

Table 2: Final Disposition Summary

Disposition	Count Initial Recruitment Effort	Second Recruitment Effort <sup>1</sup>	Cumulative Recruitment Efforts	Cumulative Percent	Eligible Percent
Complete	1	1	2	5%	17%
Refused	1	3	4	10%	33%
No response	12	6	6	15%	50%
Subtotal: Eligible <sup>2</sup>	14	10	12	29%	100%
Out of business	1	1	2	5%	
Did not pass screening	17	10	27	66%	
Subtotal: Ineligible	18	11	29	71%	
Total	32	21	41	100%	

<sup>&</sup>lt;sup>1</sup> The second recruitment effort targeted the 12 firms we were unable to reach in the initial effort plus the nine newly identified ones.

Thus, of the 39 firms that we identified as possibly in the population of interest and were still in business, our recruitment process revealed that 27 (two-thirds) were not in our target group (Figure 1). Of those 27 firms, 21 reported not representing a clean-water pump or circulator manufacturer and seven said they did not serve the Northwest region (two indicated both exclusions).

<sup>&</sup>lt;sup>2</sup> Eligible does not imply we confirmed they were in the target population but only that we had not screened them out. Section 3 provides information about the firms that we gleaned information from their websites.

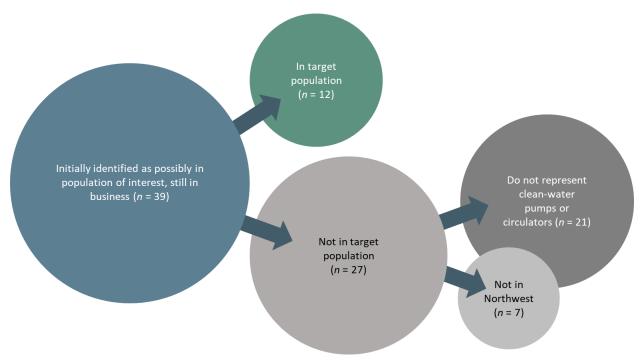


Figure 1: Disposition of Firms Initially Identified as Possibly in Population of Interest

## 3 Results

As noted in Section 2.3, our recruitment efforts identified 12 firms that we confirmed as part of the population of interest—pump and circulator manufacturers' representatives operating in the Northwest. Adding those 12 to the list of participant firms NEEA currently works with indicates that the population of interest is at least 20 firms. Given the broad range of sources we used to identify potential firms of interest and the wide net we cast, we believe it is unlikely that the population of interest is much, if at all, larger.

#### 3.1 Summary of Nonparticipant-Respondent (NPR) Firms

We learned the following from the two nonparticipant contacts who completed the interview (nonparticipant-respondents, or NPRs):

#### NPR1

- Based outside of the Northwest states and serving one Northwest state.
- o 15 employees.
- o Small percentage of sales are for circulators, and do not sell or service pumps.
- Half of all circulators are for residential new construction and half are for replacement.

ADM Associates Results | 7

#### Pumps and Circulators Market Sizing Research

#### NPR2

- Serving one Northwest state.
- 13 employees.
- o Mainly serves commercial and institutional sectors, with some industrial work.
- Clean water pump sales represent small portion of company sales.
- o Represented manufacturer offers a specialized range of pumps.
- The respondent did not provide specific sales data.

#### 3.2 Summary of Non-Participant Non-Respondent (NPNR) Firms

Despite offering incentives, a customized market research report, and modifying our questionnaire, we were unable to convince 10 of the 12 eligible (or potentially eligible) nonparticipant firms to complete an interview. As noted above, four refused to answer questions and six never responded to our recruitment efforts. However, we were able to collect some basic categorical information on 9 of these 10 nonparticipant-nonrespondent (NPNR) firms from web searches that revealed:

- The majority of nonrespondents (8) worked in the less-populous states that NEEA serves: Idaho (7) and Montana (2).
- Four of the 10 firms have headquarters outside of the four-state region.
- Most (8) serve the commercial market.
- Almost all served two or more market sectors.

One non-participant non-respondent (NPNR), NPNR4, did not have a website where we could glean much information; the address for the firm listing is residential.

Further analysis of company descriptions on their websites suggests that four of these 10 firms are the most likely candidates for XMP program services:

- NPNR2 specifies that they sell and service commonly known HVAC pump brands.
- NPNR6 advertises that they specialize in the "integration of quality pumps, controls, motors, packaged systems, and engineered solutions for residential water, wastewater, agriculture, irrigation, commercial and industrial applications."
- NPNR9 describes themselves as leaders in the HVAC and dust control industry and specifies they provide commonly known HVAC pump brands.
- NPNR10 describes itself as a manufacturer representative for the HVAC industry representing a commonly known HVAC pump brand.

ADM Associates Results | 8

#### 3.3 Comparison of Participant Firms with Nonparticipants

As noted in section 3.1, one respondent (NPR1) serves one Northwest state with circulators but not pumps. We compared the circulator sales data from that respondent to the data from the three participants that sell circulators. Table 3 shows that the nonparticipant's hydronic heat (HH) circulator sales, and total circulator sales, were just within the participant range—that is, they were slightly above that of the XMP participant with the lowest sales—but they were well below the participant average. However, the total sales of domestic hot water (DHW) circulators were lower than those of *any* of the three participants. While data from one respondent are not sufficient to confirm NEEA's prior estimates of market share by XMP participants, this case certainly does not challenge those estimates.

Type of Circulator	Participant Mean Sales (Number of Units)	How NPR1 Compares to Participants
Domestic Hot Water	3,407	Below participant range
Hydronic Heat	4,747	Slightly above bottom of range, well below mean
Total, Both Types	8,154	Slightly above bottom of range, well below mean

Table 3: Comparison of NPR1 to Participant Mean Total Circulator Sales

Note, however, that all of the respondent's reported sales of DHW circulators, and most sales of HH circulators, were in two size ranges: 15-40W and 100-200W. As Table 4 shows, this respondent's sales within those two categories generally are close to the mean levels for the three circulator participants and they are always above the bottom of the range. Thus, this nonparticipant-respondent appears to account for a reasonable share of certain niches within the circulator market, and so NEEA program staff may wish to attend to such within-market sales coverage dynamics when considering program refinement and potential expansion.

Category		Participant Mean Sales (Number of Units)	How NPR1 Compares to Participants
Domestic Hot Water	15-40W	583	Slightly above bottom of participant range
Circulators	100-200W	559	Near participant mean
	All Other	2,265	Below participant range
Hydronic Heat	15-40W	102	Above participant mean
Circulators	100-200W	479	Above participant mean
	All Other	4,166	Below participant range

Table 4: Comparison of NPR1 to Participant Mean Circulator Sales by Category

We were able to ascertain the number of employees only for the two firms whose contacts consented to an interview. Both firms were at least as small as the smallest participant firm.

Figure 2 compares the distribution of states served by participants and nonparticipants (the latter including both respondents and nonrespondents) in the XMP program. From this, it appears that

ADM Associates Results | 9

nonparticipants are somewhat less likely to serve Washington and more likely to serve Idaho compared to participants.<sup>2</sup>

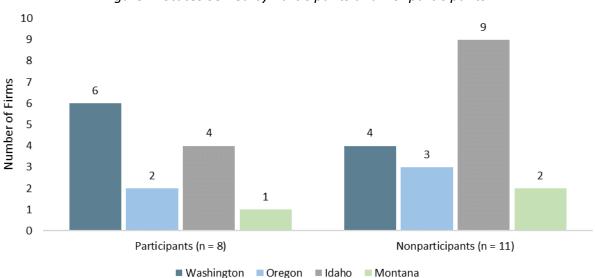


Figure 2: States Served by Participants and Nonparticipants

Figure 3 compares the distribution of sectors served by participants and nonparticipants (again, including nonparticipant-respondents and -nonrespondents). This shows that, while nonparticipants are as likely as participants to serve the commercial market, they are *more* likely than participants to serve all other sectors.<sup>3</sup> That is, it appears that they are less likely to focus exclusively on the commercial sector than are XMP participants.

ADM Associates Results | 10

.

<sup>&</sup>lt;sup>2</sup> While the participant data represent a census of participants, the small sample of nonparticipants argues for caution in drawing conclusions about whether differences can be considered statistically significant. With that warning in mind, we note that the proportions of participants that serve Washington (0.75) and that serve Idaho (0.50) fall outside the 95% confidence intervals for nonparticipants (0.17 to 0.56 and 0.66 to 0.98, respectively). Note that we applied the finite population correction factor (fpc), using our assumed nonparticipant population of 20, when calculating the above confidence intervals, but the participant proportion fell outside the confidence intervals even when calculated without the fpc.

<sup>&</sup>lt;sup>3</sup> The proportions of participants that serve the industrial, agricultural, and residential sectors (0.13, 0.0, and 0.25) all fall outside the comparable 95% confidence intervals for nonparticipants (fpc applied: 0.32 to 0.68, 0.09 to 0.41, and 0.40 to 0.76, respectively). Again, caution should be applied when interpreting these differences.

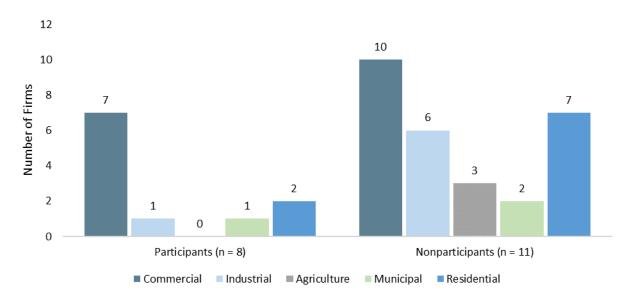


Figure 3: Sectors Served by Participants and Nonparticipants

## 4 Conclusions

While not sufficient to conclusively confirm the precision of NEEA's estimate of ≈70% regional clean water pump market coverage represented by NEEA XMP participants, the findings from this study do not challenge this estimate and suggest that XMP participants are the dominant players serving the clean water pump and circulator markets in the region. Our work revealed that there are likely not more than 20 program-eligible manufacturer representative firms in the region. NEEA is working with eight of those 20 (40%). When examined more closely, there is evidence to suggest that six of the 12 nonparticipants may not actually be in the target group of interest. Furthermore, there is some information to suggest that the nonparticipants represent a relatively small part of the overall clean water pump and circulator markets in the region, although some may be active in smaller sub-markets. Not all explicitly serve the commercial space, currently the primary target of the XMP program, and while several nonparticipating firms appear to be active in Idaho, most are not serving the other Northwestern states.

ADM Associates Conclusions | 11

# **Appendix**

#### Initial recruitment script:

My name is \_\_\_\_\_ and my firm, ADM, is partnering with the Northwest Energy Efficiency Alliance (NEEA) to better understand the market for commercial and industrial clean water pumps and circulators in the Northwest. We are working to estimate the overall size of the market so NEEA can continue its work to accelerate the adoption of energy efficient equipment and practices in Oregon, Washington, Idaho, and Montana.

To better understand the pump and circulator market in the Northwest, we need your help. Specifically, we would like to ask you some questions about the business types you serve, how many pump and circulator units you sell annually in the region, and the types of units you sell.

To compensate you for your time and for sharing your information with us, we are offering a \$500 stipend and a confidential copy of our final report that will provide a snapshot of your firm's market share relative to the overall market.

Anything you tell us would be confidential and we will not share your contact information or identifiable firm or sales data with anyone.

### Revised recruitment script:

My name is \_\_\_\_\_ and my firm, ADM, is partnering with the Northwest Energy Efficiency Alliance (NEEA) to better understand the market for commercial and industrial clean water pumps and circulators in Oregon, Washington, Idaho, and Montana. I recently contacted you about work my firm is doing for the Northwest Energy Efficiency Alliance (NEEA). At that time, we were looking for information about pump sales to quantify the pump and circulator market in the Northwest.

We realize that you might be reluctant to share that information but would still like to understand some more general information about your company and the market conditions for manufacturer representatives. We are especially interested in learning more about the markets you serve, and your perspectives on the pumps and circulators market in the Northwest.

To thank you for your time, we are offering a \$500 gift card.

When would be a convenient time to talk with you?

ADM Associates Appendix | 12