

NORA Board Meeting
Rhode Island Convention Center
Providence, Rhode Island
12.00 -2.00 Eastern Time
September 17, 2019

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Access Code: 405-042-773

- I. Introduction – Chairman Charles Uglietto and President John Huber
- II. Approval of Minutes
- III. Financial Information – Treasurer Eric Degesero
 - a. Review of Audit
 - b. July Statement of Activity and Statement of Financial Position
 - c. Proposed Budget for 2020 and 2021
 - d. Escrow Account
- IV. Research and Development – Director of Laboratory Dr. Thomas Butcher
 - a. Review of Lab Operations
 - b. Review of Outside Projects and Project Opportunity Notice
 - c. Proposals for Spending
- V. Education and Training Activities John Levey
 - a. Tank Book
 - b. Silver Book
 - c. Revision of Certification Exams
- VI. Energy Efficiency
- VII. Executive Committee and Officers
- VIII. Old Business – Messaging Our Story
- IX. New Business - Reforms to Statute
- X. Adjournment

Minutes
Board of Directors
National Oilheat Research Alliance
May 21, 2019
12:30PM-2:00PM

I. Introduction – Chairman Charles Uglietto and President John Huber

Mr. Charles Uglietto called the meeting to order at 12:38 pm EST and directed Mr. John Huber to call the roll. Mr. Huber called the roll and the following members of the Board are present.

Greg Anderson Peter Aziz Peter Buotte Al Breda Steve Clark Matt Cota Eric Degesero Scott Hacker Bruce Harris Allison Heaney Joe Keenan	Jeff Lykins Steve McCracken John McCusker Matt Meehan John Miles Ted Noonan Michael Januario Stephen Sack Danile Singer Charles Uglietto Greg Childs
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II. Approval of Minutes

A motion to approve the minutes from the May 22, 2018 board meeting was made by Ms. Allison Heaney, seconded by Mr. Al Breda and approved by voice.

III. NORA Extension – John Huber

John Huber discussed the NORA extension and that the Congressional Budget Office (the budget scoring agency for Congress) has determined that NORA's collections impact federal revenues and increase the federal deficit. As a remedy, NORA has been amended and will place 25% of its income in escrow for ten years. These funds are not lost to the industry and will become available on October 1, 2028. Mr. Huber discussed the industry empowerment provided by NORA and that being able to support the lab in NY is critical.

IV. Financial Information – Treasurer Eric Degesero

a. 2018 Year End Financials

Mr. Degesero began by reviewing the draft audited financial statements which begin on page 9 of the board packet.

The statement of financial position-balance sheet- page 13 and statement of activities - income statement-page 14. They match the internal financial reports that are enclosed. Mr. Degesero asked the board to turn to pages 27 and 28 to find the more familiar internal statements.

On the first line of the income statement, in the second column, the total income from collections was \$10,686,398. NORA then subtract from that the refunds of \$1,444,746 which leaves total allocable income from collections of \$ 9,241,652. Please recall that collection costs are an expense so when you add the \$88,593 for collection costs back to the Net Collections shown of \$9,153,059, it totals the \$9,241,652.

b. Allocation of Budget Shortfall

The 2018 budget was \$9,378,717, which is the net collections of \$9,263,717 plus the budgeted collection cost of \$115,000. Therefore, NORA are short of budget by \$137,065.

Continuing down the income statement. NORA received \$260,248 in other revenue. These NORA grants from NYSERDA and the National Biodiesel Board for our research activities. NORA did not budget for this, as these numbers are uncertain, and NORA had no contracts or proposals pending at the time of the budget preparation.

Additionally, NORA made a small net of \$1,500 from book sales which was offset by the cost of goods sold at the bottom of the statement.

Moving onto consumer education.

NORA budgeted \$2,813,485, for consumer education and spent \$2,802,330 with the central office spending \$338,845 on consumer education while the states spent \$2,463,485.

The total consumer education expense is therefore \$11,155 under budget. While this seems like a small amount it is very important and will tie in with us being \$137,065 under budget for 2018. This \$11,155 will be revisited when NORA discuss how to ensure the 2018 finances are in compliance with the 30 percent maximum NORA are funds required to spend on consumer education and technical training.

The research and development lab in New York spent \$1,169,665 of the \$2.1 million allocated.

Going forward this number will track the budget as staff effectively moved from interns to full time employees last year and our hope that Dr. Butcher becomes a full time employee in near future is realized.

The home energy efficiency program is going very smoothly. Many states now have active rebate programs and the NORA central budget is handling the accounting and check distribution for these programs, which is a labor intensive process and cost driver.

In regards to unallocated office expenses.

Salaries and consulting were over budget. This includes John's time as well as some of the consultants that work on projects that cannot be allocated.

As specific line items the accounting fees were under budget and the annual report was over budget. But, the total budgeted expense for these two accounting functions was \$95,000 and the total expense was \$82,000 so collectively it is under budget.

Professional fees were over budget and largely reflect outside attorney fees. These fees used to be allocated to specific programs that the fees were incurred for while working on. However, a change in accounting rules prohibits the allocating of legal fees. The total unallocated office expenses were \$359,376. This is over budget, but still under the maximum allowed by law.

Interest was considerably higher than the budget contemplated as our reserves have grown at the same time interest rates have risen. The increased interest largely offset the overage in unallocated office expenses.

c. Audit Status and Update

Accounts receivable are funds due from some of the contracts with NBB and NYSERDA at year end and which have since been paid.

Assessments and other receivables essentially describe the collections NORA have since received for the fourth quarter of 2018.

Moving down to liabilities and net assets.

The first set of liabilities are the obligations to the states.

The final 2018 figure of \$5,073,343 was \$930,000 less than the final 2017 figure of \$6,004,907. This reflects the fact that the states are working down their accumulated balances.

The next item of interest is the unrestricted net assets.

These are funds that have accrued over the years for central office spending being under budget. They are available for spending on research and development, administrative and energy efficiency, but not for consumer education.

The \$55,933 of pre-2014 funds are available for any use, and NORA have held as a reserve to ensure that the consumer education never goes over budget.

In the National Spending Not Yet Incurred there is \$5,098,554 for research and development. This account had accrued to ensure the lab and its employees could continue to work in the event that NORA was not reauthorized. NORA will use some of these funds this summer and fall as part of a program opportunity notice and to fund some research projects. After that process concludes John will review with the Board if some of those funds might be transferred to states with active rebate programs to encourage new highly efficient equipment or other meaningful activities.

I will now direct you to Note 4 - Program Services - which begins on page 19 and continues on page 20.

This note reminds us that there is a 30 percent cap on consumer education and describes the need to adjust the budget for 2018 to ensure the 30 percent cap is met. As stated earlier, NORA were \$137,065 under budget.

This means NORA overspent on consumer education by \$40,990 since NORA did not cut the allocation to the states.

Therefore, NORA need to reduce the 2018 budget and use the accrued \$30,690 and the 2018 savings of \$11,155 in consumer education account so that the state allocations for consumer education do not need to be adjusted.

On page 29, NORA have a proposed resolution to effectuate this. I will now entertain a motion on this resolution.

By law, NORA can spend no more than 30 percent of its collections on education and training/consumer education. In 2018, the budget called for consumer education spending of \$2,813,485. However, the actual collection revenues for the year were \$9,241,652. As a result, the maximum amount that could be spent was \$2,772,495. To ensure state funds which in many cases have been expended are not affected, the shortfall or overspending will be addressed at the central level. This shortfall is \$40,990.

To address this shortfall.

RESOLVED: That the 2018 budget for consumer education and training be reduced to \$2,772,495.57.

BE IF FURTHER RESOLVED: That the excess funds from 2017 of \$30,690.82 be used for central education and training expenses incurred in 2018.

A motion to approve the budget resolution was made, and duly seconded. That motion was approved unanimously.

I will now direct you to pages 23-25 of the audit that describe the state budgets which serves as our annual report.

The management letter for the audit has not been completed yet but will be discussed at the Executive Committee and the next Board meeting.

I will now ask for someone to move the resolution on page 30 that accepts the draft audit.

The draft Audit has been submitted to this Board. The numbers generated match the internal financial statements.

Be it Resolved: That the Board accepts the Treasurer's report, the draft audit and the year end financials.

Be it further Resolved; That the audit be finalized and serve as the 2018 annual report.

A motion to approve the audit resolution was duly made, seconded and approved by voice.

d. First Quarter Financials

Through March 31, 2019 NORA had collections of \$523,641.

In April 2019, which is not reflected, NORA had income of approximately \$3.7 million reflecting the collections for 1st Quarter.

The goal for the year is essentially \$9.2 million. The budget does not include the escrow funds. Thus, collections for 2019 Q1 are a little light, but compare favorably to 2018 Q1, which indicates that NORA should be on pace to make budget.

You should also note the \$7,446,757 is not 75 percent of the total budget as John described earlier. Instead it is a calculation by degree days that excludes the escrow for the first 40 days of this year since the escrow was not required until the reauthorization became effective in early February. Next year, there will be a flat 25 percent reduction.

V. 2020 and 2021 Budgets –Mr. Charles Uglietto and John Huber

NORA is required to provide biennial budgets. These budgets require public notice and submission to governmental authorities.

Resolved: That the proposed budget for 2020 and 2021 is acceptable for the first step in the process. That NORA work to finish the budget and have a final budget including state allocations available for the fall meeting.

There was a general discussion about the budget. It was decided that the executive committee and the board have been directed to exam the budget to make sure the statue is not violated.

A motion to approve the proposed budget resolution was made by Ms. Allison Heaney, seconded by Mr. Charles Uglietto and approved by voice.

VI. Research and Development – Director of Laboratory Dr. Thomas Butcher

a. Review of Lab Operations

Dr. Tom Butcher reviewed the projects taking place at the 3,500-sqare foot NORA Liquid Fuels Research Center with Laboratory Technician's Mr. Neehad Islam & Mr. Ryan Kerr. The two are working closely with Dr. Butcher on next-generation heating systems currently in development at the facility, including burners capable of running on up to B100 biofuel as well as several state-of-the-art boiler prototypes.

Dr. Butcher discussed the topics that are being worked on internally. He discussed the following project:

- Tankless Coil Boiler project with NYSERDA
- Air Source Heat Pump Field Study with NYSERDA
- Fuel-fired Heat Pump
- Field Study of Ethyl Levulinate
- Practical Impact of Copper on Fuels
- Biodiesel

b. Review of Outside Projects – Richard Sweetser

Mr. Sweetser gave a presentation on the study comparing heating oil, biodiesel and advanced biodiesels with natural gas. Mr. Sweetser indicated that this is a production through heating the home study. The ratios of equivalence increased slightly from the previous report due to better equipment in use and the cessation of LNG imports. Mr. Sweetser discussed the outside project listed below and stated that more detail will be given at sessions later in the day.

- B100 Multi-Fuel Smart Burner (B-50 Compatible Boiler with AMC)
- B50 Compatible Boiler with AMC
- Stone Mountain Technology, Inc.
- NYSERDA Liquid Fuel AHP Proof Concept Test

c. Technology Workshop Tom Butcher and John Huber

Dr. Butcher discussed the Technology Workshop and the strengths and weaknesses of Bioheat® and electric alternatives. We will review how those state programs will interact with the electrical grid and the reliability of all energy. Finally, there will be an open discussion of the path that this industry should take to develop new technologies to respond to the issues discussed during the afternoon.

VII. Education and Training Activities – Don Farrell and John Levey

a. Gold Courses – Newly Completed and Online

Mr. Levey discussed the Gold program and working on final edits with STI. Mr. Levey discussed the online education system and that NORA has been working to become active in the online education space. The online education system currently has 23,000 technicians in the database, and 15 percent of them are active users. Mr. Levey also stated that the steam and controls book have been finalized and available for purchase.

Technicians can get CEU's online, there are currently 20 videos online for continuing education. Mr. Levey discussed the NORA Gold certification and that all eight classes are actively running. NORA is also working to recognize manufacturers classes that can be used toward NORA Gold certification. TACO, Peerless etc. have classes that are equivalent to NORA classes and that can be used in place of a NORA class.

Mr. Levey stated that several CEU programs have been added to the leaning.noraweb.org website this year and we are working with various manufacturers to add additional online classes. Many of the videos were created by NORA and others have been produced by manufacturers of heating equipment and approved by NORA. As NORA identifies additional quality instructional videos, they will be added to the site.

b. Revision to Exams and Silver Book

Mr. Levey discussed the revisions that are being made to the exams in order to make sure the security of NORA test is at the highest level. He also stated that NORA is currently working to revise the dated silver book. There was a general discussion about NORA education.

VIII. Energy Efficiency

John Huber indicated that energy efficiency was largely the province of the states and their energy efficiency programs.

IX. Executive Committee and Officers – First Vice Chairman Proposed. John Huber indicated that the proposal for first Vice Chairman, Mike Neish, had to withdraw, and a search for a replacement was underway.

X. Old Business – There was no old business.

XI. New Business – There was no new businesss

XII. Adjournment – On motion duly made, the meeting was adjourned.

NATIONAL OILHEAT RESEARCH ALLIANCE, INC.

DECEMBER 31, 2018 AND 2017

**These financial statements
may be reproduced only
in their entirety.**

NATIONAL OILHEAT RESEARCH ALLIANCE, INC.

DECEMBER 31, 2018 AND 2017

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INDEPENDENT AUDITOR'S REPORT

The Board of Directors
National Oilheat Research Alliance, Inc.
Alexandria, Virginia

Scope

We have audited the accompanying financial statements of the National Oilheat Research Alliance, Inc. (the Alliance), which comprise the statements of financial position as of December 31, 2018 and 2017, and the related statements of activities, functional expenses, and cash flows for the years then ended, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Alliance's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Alliance's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

The Board of Directors
National Oilheat Research Alliance, Inc.
Alexandria, Virginia

Opinion

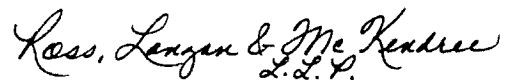
In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Alliance as of December 31, 2018 and 2017, and the changes in its net assets and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Emphasis of Matter

As discussed in Note 11 to the financial statements, in 2018, the Alliance adopted Accounting Standards Update No. 2016-14, *Not-for-Profit Entities (Topic 958): Presentation of Financial Statements of Not-for-Profit Entities*. Our opinion is not modified with respect to this matter.

Report on Supplementary Information

Our audit was conducted for the purpose of forming an opinion on the financial statements as a whole. The Schedules of Expenses by State/Jurisdiction on pages 14-17 for the year ended December 31, 2018, are presented for purposes of additional analysis and are not a required part of the financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the information is fairly stated in all material respects in relation to the financial statements as a whole.



CERTIFIED PUBLIC ACCOUNTANTS

August 19, 2019

NATIONAL OILHEAT RESEARCH ALLIANCE, INC.

STATEMENTS OF FINANCIAL POSITION
DECEMBER 31, 2018 AND 2017

ASSETS

	2018	2017
ASSETS		
Cash	\$ 9,151,550	\$ 9,343,450
Assessments receivable	3,086,323	2,987,247
Prepaid state assessments	137,970	217,360
Other assets	<u>112,632</u>	<u>78,190</u>
TOTAL ASSETS	<u>\$ 12,488,475</u>	<u>\$ 12,626,247</u>

LIABILITIES AND NET ASSETS

LIABILITIES		
Accounts payable	\$ 760,957	\$ 1,098,309
Refunds payable	337,662	318,984
State grants payable	3,084,544	3,389,090
Obligation for unallocated state rebates	1,988,799	2,615,817
Other liabilities	<u>68,175</u>	<u>45,619</u>
TOTAL LIABILITIES6,240,1377,467,819

NET ASSETS

Net assets without donor restrictions available for obligation - other than for consumer education, safety, and training	642,774	431,117
Designated net assets:		
Pre-2014 reauthorization net assets	55,933	55,933
National spending not yet incurred:		
Research, development, and demonstration - not yet obligated	5,098,554	3,779,596
Research, development, and demonstration - obligated under contract	316,580	750,328
Heating oil efficiency and upgrade - not yet obligated	123,040	110,763
Heating oil efficiency and upgrade - obligated under contract	-	-
Consumer education, safety, and training - not yet obligated	11,457	30,691
Consumer education, safety, and training - obligated under contract	<u>-</u>	<u>-</u>
Total net assets without donor restrictions	<u>6,248,338</u>	<u>5,158,428</u>
TOTAL LIABILITIES AND NET ASSETS	<u>\$ 12,488,475</u>	<u>\$ 12,626,247</u>

The accompanying notes are an integral part of these financial statements.

NATIONAL OILHEAT RESEARCH ALLIANCE, INC.

STATEMENTS OF ACTIVITIES
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

	<u>2018</u>	<u>2017</u>
CHANGE IN NET ASSETS WITHOUT DONOR RESTRICTIONS		
REVENUE AND GAINS/LOSSES		
Assessments revenue, net of refunds	\$ 9,241,652	\$ 8,851,079
Contract revenue	257,259	83,800
Other income	<u>73,832</u>	<u>28,684</u>
Total revenue and gains/losses9,572,7438,963,563
EXPENSES		
Program expenses:		
Research, development, and demonstration	1,928,697	1,869,509
Heating oil efficiency and upgrade	1,394,446	1,313,136
Consumer education, safety, and training	2,791,730	2,651,449
Unallocated state rebates	<u>1,942,501</u>	<u>1,818,717</u>
Total program expenses8,057,3747,652,811
Administrative costs231,756195,263
General and special projects:		
Assessment and collection costs	135,230	179,944
Annual report costs	<u>58,473</u>	<u>59,663</u>
Total general and special projects	<u>193,703</u>	<u>239,607</u>
Total expenses	<u>8,482,833</u>	<u>8,087,681</u>
CHANGE IN NET ASSETS WITHOUT DONOR RESTRICTIONS	1,089,910	875,882
NET ASSETS, BEGINNING OF YEAR	<u>5,158,428</u>	<u>4,282,546</u>
NET ASSETS, END OF YEAR	<u>\$ 6,248,338</u>	<u>\$ 5,158,428</u>

The accompanying notes are an integral part of these financial statements.

NATIONAL OILHEAT RESEARCH ALLIANCE, INC.

STATEMENTS OF FUNCTIONAL EXPENSES
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

2018								
PROGRAM SERVICES								
	Research, Development, and Demonstration	Heating Oil Efficiency and Upgrade	Consumer Education, Safety, and Training	Unallocated State Rebates	Total Program Services	Administrative Costs	General and Special Projects	Total 2018
Grants	\$ 713,907	\$ 1,326,723	\$ 2,463,485	\$ 1,942,501	\$ 6,446,616	\$ -	\$ -	\$ 6,446,616
Salaries, taxes, and benefits	388,799	56,854	67,656	-	513,309	59,661	36,037	609,007
Professional fees	727,318	4,738	249,398	-	981,454	151,383	153,089	1,285,926
Other expenses	98,673	6,131	11,191	-	115,995	20,712	4,577	141,284
TOTAL 2018 EXPENSES	<u>\$ 1,928,697</u>	<u>\$ 1,394,446</u>	<u>\$ 2,791,730</u>	<u>\$ 1,942,501</u>	<u>\$ 8,057,374</u>	<u>\$ 231,756</u>	<u>\$ 193,703</u>	<u>\$ 8,482,833</u>

2017								
PROGRAM SERVICES								
	Research, Development, and Demonstration	Heating Oil Efficiency and Upgrade	Consumer Education, Safety, and Training	Unallocated State Rebates	Total Program Services	Administrative Costs	General and Special Projects	Total 2017
Grants	\$ 563,659	\$ 1,248,355	\$ 2,369,317	\$ 1,818,717	\$ 6,000,048	\$ -	\$ -	\$ 6,000,048
Salaries, taxes, and benefits	335,166	35,994	54,021	-	425,181	79,182	45,173	549,536
Professional fees	783,147	25,755	216,764	-	1,025,666	97,737	140,036	1,263,439
Other expenses	187,537	3,032	11,347	-	201,916	18,344	54,398	274,658
TOTAL 2017 EXPENSES	<u>\$ 1,869,509</u>	<u>\$ 1,313,136</u>	<u>\$ 2,651,449</u>	<u>\$ 1,818,717</u>	<u>\$ 7,652,811</u>	<u>\$ 195,263</u>	<u>\$ 239,607</u>	<u>\$ 8,087,681</u>

The accompanying notes are an integral part of these financial statements.

NATIONAL OILHEAT RESEARCH ALLIANCE, INC.

STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

	<u>2018</u>	<u>2017</u>
CASH FLOWS FROM OPERATING ACTIVITIES		
Change in net assets	\$ 1,089,910	\$ 875,882
Adjustments to reconcile change in net assets to net change in cash from operating activities:		
Depreciation and amortization	31,121	31,064
Changes in assets and liabilities:		
Assessments receivable	(99,076)	(168,978)
Prepaid state assessments	79,390	(149,571)
Other assets	(65,563)	11,332
Accounts payable	(337,352)	385,975
Refunds payable	18,678	(74,006)
State grants payable	(304,546)	(712,752)
Obligation for unallocated state rebates	(627,018)	(315,060)
Other liabilities	<u>22,556</u>	<u>11,378</u>
Net change in cash from operating activities	<u>(191,900)</u>	<u>(104,736)</u>
NET CHANGE IN CASH	(191,900)	(104,736)
CASH, BEGINNING OF YEAR	<u>9,343,450</u>	<u>9,448,186</u>
CASH, END OF YEAR	<u><u>\$ 9,151,550</u></u>	<u><u>\$ 9,343,450</u></u>

The accompanying notes are an integral part of these financial statements.

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2018 AND 2017

NOTE 1 - THE ORGANIZATION

The National Oilheat Research Alliance, Inc. (the Alliance) is a non-profit trade organization developed under the National Oilheat Research Alliance Act of 2000 (NORA), Public Law 106-469, legislation passed by the United States Congress and signed into law in November 2000. The law was amended in 2014 under NORA Public Law 113-79. The Alliance was created to educate consumers about the benefits of oilheat, to perform research and development, to encourage heating oil efficiency and upgrades, and to provide technical training to provide better customer service. The Alliance's Board consists of members from the oilheat industry, retail markets, wholesale distributors, public members, and representatives from the states with the highest oilheat sales. The Alliance was incorporated on January 31, 2001. Funding under the NORA Public Law 106-469 ceased on February 6, 2010. On February 7, 2014, the NORA Public Law 113-79 extended the provisions of NORA Public Law 106-469 to February 6, 2019. Funding under NORA Public Law 113-79 resumed effective April 1, 2014. On December 20, 2018, Public Law 115-334, *the Agriculture Improvement Act of 2018* (NORA Public Law 115-334) was signed. NORA Public Law 115-334 extended and modified the provisions of NORA Public Law 113-79 to February 6, 2029.

Pursuant to NORA Public Law 113-79, Congress established a limit on the use of assessments revenue of 30 percent for consumer education, safety, and training; a minimum of at least 30 percent of assessments revenue for research, development, and demonstration; a minimum of at least 15 percent of assessments revenue for heating oil efficiency and upgrade; and a limit on the use of assessments revenue of 5 percent for administrative costs. In the years ended December 31, 2018 and 2017, the Alliance was in compliance with these percentages. Beginning February 6, 2019, NORA Public Law 115-334 increased the limit on administrative costs to 7 percent of assessments revenue. Furthermore, NORA Public Law 115-334 requires in each calendar year beginning February 6, 2019, the Alliance may not obligate an amount greater than the sum of (1) 75 percent of the amount of assessments estimated to be collected in the calendar year; (2) 75 percent of the amount of assessments actually collected in the most recent calendar year for which an audit report has been submitted less the amount estimated in (1) above; and (3) amounts permitted in preceding calendar years to be obligated that have been obligated. The assessments collected in excess of the amounts permitted to be obligated in (1), (2), and (3) above, shall be deposited in an escrow account and be unavailable for use until October 1, 2028, when it can be used consistent with the provisions of NORA Public Law 106-469.

NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting

The financial statements have been prepared on the accrual basis of accounting following the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC), which is the sole source of authoritative accounting principles generally accepted in the United States of America (GAAP). The Alliance reports information regarding its financial position and activities according to two classes of net assets: with donor restrictions and without donor restrictions.

Accounting Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that could affect certain reported amounts of assets, liabilities, revenue, and expenses, the disclosure of contingent assets and liabilities at the date of the financial statements, and functional allocations during the year. Actual results could differ from those estimates.

Reclassifications

Certain 2017 amounts have been reclassified to conform with 2018 classifications.

NOTES TO FINANCIAL STATEMENTS
DECEMBER 31, 2018 AND 2017

NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (continued)

Other Receivables and Contract Revenue

Other receivables consist of amounts due from research and development contracts. Contract revenue is recognized when services have been completed. Bad debts are recognized based on historical experience and an evaluation of outstanding receivables. Receivables are written off when all reasonable efforts for collection have been utilized. No allowance was deemed necessary by management at December 31, 2018 or 2017.

Assessments Revenue

The NORA Public Law 113-79 requires wholesale distributors of No. 1 distillate and No. 2 dyed distillate to remit an assessment of two-tenths of one cent per gallon at the point of sale to the Alliance. If the No. 1 distillate or No. 2 dyed distillate is imported after the point of sale, the assessment is to be made when the product enters the United States of America. Assessments are due to be remitted to the Alliance at least quarterly.

Under NORA Public Law 113-79's collections rules, any dyed distillate or blends are subject to assessment. Some of this fuel is used for non-heating applications and is refunded. Assessments revenue is presented in the accompanying statements of activities net of refunds recorded of \$1,444,746 and \$1,264,055 for the years ended December 31, 2018 and 2017, respectively.

Assessments Receivable

An estimate of assessments to be received, but not remitted to the Alliance as of year-end, is recognized. Receivables are charged to bad debt loss as they are deemed uncollectible based upon a periodic review of the accounts. As of December 31, 2018 and 2017, no allowance for uncollectible accounts was considered necessary by management.

Functional Allocation of Expenses

The cost of providing the various programs and other activities have been presented on a functional basis in the accompanying statements of activities. Accordingly, certain costs have been allocated among the programs and supporting services benefited based on estimates of time and effort of staff.

Income Tax Status

The Alliance received a determination letter from the Internal Revenue Service (IRS) that it has been granted an exemption from federal income taxes and it qualifies under Section 501(c)(6) of the Internal Revenue Code. The Alliance believes its operations are consistent with the nature of their exemption granted by the IRS. There is no current liability for income taxes on unrelated business income and no temporary differences resulting in deferred taxes as of December 31, 2018 and 2017.

The Alliance is required to measure, recognize, present, and disclose in its financial statements uncertain income tax positions the Alliance has taken in the tax years that remain subject to examination or expects to take on an income tax return. The Alliance recognizes the tax benefits from uncertain income tax positions only if it is more likely than not the tax position will be sustained on examination by tax authorities. The Alliance recorded no liability for uncertain income tax positions for any open tax years.

Subsequent Events

The Alliance has evaluated subsequent events through August 19, 2019, which is the date the financial statements were available to be issued.

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2018 AND 2017

NOTE 3 - CONCENTRATIONS OF CREDIT RISK

The Alliance has exposure to credit risk on its cash and investments held in broker-managed accounts. The assets are insured by the Securities Investor Protection Corporation (SIPC), which protects investors for up to \$500,000 including a maximum of \$250,000 for claims of cash if the brokerage firm holding the assets becomes insolvent, but it does not insure the underlying assets of \$9,151,550 as of December 31, 2018. Management does not consider this a significant concentration of credit risk.

NOTE 4 - PROGRAM SERVICES

The NORA Public Law 113-79 places requirements on how the Alliance can spend the assessments it collects. At the beginning of each year, the Alliance makes an estimate of what total assessments are anticipated to be in the coming year. Grants are made to state organizations and national campaigns are undertaken based on the estimates. Actual assessments revenue differ from the estimates. The difference between the estimates and actual assessments are to be reflected in the grants made in future years. The law establishes strict percentage allocations for program spending and these percentages are tied to the revenue received from assessments. Management has developed procedures to ensure these percentages are reflected in budgets and carried forward as appropriate. Variances between the percentages disclosed in the program descriptions below are descriptive of the current year's operations and management believes they do not indicate non-compliance with the statute.

Research, Development, and Demonstration

The NORA Public Law 113-79 requires the Alliance to ensure not less than 30 percent of the assessments collected for each calendar year under the NORA Public Law 113-79 are used by qualified state associations or the Alliance to conduct research, development, and demonstration activities relating to oilheat fuel, including the development of energy-efficient heating systems to be placed into the marketplace. This also includes the Alliance, in conjunction with an institution or organization engaged in biofuels research, to develop consumer education materials describing the benefits of using biofuels as or in oilheat fuel based on the technical information developed.

In 2018, the Alliance granted or expended \$1,928,697 for the research, development, and demonstration program, including \$1,214,790 in grants and spending of past year's assessments revenue. The Alliance also budgeted \$2,100,000 in additional national spending from 2018 assessments revenue to be spent subsequent to year-end for the research, development, and demonstration program, making the total for 2018, 30 percent of net assessments revenue. Additionally, unallocated state rebates of 2018 assessments revenue will be used for the research, development, and demonstration program.

Heating Oil Efficiency and Upgrade

The NORA Public Law 113-79 requires the Alliance to ensure not less than 15 percent of the assessments collected for each calendar year under the NORA Public Law 113-79 are used by qualified state associations or the Alliance to carry out programs to assist consumers (i) to make cost-effective upgrades to more fuel efficient heating oil systems or otherwise make cost-effective modifications to an existing heating system to improve the efficiency of the system, (ii) to improve energy efficiency or reduce energy consumption through cost-effective energy efficiency programs for consumers, or (iii) to improve the safe operation of a heating system.

In 2018, the Alliance granted or expended \$1,394,446 for the heating oil efficiency and upgrade program, including \$67,723 in grants and spending of past year's assessments revenue. The Alliance also budgeted \$80,000 in additional national spending from 2018 assessments revenue to be spent subsequent to year-end for the heating oil efficiency and upgrade program, making the total for 2018, 15 percent of net assessments revenue. Additionally, unallocated state rebates of 2018 assessments revenue will be used for the heating oil efficiency and upgrade program.

NOTES TO FINANCIAL STATEMENTS
DECEMBER 31, 2018 AND 2017

NOTE 4 - PROGRAM SERVICES (continued)Consumer Education, Safety, and Training

The NORA Public Law 113-79 requires the Alliance to ensure not more than 30 percent of the assessments collected for each calendar year under the NORA Public Law 113-79 are used (i) to conduct consumer education activities relating to oilheat fuel, including providing information to consumers on energy conservation strategies, safety, new technologies that reduce consumption or improve safety and comfort, the use of biofuel blends, and federal, state, and local programs designed to assist oilheat fuel consumers, (ii) to conduct worker safety and training activities relating to oilheat fuel, including energy efficiency training, (iii) to carry out other activities recommended by the Secretary of Energy, or (iv) to establish a data collection process to track equipment, service, and related safety issues to develop measures to improve safety.

In 2018, the Alliance granted or expended \$2,791,730 for the consumer education, safety, and training program, including \$30,691 in grants and spending of past year's assessments revenue. The Alliance also budgeted \$309,010 in additional national spending from 2018 assessments revenue for the consumer education, safety, and training program, of which \$11,457 remained unspent as of December 31, 2018, making the total for 2018, 30 percent of net assessments revenue.

Unallocated State Rebates

In addition to the specific program commitments discussed previously, the Alliance has committed \$1,942,501, which is 21 percent of net 2018 assessment revenue, for state rebates that have not yet been allocated to a program specified in the NORA Public Law 113-79. The Alliance plans to allocate these state rebates to the research, development, and demonstration and/or heating oil efficiency and upgrade programs. State organizations develop detailed plans for use of the rebates to do work under these programs. These funds will be allocated between programs in accordance with the requirements of NORA Public Law 113-79 as discussed previously.

NOTE 5 - ADMINISTRATIVE EXPENSE CAP

NORA Public Law 113-79 requires the Alliance to limit expenditures for "Administrative" costs to 5 percent of revenue generated by assessment remittances beginning April 1, 2014. In 2018, the Alliance expended \$231,756 for Administrative expenses, which was 3 percent of net assessments revenue in the year ended December 31, 2018. In 2017, the Alliance expended \$195,263 for Administrative expenses, which was 2 percent of net assessments revenue in the year ended December 31, 2017. Thus, management believes the Alliance is in compliance with this provision of NORA Public Law 113-79.

NOTE 6 - STATE GRANTS PAYABLE AND OBLIGATION FOR UNALLOCATED REBATES

Under NORA Public Law 113-79, the Alliance has entered into various agreements with state organizations, which may require periodic payment of grant funds. The outstanding grant liability by program is as follows as of December 31:

	2018	2017
Research, development, and demonstration	\$ 1,146,035	\$ 994,231
Heating oil efficiency and upgrade	874,895	1,247,501
Consumer education, safety, and training	1,063,614	1,147,358
Unallocated state rebates	<u>1,988,799</u>	<u>2,615,817</u>
Total state grants payable and obligations for unallocated rebates	<u>\$ 5,073,343</u>	<u>\$ 6,004,907</u>

NATIONAL OILHEAT RESEARCH ALLIANCE, INC.

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2018 AND 2017

NOTE 7 - COLLECTION COSTS

The Alliance has developed an audit system for collections compliance and has the legal authority to conduct audits to ensure member compliance. Collection costs include the costs incurred to process annual assessments, to publicize the collection system, and to ascertain compliance as stipulated by NORA Public Law 113-79. Assessment and collection costs were \$135,230 and \$179,944 for the years ended December 31, 2018 and 2017, respectively.

NOTE 8 - FINANCIAL ASSETS AND LIQUIDITY

Financial assets available within one year for operations that are not subject to restrictions that make them unavailable for general operations as of December 31, were as follows:

	<u>2018</u>	<u>2017</u>
Cash	\$ 9,151,550	\$ 9,343,450
Assessments receivable due within one year	3,086,323	2,987,247
Prepaid state assessments	137,970	217,360
Other current assets	74,509	9,986
Less: state grants payable	(3,084,544)	(3,389,090)
Less: obligation for unallocated state rebates	(1,988,799)	(2,615,817)
Less: designated net assets for national spending not yet incurred	<u>(5,549,631)</u>	<u>(4,671,378)</u>
Total financial assets available within one year for operations	<u>\$ 1,827,378</u>	<u>\$ 1,881,758</u>

The Alliance has a budgetary process to develop estimates and make grant payables to comply with NORA Public Law 113-79 and NORA Public Law 115-334. Liquid assets are maintained in cash accounts to minimize risk of loss.

NOTE 9 - NET ASSETS

Pre-2014 Reauthorization Designated Net Assets

As discussed previously, NORA Public Law 113-79 became effective April 1, 2014. The Alliance designated the remaining net assets under the former NORA Public Law 106-469 for use in a national oilheat education program. As of December 31, 2018 and 2017, \$55,933 remained unspent and are designated for future use.

State Grants and Rebates Made After Year-End Designated Net Assets

The Alliance establishes a budget for net assessments revenue and makes state grants and obligations for state rebates based on this budget. Actual results were not substantially different than this initial budget.

National Spending Not Yet Incurred Designated Net Assets

Included within the budget is \$5,549,631 and \$4,671,378 in national spending of assessments revenue, which had not yet been incurred as of December 31, 2018 and 2017, respectively. The Alliance has designated net assets in these amounts for future program spending, some of which, the Alliance has approved contracts to expend.

NATIONAL OILHEAT RESEARCH ALLIANCE, INC.

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2018 AND 2017

NOTE 9 - NET ASSETS (continued)

Net Assets Available for Obligation - Other Than For Consumer Education, Safety, and Training

The amount reported as net assets without donor restrictions available for obligation - other than for consumer education, safety, and training are the net amounts available for future obligation for all purposes other than consumer education, safety, and training, since NORA Public Law 113-79 has placed limits on the use of assessments revenue from consumer education, safety, and training.

NOTE 10 - COMMITMENTS AND CONTINGENCIES

The Alliance has entered into operating lease agreements for office space and a liquid fuels research center. Total rent expense under these leases was \$95,413 and \$99,795 for the years ended December 31, 2018 and 2017, respectively. Subsequent to December 31, 2018, the Alliance extended this lease through December 31, 2025. Future minimum lease payments are as follows for the years ending December 31:

2019	\$ 82,121
2020	84,584
2021	100,998
2022	104,028
2023	107,149
2024	110,364
2025	<u>113,674</u>
Total future minimum lease payments	<u>\$ 702,918</u>

From time to time, the Alliance may receive inquiries from government agencies, because of the nature of its funding sources. Management does not expect the result of such inquiries to impact the financial information of the Alliance.

NOTE 11 - RETROSPECTIVE IMPLEMENTATION OF NEW STANDARD

In the year ended December 31, 2018, the Alliance retrospectively implemented Accounting Standards Update (ASU) No. 2016-14, *Not-for-Profit Entities (Topic 958): Presentation of Financial Statements of Not-for-Profit Entities*. This standard is intended to improve the net asset classification and the information presented in the financial statements and notes about a not-for-profit organization's liquidity, financial performance, net assets, cash flows, and expenses. As a result of this implementation, the Alliance renamed unrestricted net assets to net assets without donor restrictions.

NATIONAL OILHEAT RESEARCH ALLIANCE, INC.

SUPPLEMENTAL SCHEDULE OF EXPENSES BY STATE/JURISDICTION -
RESEARCH, DEVELOPMENT, AND DEMONSTRATION
FOR THE YEAR ENDED DECEMBER 31, 2018

	Amounts Granted/ Expended in 2018	2018 State Grants Made After Year-End	2018 National Spending Not Yet Incurred	Total
STATE GRANTS-				
Connecticut	\$ 87,827	\$ -	\$ -	\$ 87,827
Delaware	4,460	-	-	4,460
Idaho	346	-	-	346
Indiana	906	-	-	906
Kentucky	9,950	-	-	9,950
Maine	48,714	-	-	48,714
Maryland	22,792	-	-	22,792
Massachusetts	90,540	-	-	90,540
Michigan	15,209	-	-	15,209
Nevada	187	-	-	187
New Hampshire	31,904	-	-	31,904
New Jersey	41,204	-	-	41,204
New York -				
NYOHA	41,755	-	-	41,755
UNYEA	32,780	-	-	32,780
HVOEC	19,252	-	-	19,252
OHILI	36,292	-	-	36,292
North Carolina	24,037	-	-	24,037
Ohio	19,151	-	-	19,151
Pennsylvania	95,746	-	-	95,746
Rhode Island	19,350	-	-	19,350
South Carolina	10,045	-	-	10,045
Virginia	22,381	-	-	22,381
Vermont	18,815	-	-	18,815
Washington	3,499	-	-	3,499
Washington, D.C.	227	-	-	227
Wisconsin	16,537	-	-	16,537
NATIONAL	<u>1,214,791</u>	<u>-</u>	<u>2,100,000</u>	<u>3,314,791</u>
TOTAL STATE GRANTS AND NATIONAL SPENDING	<u>\$ 1,928,697</u>	<u>\$ -</u>	<u>\$ 2,100,000</u>	<u>\$ 4,028,697</u>

In addition to these amounts, the unallocated state rebates detailed in the accompanying supplemental schedule of expenses by state/jurisdiction - unallocated state rebates will be used for either this program or for the heating oil efficiency and upgrade program.

NATIONAL OILHEAT RESEARCH ALLIANCE, INC.

SUPPLEMENTAL SCHEDULE OF EXPENSES BY STATE/JURISDICTION -
HEATING OIL EFFICIENCY AND UPGRADE
FOR THE YEAR ENDED DECEMBER 31, 2018

	Amounts Granted/ Expended in 2018	2018 State Grants Made After Year-End	2018 National Spending Not Yet Incurred	Total
STATE GRANTS-				
Connecticut	\$ 163,218	\$ -	\$ -	\$ 163,218
Delaware	8,289	-	-	8,289
Idaho	643	-	-	643
Indiana	1,684	-	-	1,684
Kentucky	18,491	-	-	18,491
Maine	90,529	-	-	90,529
Maryland	42,356	-	-	42,356
Massachusetts	168,259	-	-	168,259
Michigan	28,265	-	-	28,265
Nevada	348	-	-	348
New Hampshire	59,291	-	-	59,291
New Jersey	76,573	-	-	76,573
New York -				
NYOHA	77,598	-	-	77,598
UNYEA	60,918	-	-	60,918
HVOEC	35,777	-	-	35,777
OHILI	67,445	-	-	67,445
North Carolina	44,670	-	-	44,670
Ohio	35,590	-	-	35,590
Pennsylvania	177,934	-	-	177,934
Rhode Island	35,960	-	-	35,960
South Carolina	18,668	-	-	18,668
Virginia	41,593	-	-	41,593
Vermont	34,966	-	-	34,966
Washington	6,503	-	-	6,503
Washington, D.C.	421	-	-	421
Wisconsin	30,733	-	-	30,733
NATIONAL	<u>67,724</u>	<u>-</u>	<u>80,000</u>	<u>147,724</u>
TOTAL STATE GRANTS AND NATIONAL SPENDING	<u>\$ 1,394,446</u>	<u>\$ -</u>	<u>\$ 80,000</u>	<u>\$ 1,474,446</u>

In addition to these amounts, the unallocated state rebates detailed in the accompanying supplemental schedule of expenses by state/jurisdiction - unallocated state rebates will be used for either this program or for the research, development, and demonstration program.

NATIONAL OILHEAT RESEARCH ALLIANCE, INC.

SUPPLEMENTAL SCHEDULE OF EXPENSES BY STATE/JURISDICTION -
CONSUMER EDUCATION, SAFETY, AND TRAINING
FOR THE YEAR ENDED DECEMBER 31, 2018

	Amounts Granted/ Expended in 2018	2018 State Grants Made After Year-End	2018 National Spending Not Yet Incurred	Total
STATE GRANTS-				
Connecticut	\$ 303,066	\$ -	\$ -	\$ 303,066
Delaware	15,392	-	-	15,392
Idaho	1,194	-	-	1,194
Indiana	3,128	-	-	3,128
Kentucky	34,335	-	-	34,335
Maine	168,096	-	-	168,096
Maryland	78,648	-	-	78,648
Massachusetts	312,428	-	-	312,428
Michigan	52,483	-	-	52,483
Nevada	647	-	-	647
New Hampshire	110,093	-	-	110,093
New Jersey	142,182	-	-	142,182
New York -				
NYOHA	144,084	-	-	144,084
UNYEA	113,113	-	-	113,113
HVOEC	66,431	-	-	66,431
OHILI	125,232	-	-	125,232
North Carolina	82,945	-	-	82,945
Ohio	66,085	-	-	66,085
Pennsylvania	330,392	-	-	330,392
Rhode Island	66,772	-	-	66,772
South Carolina	34,663	-	-	34,663
Virginia	77,230	-	-	77,230
Vermont	64,926	-	-	64,926
Washington	12,074	-	-	12,074
Washington, D.C.	782	-	-	782
Wisconsin	57,066	-	-	57,066
NATIONAL	<u>328,243</u>	<u>-</u>	<u>11,457</u>	<u>339,700</u>
TOTAL STATE GRANTS AND NATIONAL SPENDING	<u>\$ 2,791,730</u>	<u>\$ -</u>	<u>\$ 11,457</u>	<u>\$ 2,803,187</u>

See independent auditor's report.

NATIONAL OILHEAT RESEARCH ALLIANCE, INC.

SUPPLEMENTAL SCHEDULE OF EXPENSES BY STATE/JURISDICTION -
UNALLOCATED STATE REBATES
FOR THE YEAR ENDED DECEMBER 31, 2018

	Amounts Granted/ Expended in 2018	2018 State Rebates After Year-End	2018 National Spending Not Yet Incurred	Total
UNALLOCATED STATE REBATES-				
Connecticut	\$ 238,972	\$ -	\$ -	\$ 238,972
Delaware	12,137	-	-	12,137
Idaho	942	-	-	942
Indiana	2,466	-	-	2,466
Kentucky	27,074	-	-	27,074
Maine	132,547	-	-	132,547
Maryland	62,015	-	-	62,015
Massachusetts	246,355	-	-	246,355
Michigan	41,383	-	-	41,383
Nevada	510	-	-	510
New Hampshire	86,810	-	-	86,810
New Jersey	112,113	-	-	112,113
New York -				
NYOHA	113,613	-	-	113,613
UNYEA	89,192	-	-	89,192
HVOEC	52,382	-	-	52,382
OHILI	98,748	-	-	98,748
North Carolina	65,404	-	-	65,404
Ohio	52,109	-	-	52,109
Pennsylvania	260,519	-	-	260,519
Rhode Island	52,651	-	-	52,651
South Carolina	27,332	-	-	27,332
Virginia	60,897	-	-	60,897
Vermont	51,195	-	-	51,195
Washington	9,521	-	-	9,521
Washington, D.C.	617	-	-	617
Wisconsin	44,997	-	-	44,997
TOTAL UNALLOCATED STATE REBATES	<u>\$ 1,942,501</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 1,942,501</u>

These unallocated state rebates will be allocated to either the research, development, and demonstration or the heating oil efficiency and upgrade programs based on detailed plans for use of the rebates to be submitted by the states.

National Oilheat Research Alliance
Statement of Activities
For the Seven Months Ending July 31, 2019

	July 2019	YTD 2019	2019 Budget	Remaining	YTD 2018
INCOME					
Collections and Assessments					
Collections	\$1,505,875.62	\$5,866,445.15	\$7,446,757.00	\$1,580,311.85	\$5,918,086.14
Remittance Accrual	0.00	0.00	0.00	0.00	0.00
Refunds	(85,214.64)	(507,866.16)	0.00	507,866.16	(641,035.81)
Collection Costs	(7,696.08)	(60,632.60)	(100,000.00)	(39,367.40)	(50,874.25)
Net Collections	1,412,964.90	5,297,946.39	7,346,757.00	2,048,810.61	5,226,176.08
In Kind Contributions					
Sales Revenue	0.00	2,429.74	0.00	(2,429.74)	2,033.84
Other Revenue (Grants, etc)	225,150.00	451,630.70	0.00	(451,630.70)	2,531.71
Total Income	1,638,114.90	5,752,006.83	7,346,757.00	1,594,750.17	5,230,741.63
PROGRAM EXPENSES					
Consumer Education and Training (Max. 30%)					
Education and Training (Central)	7,228.47	1,965,513.98	2,107,333.56	141,819.58	2,669,777.42
Education and Training (States)	0.00	128,180.42	270,000.00	141,819.58	205,703.96
		1,837,333.56	1,837,333.56	0.00	2,464,073.46
Research Development and Demonstration (Min. 30%)					
Research Development and Demonstration (Central)	59,043.52	1,229,616.80	2,204,025.67	974,408.87	1,386,986.84
Research Development and Demonstration (States)	59,043.52	675,591.13	1,650,000.00	974,408.87	672,908.97
	0.00	554,025.67	554,025.67	0.00	714,077.87
Home Energy Efficiency Program (Min. 15%)					
Home Energy Efficiency Program (Central)	7,402.06	1,072,603.41	1,102,010.92	29,407.51	1,368,886.63
Home Energy Efficiency Program (States)	7,402.06	45,592.49	75,000.00	29,407.51	41,847.20
	0.00	1,027,010.92	1,027,010.92	0.00	1,327,039.43
Total Central	73,674.05	849,364.04	1,995,000.00	1,145,635.96	920,460.13
Total States	0.00	3,418,370.15	3,418,370.15	0.00	4,505,190.76
State Rebates	144,371.45	1,811,657.07	1,618,085.09	(193,571.98)	2,023,968.71
Old Grant Advertising	0.00	0.00	0.00	0.00	0.00
Office Unallocated Expenses					
Salaries and Consulting (Admin)	6,241.72	60,637.28	100,000.00	39,362.72	80,095.69
Accounting (Admin)	2,876.88	19,218.99	30,000.00	10,781.01	18,264.88
Insurance (Admin)	1,860.09	11,433.20	18,000.00	6,566.80	6,826.91
Taxes	33.84	1,500.25	3,000.00	1,499.75	1,980.23
Postage	0.00	0.00	500.00	500.00	40.51
Web Pages	1,517.61	15,728.26	30,000.00	14,271.74	9,410.90
Annual Report	735.81	30,779.12	45,000.00	14,220.88	38,815.13
Rent and Telephone	1,495.60	10,918.16	24,000.00	13,081.84	9,901.74
Travel	0.00	696.44	1,000.00	303.56	0.00
Meeting Expenses	0.00	0.00	2,000.00	2,000.00	0.00
Office Supplies	7.86	847.38	2,000.00	1,152.62	408.04
Dues & Memberships	0.00	139.98	100.00	(39.98)	0.00
Bank Fees	461.56	3,720.63	6,000.00	2,279.37	4,152.54
Legal Expense	1,600.00	11,720.59	5,000.00	(6,720.59)	0.00
Professional Fees	0.00	2,190.50	3,000.00	809.50	2,760.25
Misc Expense	0.00	0.00	1,000.00	1,000.00	0.00
Advertising Expense	0.00	0.00	1,000.00	1,000.00	0.00
Fixed Assets <\$1,000	0.00	0.00	1,000.00	1,000.00	0.00
Equipment Maintenance	0.00	0.00	5,000.00	5,000.00	0.00
Bad Debts	0.00	0.00	1,000.00	1,000.00	0.00
Total Unallocated Expenses	16,830.97	169,530.78	278,600.00	109,069.22	172,656.82
Other Expenses/(Income)					
Cost of Goods Sold	202.63	4,224.38	0.00	(4,224.38)	2,901.89
Interest Expense	0.00	0.00	0.00	0.00	0.00
Interest	(8,577.66)	(48,572.76)	(60,000.00)	(11,427.24)	(36,317.84)
Total Other Expenses/(Income)	(8,375.03)	(44,348.38)	(60,000.00)	(15,651.62)	(33,415.95)
Net Revenue/(Expense)	1,411,613.46	(452,566.83)	96,701.76	549,268.59	(2,358,118.84)

Restricted for Management's Use Only
See Accountants' Compilation Report

National Oilheat Research Alliance
Statement of Financial Position
July 31, 2019

	2019	2018
ASSETS		
CURRENT ASSETS:		
Cash and Cash Equivalents	\$13,173,968.39	\$11,353,757.71
Accounts Receivable	42,608.57	0.00
Assessments and Other Receivables	235,362.20	43,237.67
Security Deposit	24,514.18	21,146.10
Prepaid Assets	24,593.70	14,639.07
Total Current Assets	13,501,047.04	11,432,780.55
PROPERTY AND EQUIPMENT		
Office Furniture and Equipment	66,849.15	66,849.15
Website	45,450.00	45,450.00
Computer Equipment	3,819.34	2,778.64
Less: Accumulated Depreciation	(67,333.86)	(51,367.83)
Less: Accumulative Amortization (Web Site)	(43,862.49)	(34,772.49)
Total Property and Equipment	4,922.14	28,937.47
TOTAL ASSETS	\$13,505,969.18	\$11,461,718.02
LIABILITIES AND NET ASSETS		
CURRENT LIABILITIES:		
State Rebate Obligations 2014	11,385.02	42,586.13
State Rebate Obligations 2015	192,479.27	310,829.40
State Rebate Obligations 2016	294,427.26	737,198.17
State Rebate Obligations 2017	648,287.93	2,427,122.09
State Rebate Obligations 2018	2,155,114.57	4,976,562.24
State Rebate Obligations 2019	4,042,295.93	0.00
Total Grants Payable	7,343,989.98	8,494,298.03
Accrued Salaries & Benefits	41,343.65	19,682.12
Reserve for BIO Diesel Testing	764.35	764.35
Accounts Payable	294,569.54	127,006.45
Contracts Payable	0.00	3,153.00
Accrued Expenses	29,527.87	16,502.35
Total Current Liabilities	\$7,710,195.39	\$8,661,406.30
NET ASSETS:		
Unrestricted Net Assets	(850,780.96)	(2,439,062.04)
Pre-2014 Reauthorization Net Assets	55,933.05	55,933.05
National Spending Not Yet Incurred		
Research, Development, and Demonstration - net yet obligated	6,012,993.39	4,320,322.31
Research, Development, and Demonstration - obligated under contract	271,904.00	465,610.00
Heating Oil Efficiency and Upgrade - net yet obligated	152,447.46	180,379.93
Consumer Education, Safety, and Training - net yet obligated	153,276.85	217,128.47
Total Net Assets	5,795,773.79	2,800,311.72
TOTAL LIABILITIES AND NET ASSETS	\$13,505,969.18	\$11,461,718.02

Restricted for Management's Use Only
See Accountants' Compilation Report

Budget 2020 - 2021

July 2019

The National Oilheat Research Alliance Act of 2000 (Public Law 106-469) as amended by P.L. 113-79 requires the National Oilheat Research Alliance (the Alliance) to publish a biennial budget for public comment before August 1st of 2014 and every two years thereafter. . That budget shall include the probable costs of all programs, projects, and contracts and other agreements.

Following public review and comment, the Alliance is required to submit a proposed budget to the Secretary of Energy and to the Congress.

Part I. Assessment Rate and Income

The Alliance has one primary sources of income. The federally authorized assessment on Oilheat sold in the states participating in NORA at \$.002 per gallon. The Alliance also receives interest income on the investment of assessment funds. Additionally, the Alliance realizes revenue from the sale of books and other educational resources, and expects to receive revenue from the provision of studies. Further, NORA periodically enters into contracts with other research organizations to conduct studies.

Assessment Collections

The Alliance estimates that revenues from assessments will be **\$8,912,020 in 2020**. Similarly, the 2021 revenue from collections was placed at **\$8,644,660**. These calculations are based on normalizing the most recent year's collections for weather, and then reducing by 3 percent per annum to accommodate conservation and loss of customers. The 2021 budget is based on a full year of operation. To ensure the appropriate allocations to the accounts established by Congress are in line with actual collections, NORA adjusts the rebates to the states at the conclusion of the audit. Reductions or overages are generally made to the state rebates in the next year. This ensures that with the central budget and the state budget, Congressional allocations are followed.

The Alliance expects to receive interest of \$60,000 in 2020 and \$60,000 in 2021. NORA expects no continuing revenue from book sales as the publications are now printed and distributed independently and NORA distributes the materials with no expectation of revenue.

NORA will also be making it a priority to work with other organizations and provide services that benefit the oilheating industry. NORA anticipates that partnerships with organizations such as the National Biodiesel Board and New York State Energy Research and Development Authority (NYSERDA) may provide as much as \$100,000 per year in 2020 and 2021.

Escrow

The Congressional Budget Office changed the scoring rules for programs like NORA since its inception in 2000. To ensure the program did not impact the deficit, the law requires that 25 percent of the funds be placed into escrow, and that those funds cannot be obligated or spent until October 1, 2028. This escrow will significantly curtail operations, and the reduced amounts are reflected in this budget.

Part II. General Expenditures and Capital Investments

Office Unallocated Expenses in 2020 are anticipated to be \$ 412,500 and include salaries and other expenses related to administering the program, insurance, accounting fees and rent. This figure will rise by \$9,445 in 2021. It should be noted that several of the unallocated expenses are not Administrative including the preparation of the annual report. However, the total of all unallocated expenses is could be allocated, but NORA believes this presentation is the most appropriate. The expenditures will thus be approximately 6.3% and 6.5% of the program's collections after the escrow. Thus, they will be within the statutory cap of 7%.

Assessments and Collections.

The Alliance anticipates expenditures of **\$90,000** for collection expenses in 2020 and 2021. These costs include processing of collections, publicizing the collection system, maintaining lists, and providing attorney's fees to ensure that the system is effective. It also includes expenses associated with refunds, and audit costs. These expenses reflect actual costs in previous years.

Part III. State Rebates

The Alliance has endeavored to ensure that the funds generated benefit consumers and the oilheat industry. The limitation on Administration contained in the Act and the current status of the industry also indicates that allowing local decision-making is the best way to maximize value. To that end, the Alliance therefore intends to return a substantial portion of the funds for use in the state where they are generated. In 2020, this is anticipated to be \$4,752,515 and in 2021, it will be \$4,540,249. The states will use these funds to accomplish many of the goals described herein, and will be within the statutory directives and their spending will match congressional allocations.

Part IV. Program and Project Expenditures

The Act requires the Alliance to develop programs, and projects and enter into contracts or other agreements with other persons and entities for implementing this title.

The Act is designed to benefit consumers of Oilheat by allowing the industry to develop appropriate programs of consumer education, energy efficiency, research and development and education and training to benefit consumers.

This budget document will determine all spending. The Executive Committee of the Alliance and the Alliance will be responsible for reviewing contracts and approving them as appropriate and implementing this budget.

Education and Training and Consumer Education.

The Act requires the Alliance to enhance consumer and employee safety and training and provide consumer education. The total expenses available for these activities are \$2,008,205 in 2020 and \$1,918,048 in 2021. Of these expenditures the Alliance is proposing to budget \$280,000 to be administered by the national office in each year. The national office will be producing and maintaining an online training center with these funds. In-person training is often the preferred method of training; however, many technicians are in remote areas and have limited access to training. Having a training center that can provide training, maintain student records and outreach to students is critical. NORA transitioned its existing learning site in 2015, and will continue to add content. NORA will also be revising its main Technician Manual which is the basis of the Silver Certification program. NORA will also explore what other Gold Training programs in addition to Hydronics that can be put online.

The states affiliated with NORA will be provided with \$1,728,205 for 2020 and \$1,638,048 in 2021. The states will develop internal budgets based on these allocations. The states will focus most of their funding on basic technician education. Extended management training to improve overall service and improve the oilheat consumer experience will also be developed and used.

Technician Certification Program

The Alliance will continue to improve its Technician Certification program. Recognizing excellence is a vital part of improving employee training which leads to improved consumer value and safety. To this end, the Alliance is continuously improving the website, training materials and the certification tests.

New Training Materials.

The Alliance will continue to develop training materials and course materials for the industry. NORA will continue to conduct Train-the-Trainer programs for the Gold and Silver program. NORA is working on online presentations of the subject areas of its expanded gold program, steam, hydronics, venting, advanced controls, air flow for warm air systems, and energy efficiency.

State Rebates

A significant portion of the Alliance generated funds will be returned to the states in conformance with the law to accomplish the objectives of the Act. The states will implement many of the programs described above. Providing in field training for technicians

is critical.

Several of the states operate full time training facilities used by the industry. These include Maine, Vermont, Connecticut, New York, and Pennsylvania. The remaining states use the funds to do periodic training at temporary facilities.

Additionally, the states may allocate a portion of this to traditional consumer education activities using traditional media such as broadcast television and radio, and a limited amount of internet communications. Using broadcast media allows the industry to provide a small bit of information to consumers which might help them make decisions regarding oilheat fuel. These consumer education activities will also provide information on energy efficiency and improvements to the equipment.

Research and Development

The Act requires the Alliance to provide for research, development, and demonstration of clean and efficient oilheat utilization equipment. The Alliance anticipates expending approximately \$2,078,205 being directly allocated to research and development activities in 2020, and \$2,018,048 in 2021. Of this, \$1,270,000 will be directly funded by the central office. Additionally, there will be rebates to the states of \$808,204 in 2020 and \$748,048 in 2021 that can be used by the states for either research and development or transitioning equipment to higher efficiency, or the support of biofuels. At a minimum, the research and development program will be 30% of the budget..

NORA is now operating a research and development laboratory in New York. Staffing for that includes a full time director, as well as 2 research engineers, and a supporting technical expert. Additionally, NORA will continue to fund and develop new projects based on its research review meeting which established priorities for the industry, including biofuels, controls, novel burner technologies, and new appliances.

Under the revised statute, there are additional responsibilities which include the transition and facilitation of the entry of energy efficient heating systems into the marketplace. A report on biofuels in oilheat fuel utilization equipment, and the development of consumer education materials describing the benefits of using biofuels in oilheat fuel is also a core function of research and development in the act. It is likely that the states will use their funds to facilitate these two objectives.

NORA anticipates that the core of its fundamental research will occur at the NORA laboratory in Plainview New York, while more product development projects will occur through funded projects. NORA will continue to work with the New York State Energy Research and Development Authority and the National Biodiesel Board.

Energy Efficiency

The Act also includes a requirement on “Heating Oil Efficiency and Upgrade Program. The Alliance has budgeted \$989,102 in 2020 and \$959,024 in 2021.

There are three main tasks under this section, and at least 15 percent of the assessments shall be used to assist consumers to

- 1) Make cost effective upgrades to more fuel efficient modifications to an existing heating system or otherwise make cost-effective modifications to an existing heating system to improve the efficiency of the system.
- 2) To improve energy efficiency or reduce energy consumption through cost-effective energy efficiency programs for consumers, or
- 3) To improve the safe operation of the system

In carrying out this section, the Alliance shall to the maximum extent practicable coordinate, develop and implement the programs and activities of the Alliance in conjunction with an existing state energy efficiency program administrator.

The amount of funding in states will limit the amount of planning that is likely to occur. NORA believes that developing a series of programs that meets the goals of this section will be essential, and then each state affiliate will be able to work to the maximum extent practicable with its state energy efficiency administrator to develop the best plan for that state. Preliminary discussion have indicated that better understanding of efficiency and appropriate tools to measure and improve efficiency in the home, tune-ups of existing equipment, and setback thermostats may all be invaluable in fulfilling this task. States have also had robust rebate programs. However, the 25 percent cutback will impact those programs.

States will receive \$929,102 in 2020 and 899,024 in 2021 to carry out and implement energy efficiency program activities.

State Rebates

NORA’s Board has indicated a continued desire to utilize the state resources to implement the program. Thus, funds not specifically allocated to programs in accordance with this budget will be subject to the decision making of the states. Currently, \$1,287,004 in 2020, and \$1,255,128 in 2021.

Central Office Expenses

The budget provides for \$391,500 to be spent on the management of the Alliance and compliance with specific program objectives in 2020, and \$403,245 in 2021. These include the provision of the Annual report, and the verification of said report. These numbers have increased to include all legal expenses and a greater proportion of salaries.

Part V. Budget Summary

The following pages provides an income statement for 2020 and 2021. The board has directed that the allocations to the states be adjusted annually based on the collections in the prior year. This is a formulaic adjustment and will occur in the spring of 2020, which will be implemented in 2021.

	2020	2021
<i>INCOME</i>		
<i>Collections and Assessments</i>		
Collections	8,912,020.	8,644,659
Remittance Accrual		
Refunds		
Escrow	2,228,005	- 2,161,164
Collection Costs	(90,000)	(90,000)
<i>Net Collections</i>	6,594,015	6,393,494
<i>In Kind Contributions</i>		
Sales Revenue		
Other Revenue (Grants, etc)	100,000	100,000
<i>Total Income</i>	6,694,015	6,493,494
<i>PROGRAM EXPENSES</i>		
<i>Consumer Education and Training (Max. 30%)</i>	2,008,204	- 1,918,048
Education and Training (Central)	280,000	280,000
Education and Training (States)	1,728,204	1,638,048
<i>Research Development and Demonstration (Min. 30%)</i>	2,078,204	2,018,048
Research Development and Demonstration (Central)	1,270,000	1,270,000
Research Development and Demonstration (States)	808,204	748,048
<i>Home Energy Efficiency Program (Min. 15%)</i>	989,102	959,024
Home Energy Efficiency Program (Central)	60,000	60,000
Home Energy Efficiency Program (States)	929,102	899,024
<i>Total Program Expenses</i>	5,075,511	4,895,121
<i>Total States</i>		
<i>State Rebates</i>	1,266,003	- 1,233,498
<i>Old Grant Advertising</i>		
<i>Office Unallocated Expenses</i>		

Salaries and Consulting (Admin)	165,000	169,950
Accounting (Admin)	35,000	36,050
Insurance (Admin)	15,000	15,450
Taxes	3,000	3,090
Postage	1,500	1,545
Web Pages	15,000	15,450
Annual Report	45,000	46,350
Rent and Telephone	20,000	20,600
Travel	1,000	1,030
Meeting Expenses	3,000	3,090
Office Supplies	1,000	1,030
Dues & Memberships	1,000	1,030
Bank Fees	6,000	6,180
Legal Expense	96,000	98,880
Equipment Consulting	5,000	5,150

<i>Total Unallocated Expenses (7 Percent Cap)</i>	412,500	424,875
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Other Expenses/(Income)

Cost of Goods Sold		
Interest Expense		
Interest	60,000	60,000

<i>Total Other Expenses/(Income)</i>	(60,000)	(60,000)
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<i>Net Revenue/(Expense)</i>	0	0
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2020

			Education and Training	Research and Development	Energy Efficiency	Rebates
			\$1,728,204.00	\$808,205.00	\$929,102.00	\$1,287,004.00
Connecticut	10.64%		\$183,880.91	\$85,993.01	\$98,856.45	\$136,937.23
District of Columbia	0.10%		\$1,728.20	\$808.21	\$929.10	\$1,287.00
Delaware	0.43%		\$7,431.28	\$3,475.28	\$3,995.14	\$5,534.12
Indiana	0.13%		\$2,246.67	\$1,050.67	\$1,207.83	\$1,673.11
Kentucky	0.86%		\$14,862.55	\$6,950.56	\$7,990.28	\$11,068.23
Massachusetts	11.36%		\$196,323.97	\$91,812.09	\$105,545.99	\$146,203.65
Maryland	3.11%		\$53,747.14	\$25,135.18	\$28,895.07	\$40,025.82
Maine	6.80%		\$117,517.87	\$54,957.94	\$63,178.94	\$87,516.27
Michigan	2.75%		\$47,525.61	\$22,225.64	\$25,550.31	\$35,392.61
North Carolina	2.96%		\$51,154.84	\$23,922.87	\$27,501.42	\$38,095.32
New Hampshire	4.31%		\$74,485.59	\$34,833.64	\$40,044.30	\$55,469.87
New Jersey	8.33%		\$143,959.39	\$67,323.48	\$77,394.20	\$107,207.43
Nevada	0.03%		\$518.46	\$242.46	\$278.73	\$386.10
New York	20.02%		\$345,986.44	\$161,802.64	\$186,006.22	\$257,658.20
NYOHA	0.32	6.43%	\$111,123.52	\$51,967.58	\$59,741.26	\$82,754.36
OHILI	0.28	5.59%	\$96,606.60	\$45,178.66	\$51,936.80	\$71,943.52
Hudson Valley	0.15	2.96%	\$51,154.84	\$23,922.87	\$27,501.42	\$38,095.32
UNYEA	0.25	5.05%	\$87,274.30	\$40,814.35	\$46,919.65	\$64,993.70
Ohio	2.80%		\$48,389.71	\$22,629.74	\$26,014.86	\$36,036.11
Pennsylvania	13.42%		\$231,924.98	\$108,461.11	\$124,685.49	\$172,715.94
Rhode Island	3.27%		\$56,512.27	\$26,428.30	\$30,381.64	\$42,085.03
South Carolina	0.99%		\$17,109.22	\$8,001.23	\$9,198.11	\$12,741.34
Virginia	2.66%		\$45,970.23	\$21,498.25	\$24,714.11	\$34,234.31
Vermont	2.33%		\$40,267.15	\$18,831.18	\$21,648.08	\$29,987.19
Washington	0.46%		\$7,949.74	\$3,717.74	\$4,273.87	\$5,920.22
Wisconsin	2.24%		\$38,711.77	\$18,103.79	\$20,811.88	\$28,828.89

2021

				Education and Training	Research and Development	Energy Efficiency	Rebates
				\$1,638,048.00	\$748,048.00	\$899,024.00	\$1,255,129.00
Connecticut		10.64%		\$174,288.31	\$79,592.31	\$95,656.15	\$133,545.73
District of Columbia		0.10%		\$1,638.05	\$748.05	\$899.02	\$1,255.13
Delaware		0.43%		\$7,043.61	\$3,216.61	\$3,865.80	\$5,397.05
Indiana		0.13%		\$2,129.46	\$972.46	\$1,168.73	\$1,631.67
Kentucky		0.86%		\$14,087.21	\$6,433.21	\$7,731.61	\$10,794.11
Massachusetts		11.36%		\$186,082.25	\$84,978.25	\$102,129.13	\$142,582.65
Maryland		3.11%		\$50,943.29	\$23,264.29	\$27,959.65	\$39,034.51
Maine		6.80%		\$111,387.26	\$50,867.26	\$61,133.63	\$85,348.77
Michigan		2.75%		\$45,046.32	\$20,571.32	\$24,723.16	\$34,516.05
North Carolina		2.96%		\$48,486.22	\$22,142.22	\$26,611.11	\$37,151.82
New Hampshire		4.31%		\$70,599.87	\$32,240.87	\$38,747.93	\$54,096.06
New Jersey		8.33%		\$136,449.40	\$62,312.40	\$74,888.70	\$104,552.25
Nevada		0.03%		\$491.41	\$224.41	\$269.71	\$376.54
New York		20.02%		\$327,937.21	\$149,759.21	\$179,984.60	\$251,276.83
	NYOHA	0.32	6.43%	\$105,326.49	\$48,099.49	\$57,807.24	\$80,704.79
	OHILI	0.28	5.59%	\$91,566.88	\$41,815.88	\$50,255.44	\$70,161.71
	Hudson Valley	0.15	2.96%	\$48,486.22	\$22,142.22	\$26,611.11	\$37,151.82
	UNYEA	0.25	5.05%	\$82,721.42	\$37,776.42	\$45,400.71	\$63,384.01
Ohio			2.80%	\$45,865.34	\$20,945.34	\$25,172.67	\$35,143.61
Pennsylvania			13.42%	\$219,826.04	\$100,388.04	\$120,649.02	\$168,438.31
Rhode Island			3.27%	\$53,564.17	\$24,461.17	\$29,398.08	\$41,042.72
South Carolina			0.99%	\$16,216.68	\$7,405.68	\$8,900.34	\$12,425.78
Virginia			2.66%	\$43,572.08	\$19,898.08	\$23,914.04	\$33,386.43
Vermont			2.33%	\$38,166.52	\$17,429.52	\$20,947.26	\$29,244.51
Washington			0.46%	\$7,535.02	\$3,441.02	\$4,135.51	\$5,773.59
Wisconsin			2.23%	\$36,528.47	\$16,681.47	\$20,048.24	\$27,989.38

Report on NORA Internal R&D
NORA Board of Directors
September 17, 2019

T. Butcher, Neehad Islam, Ryan Kerr, John Levey, Bob O'Brien

Publications / Presentations

- Tankless Coil Project – Conference Paper Abstract accepted for ASHRAE Annual Meeting. June 2020.
- Copper Paper – In review, to be submitted to Energy and Fuels
- Fuels In a Renewable Future – Seminar Proposed for ASHRAE Winter Meeting, Feb. 2020.

Fuel-Fired Heat Pump (SMTI)

- Work on integrating Babington burner with SMTI Heat Pump ongoing;
- Proposal submitted to NYSERDA has been funded (cost share with NORA)
 - Task 0 – Commercialization plan was added, completed
 - Kickoff meeting in Plainview planned

Technical Development of Ethyl Levulinate with Dead River Company and Biofine

- Materials
- Fuel System Components
- Combustion Performance
- EL-100 Trials at U. Maine
- Cold Weather Co-Solvents
- Storage Stability
- Water Absorption
- Sludge
- Home EL-100 Field Test in Maine

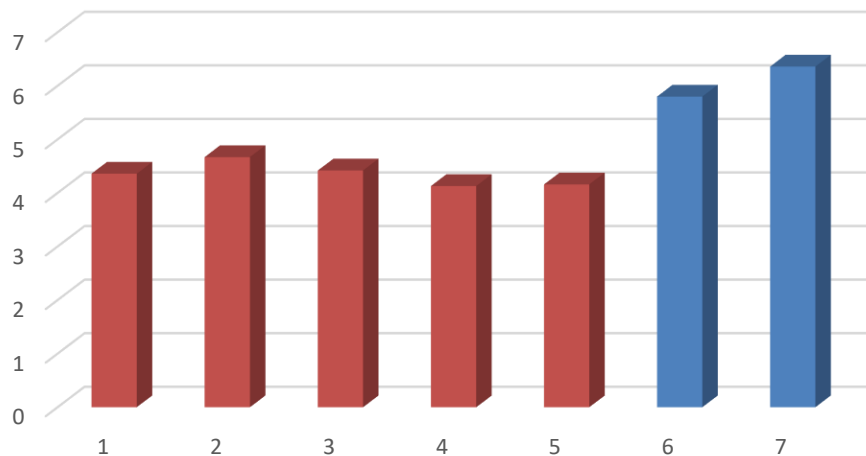
Next Steps on Biodiesel with NBB

- Piston Seal Testing – Legacy Pumps
- Combustion Testing with Higher Biodiesel Blend Levels
- Topical Reports
- Industry Presentations
- Higher Blends – Outdoor Tanks
- General Troubleshooting (copper, field problem evaluation)
- B50 Demonstration
- Evaluation of Pumps for High Blend Levels
- Support for Listing Babington Burner at B100

Analysis of Rebate Program Energy Savings (in progress)

Example

K factor



Savings 28.5%

- Detailed look at fuel use and degree days for selected sites on Long Island and Massachusetts;
- Heating season fuel use;
- Annual savings varied from ~ 5% to 25%;
- For some of the sites not enough data since install.

New Equipment at NORA Lab

NORA Board of Directors

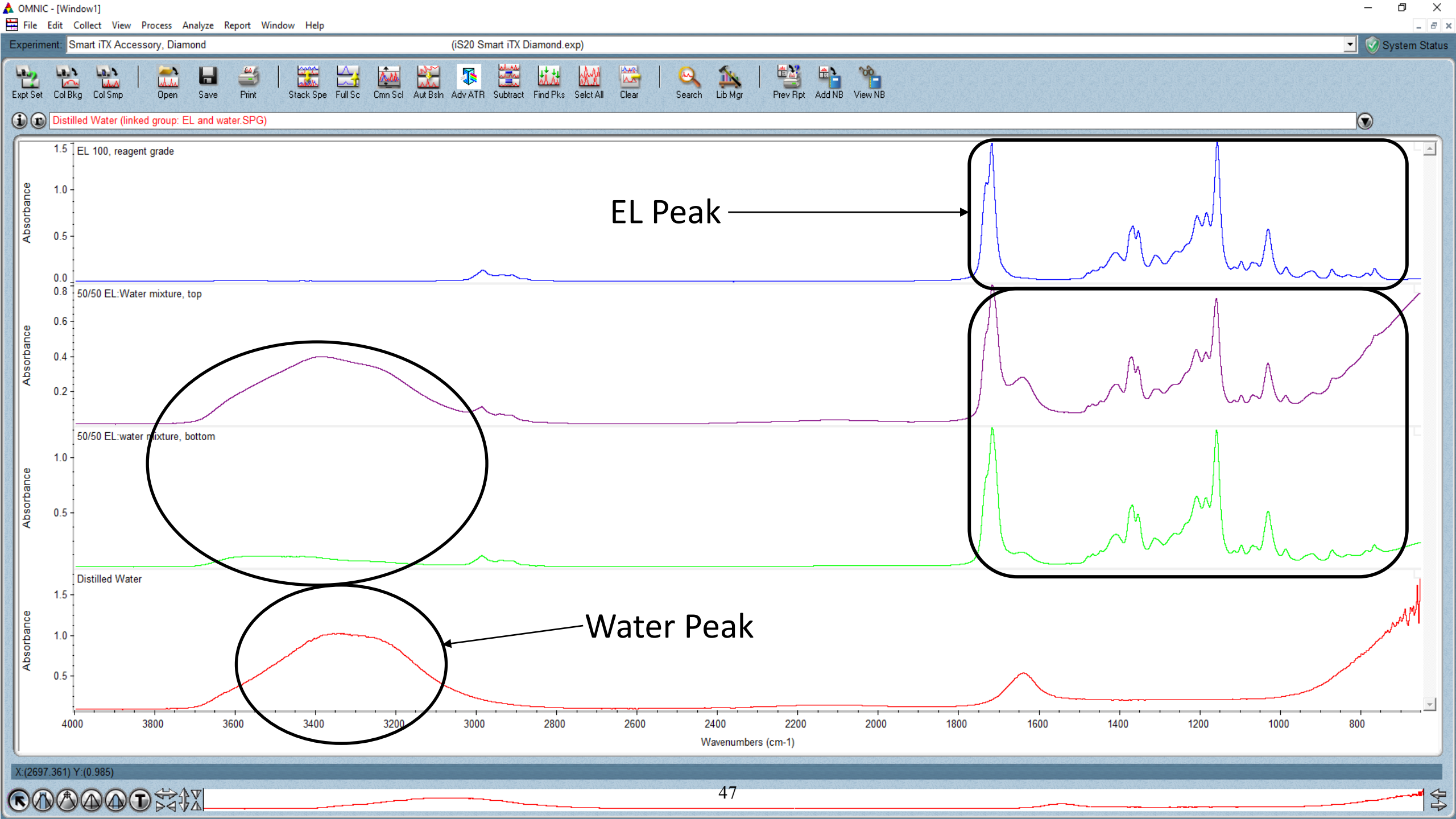
September 17, 2019

Presented by Ryan Kerr

FT-IR

- Uses infrared light to identify functional groups (Ex: C-O bonds)
- Can analyze both liquids and solids
- Many different applications, including being able to identify unknown samples





Karl-Fischer (KF) Moisture Titrator

- Water in fuel can be divided into two categories: dissolved and free water
- KF Titrator measures the dissolved water in a fuel
- Allows us to see if sample is reaching its water capacity



Outdoor Water Test (On-going)

- 12 paint cans with various fuels set up outside, while 6 more cans are set up in the NORA lab
- Fuels include No. 2 oil, B20, B50, B100, EL, and RD
- Comparing the amount of water accumulated through condensation for an outdoor and indoor “tank”



Compatibility of Pumps with Biodiesel Blends

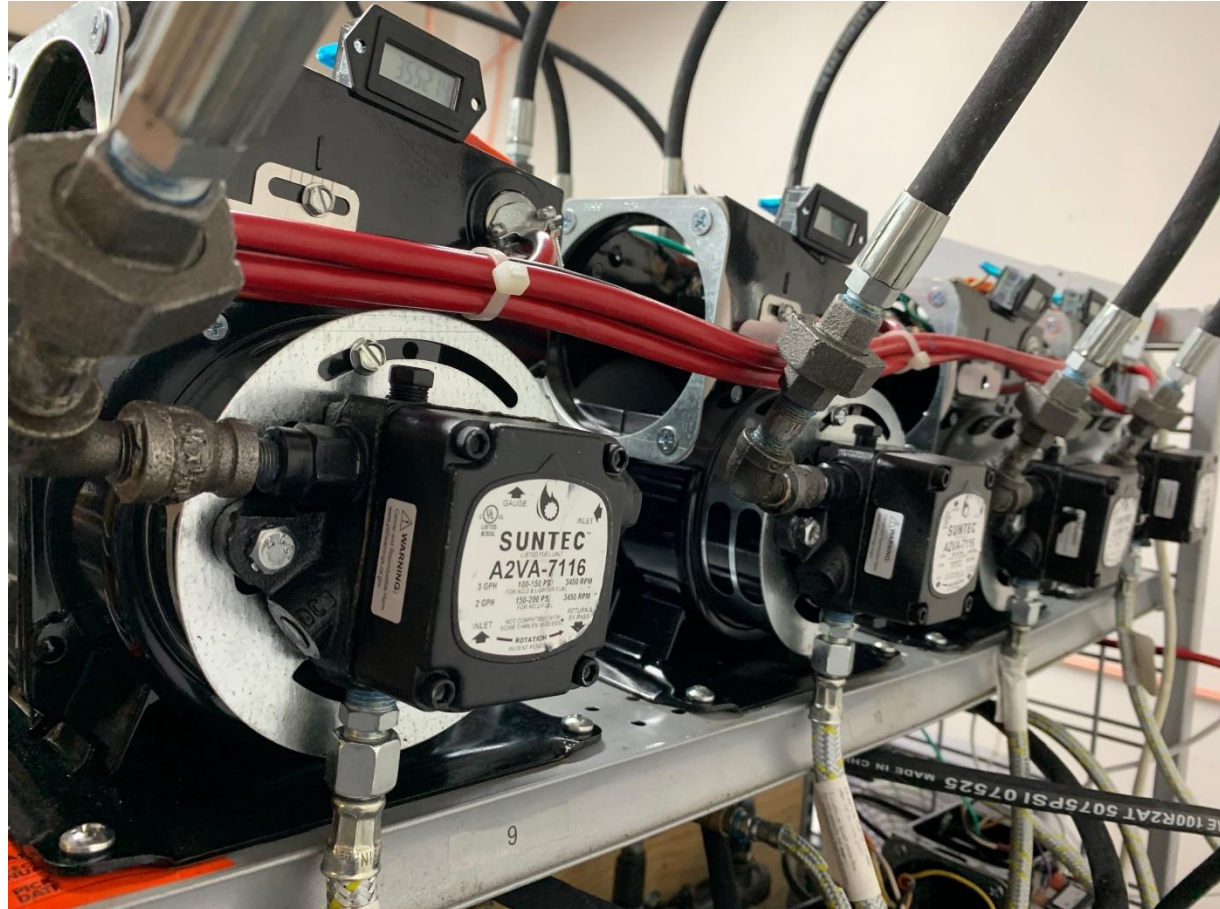
Neehad T Islam
Research Engineer
National Oilheat Research Alliance

Current Tasks

- Cycle testing of legacy pumps with No. 2 oil and B20 (B50 and B100 planned)
- Cycle testing of newly constructed Suntec pumps with No. 2 oil, B20 and B100
- Combustion testing on various biodiesel blends
- Transition testing from low to high (and vice versa) biodiesel blends on different burners
- Purpose of these tests is to provide information to those who chose to use biodiesel blends

Cycle Testing of Legacy Pumps

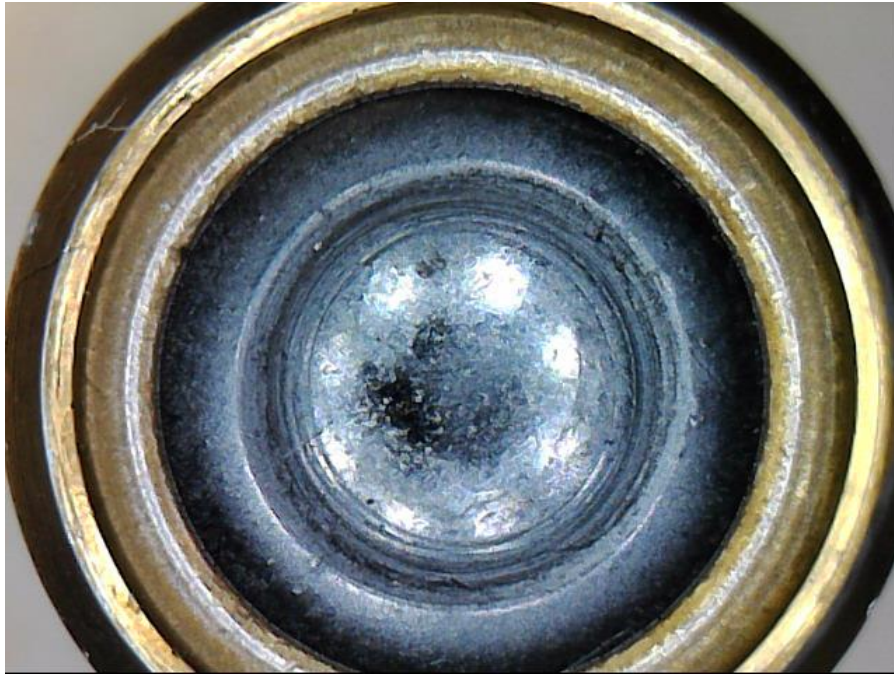
- Pumps cycle 5s on and 5s off
- Planned removal and testing at 100k, 500k and 1 million cycles
- Currently 8 pumps w/ No. 2 and B20 each
- 3 months left for this segment of test to end
- Next step: Repeat for B50 and B100



Comparison of Results at 100k Cycles

	<i>No. 2 Oil</i>	<i>B20</i>
<i>Cutoff Times (seconds)</i>	0.3	0.2
	0.2	0.1
	0.2	0.2
	0.1	0.2
	0.3	0.3
	0.3	0.2
	0.3	0.4
	0.2	0.4
<i>Average</i>	<i>0.24</i>	<i>0.25</i>

Piston Face Comparison

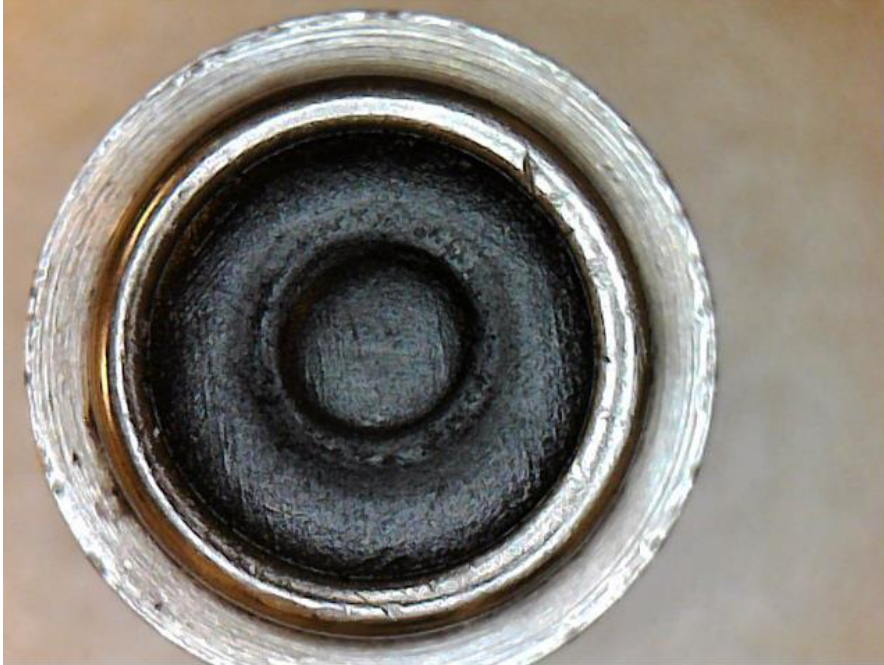


No. 2 oil



B20

Comparison of Pumps from Field



*Never exposed to bio
(10 years with B0)*



Ran B20 ~ 10 years



Suntec Bio Pumps

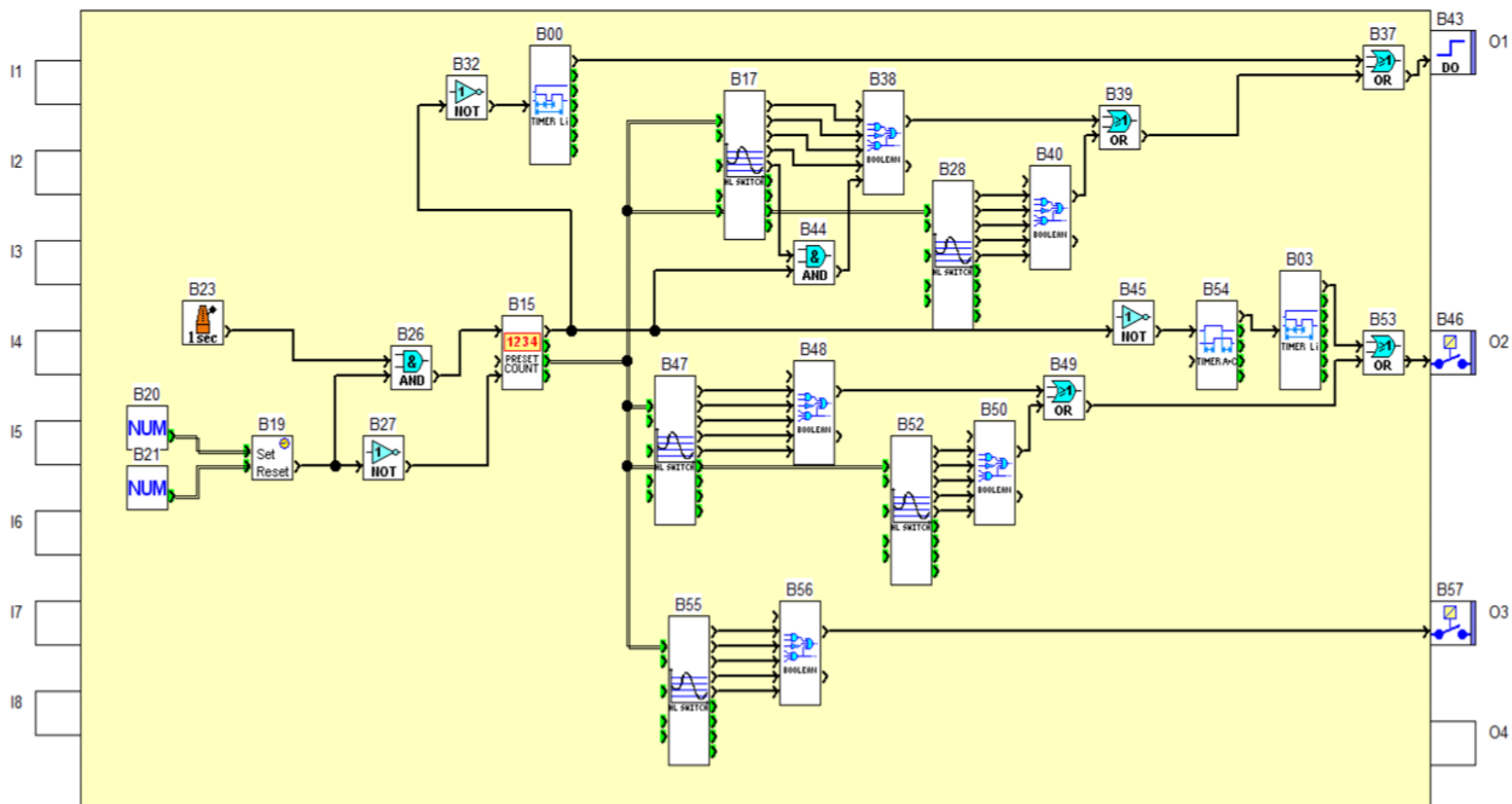
- Pumps cycle 20s on and 10s off, 720k cycles
- 10 pumps for each fuel (B0, B20, B100)
- Discharge pressure is 200 psi
- Shaft seal leakage to be checked periodically



Data Logging

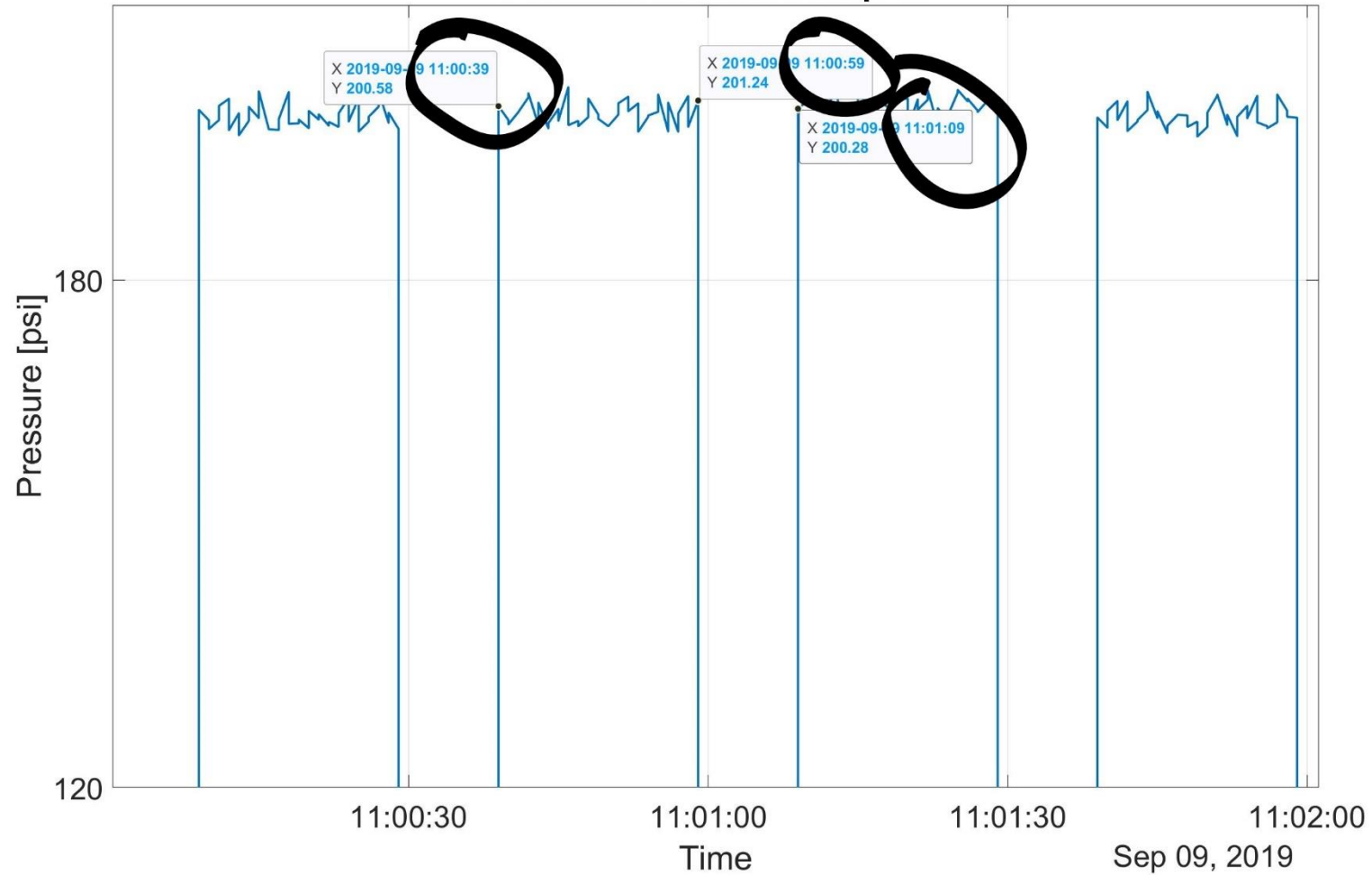
- Pressure transducer mounted on each pump
- Temperature of fuel and one pump measured
- Advanced controls and data logging system implemented
- Data processing performed daily

Controller Program

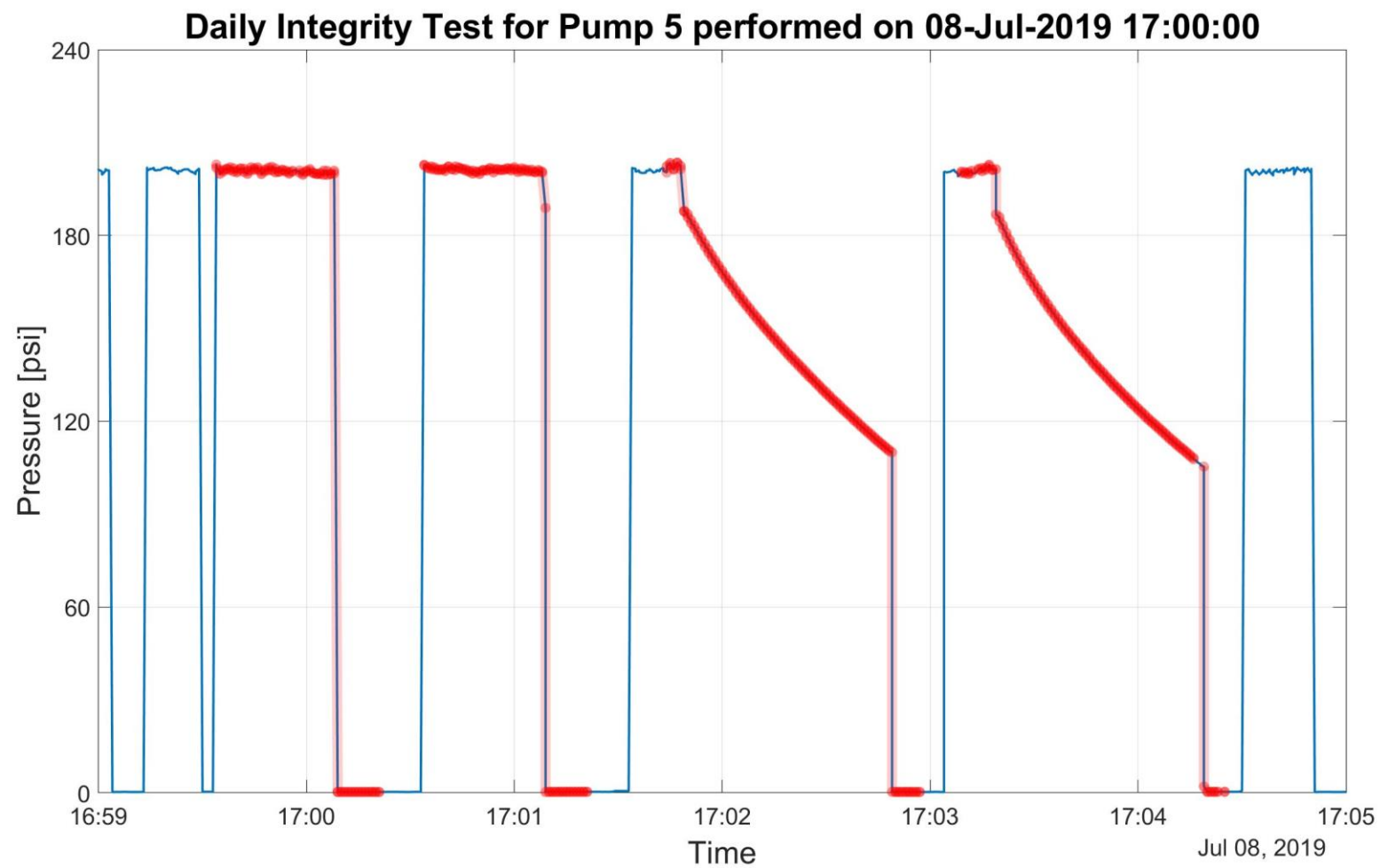


Pressure Data

Pressure Data for Pump 13



Daily Test



Richard Sweetser
NORA Sr. Advisor on Research
NORA Board of Director's Meeting
September 2019

NORA UPDATE

Technical Program 2019 PON Update

2019 PON

PON 2019: Advanced Oilheat Technology

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Product Development

Program Opportunity Notice (PON) No. 2019 Dated: June 14, 2019

Proposals are due August 1, 2019 at 5:00 PM Eastern Time

Introduction

The National Oilheat Research Alliance Board of Directors has authorized funds to be spent on the project areas listed below. Successful research, development and demonstrations grants in the past ranged from \$20,000 to \$350,000. Under PON No. 2019, NORA plans to award multiple cost-shared contracts in Categories A through I up to a total of \$350,000 for each award. This funding allocation may be adjusted depending on the quantity and quality of proposals received. There is no minimum project funding amount per project award.

Background

The heating oil industry is facing a new challenge that must be addressed. State and local governments in oil heat regions are developing policies to achieve long term reductions in greenhouse gas emissions (GHG). Most northeastern states have a plan and some already have been codified into law. Generally, the plans commit to reductions of greenhouse gases of 50% by 2030 and 80% reductions by 2050, some even call for 100 % reductions. These policies include the elimination of heating with oil. One very popular approach to achieve this is converting building heating to electric cold climate heat pumps, powered by the future renewable electric grid (wind, water and solar with battery storage). If the heating oil industry is to remain part of the heating market of the future, it must develop advanced biofuel solutions now, and transition to the "renewable liquid fuels" industry.

National Oilheat Research Alliance (NORA) research demonstrates that high biodiesel blends (greater than 20%) are operating very well in the field although most oil burners are rated by the manufacturer to burn

2019 PON

Category A: Ability to go to 100% Low carbon liquid fuel (LCFW). Seeking fuels, components, and burners for NORA testing commercialization

Category B: Biofuel blending, terminal storage, on-site storage & delivery

Category C: Modeling and report demonstrating LCFW appliances are superior than electric heat pumps for residential applications

Category D: Assessing the biofuel fuel supply and delivery infrastructure capabilities in 2030 and 2050

Category E: Demonstrate and field test the integration of latest generation smart thermostats in boiler applications versus the demand, assuming B50 in 2030 and B100 in 2050

2019 PON

Category F: Demonstrate and field test self-diagnostic burners and or appliances that provide trend analysis, component approaching failure and troubleshooting failure analysis.

Category G: Develop an analytical economic optimization model and report covering the sizing and operation of adding a cold climate heat pump to a non-condensing boiler

Category H: Develop advanced heating technologies including LCLF heat pumps focusing on efficiency and zero net carbon

Category I: Develop off-grid or grid failure heating systems that can operate in absence of power using batteries, generators or other means

Proposer: Adams Manufacturing

The main objectives of this proposal are to design a low profile unit heater with firing rates of 50,000 BTU and 75,000 BTU that will operate with either a 12V model and a 120V model and will burn up to B20 fuel oil now with B50 fuel oil in the future, when burners and components are available. Requesting \$338,528 from NORA with 20% cost share.

Research Committee Recommendation: Modine model POR oil-fired unit heaters offer an efficient and reliable means of heating, particularly in regions where supplies of other fuels, such as natural gas, may be unavailable, undependable, or interruptible. 100,000, 145,000, and 185,000 Btu/hr output. Adams offered no rationale why 50,000 and 75,000 Btu/hr units have a market.

Research Committee Recommendation: Do not fund this project.

Proposer: Babington Burner Company, LLC

Build, test and deliver to NORA five Advanced B100 Self-Tuning Burners for laboratory testing. Babington will also develop and implement a comprehensive testing program, in cooperation with NORA, for both laboratory and field testing.

Requesting \$343,075 from NORA with 20% cost share.

Research Committee Recommendation: This burner has a lot of promise, but, NORA has yet to receive a final burner product and cannot fund further efforts until NORA has received and successfully tests the final Burner.

Research Committee Recommendation: After NORA Lab has received 5 burners, tested and is satisfied with performance, then the Committee will revisit this proposal.

Proposer: Babington Burner Company, LLC

Build, demonstrate and field test ten (10) production-ready self-diagnostic FlexFire Multi-Fuel Burners that provide enhanced self-tuning, trend analysis, component approaching failure and troubleshooting failure analysis.

Requesting \$347,788 from NORA with 20% cost share.

Research Committee Recommendation: This is a following program to first having a commercial product.

Research Committee Recommendation: Proposal not reviewed as it is dependent on success of the initial product launch.

Proposer: R.W. Beckett Corporation

Test and confirm viability of a 100% LCLF biofuel blend consisting of 80% (R80) or greater renewable diesel and up to 20% (B20) biodiesel fuels. analysis. Requesting \$141,879 from NORA with 20% cost share.

Research Committee Recommendation: Believes that there is no possible source for renewable diesel entering the residential heating market. In fact, NORA had been told, by renewable diesel producers, that all possible production of renewable diesel in the U.S. will be consumed by the transportation industry for decades to come.

Research Committee Recommendation: Not to fund this proposal because there is no future fuel product for the industry.

Proposer: Novatio

Develop a 2kW oil-fired generator with an oil-fired heating system, configured to automatically turn on and supply power for the heating system in the event of loss of power. The integration would include both the exhaust of the generator and the fuel system, which would use the existing oil fuel tank, thus making this system entirely “hands-off” from the perspective of the customer. Requesting \$240,496 from NORA with 20% cost share.

Research Committee Recommendation: Residential electric resiliency, the ability to supply home heating and some power when the electric grid fails, is important and needs more market understanding.

Research Committee Recommendation: Have industry complete the NORA onsite power survey to determine the best path forward before this particular solution is pursued if it is deemed the best approach.

2019 PON Summary

- Five responses:
 - Adams – no discernable market
 - Babington initial product field trial – need to successfully test the initial product offering before revisiting
 - Babington advanced trend analytics – premature – need successful initial product first
 - Beckett – B20/R80 – renewable diesel not viable for hoe heating
 - Novatio – need survey to determine if this is best Path through Survey

Residential Resiliency Survey



Keeping the Oil Heating System Running
Batteries or Diesel/Biodiesel Generators

As the world moves to more electricity, NORA believes customers will become more dependent on electricity, and reliability will become increasingly important. NORA also believes that having a backup power system that uses biodiesel will enhance reliability and make oilheat more attractive.

We would appreciate your reviewing the attached information and providing some guidance as to how we should proceed by answering the following eight questions.

QUESTION 1

State that you operate in		
What percentage of your customers are Rural*	_____ Rural %	_____ % Urban
Total Number of Customers	<input type="checkbox"/> Less than 2,000 <input type="checkbox"/> 2,000-5,000 <input type="checkbox"/> 5,000-10,000 <input type="checkbox"/> Over 10,000	

*Rural would be not in a town, city or suburb, these locations would be urban.

Battery backup solution

A boiler system with radiators can probably be powered by a small set of batteries for 1-2 days.

Table 1 Design Hourly Watts for Conventional and New Efficiency Hydronic Heating Systems (~2400 ft² home)

Design Hourly Runtime		40 minutes	19 minutes	1 minute	Efficient	Conventional
New Efficient Circulator	25 watts	16.7			16.7	
New Burner w/o ignitor	80 watts		25.3		25.3	
New Burner w ignitor	125 watts			2.1	2.1	
Conv Circulator	75 watts	50.0				50.0
Conv Burner w/o ignitor	150 watts		47.5			47.5
Conv Burner w ignitor	250 watts			4.2		4.2
Average Design watt-hours/hour					44.1	101.7
Average Design amp-hours/hour @ 12 volts DC					3.7	8.5

Table 1 translates into average total amp-hour draw for grid outages of one to three days shown in Table 2.





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Table 2 Amp Hours @ 12 v

	New Burner/Circulator	Conv Burner/Circulator
1-day amp hours @ 12 v	88.2	203.3
2-day amp hours @ 12 v	176.3	406.7
3-day amp hours @ 12 v	132.3	305.0

Using a device which includes a 120 vAC to 12 vDC charger, a 12 vDC to 120 vAC inverter and an auto transfer switch generator including an, combined with, one or more 120 AH deep cycle marine batteries depending on the load and outage duration,

Table 3 shows estimated costs for 1-3 day outages to heat a 2,400 ft² home.



Tripp Lite APS750 Inverter / Charger
750W 12V DC to 120V AC 20A Outlet



VMAX MR137-120 12V 120Ah AGM Deep
Cycle Marine Battery

Table 3 Amp Hours @ 12 v

		Inverter / Charger	12 v DC Batteries	Installation	Total Cost
New Burner/Circulator	1-day amp hours @ 12 v	\$287	\$206	\$300	\$793
	2-day amp hours @ 12 v	\$287	\$411	\$350	\$1,048
	3-day amp hours @ 12 v	\$287	\$617	\$400	\$1,304
Conventional Burner/Circulator	1-day amp hours @ 12 v	\$287	\$474	\$300	\$1,061
	2-day amp hours @ 12 v	\$287	\$949	\$350	\$1,586
	3-day amp hours @ 12 v	\$287	\$1,423	\$400	\$2,110

QUESTION 2

If this was available for sale, would you sell them?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
If yes, how many do you think you would sell per year?	_____ New Burner Systems	_____ Conventional

Small Generator (2 KW)

This option would be an integrated generator that would be easily built into the boiler or furnace pack. It would receive fuel from the heating oil tank, and would be wired to cut off and on automatically in the event of an electrical shut down. For new burner/circulator systems using 44 watt-hours/hour, would provide about 1.95 kW for general household uses. In the conventual burner/circulator 102 watt-hours/hour, this would provide about 1.898 kW for other uses. This would allow it to power the microwave, and television and some other plug in power devices.



Generator	Integration of generator into boiler (inc exhaust)	Auto Transfer Switch (ATS)	Integration of ATS into the boiler	Delta Home Installation	Total Cost
\$2,000	\$300	\$100	\$50	\$500	\$2,950

QUESTION 3

If this was available for sale, would you sell them?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, how many do you think you would sell per year?	

QUESTION 4

The battery system and this 2kW generator are the lowest cost, minimal power solutions, which do you prefer?	<input type="checkbox"/> Battery <input type="checkbox"/> 2kW Generator
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Small Generator (5 KW)

This would be a standalone generator wired into the heating system, and would establish direct links with the House electrical system. It would be able to power some of the house power, however, would need to be able to prioritize some functions. For example, the air conditioner, a microwave and a coffee maker would have a hard time running simultaneously. Similarly, an electric water heater and an electric stove would also overtax the system. The electricity use and prioritization of uses in the house would be important. Online retail price for a single unit is \$3,799.



It would be installed outdoors, and would not be hooked into the vent system of the house.

Generac XD Series Residential Diesel Portable Generator

Ideal for emergency backup.

- 435cc Yanmar LW Series Air-Cooled Diesel Engine
- Industrial grade, fuel efficient, less maintenance & long life
- Electric Start w/ Recoil Backup (Battery Not Included) 12V 35Ah Group U1
- Single touch design makes starting an easy task
- Low Oil Shutdown
- Provides added safety against engine damage
- TruePower™ Technology - Less Than 6% THD
- Provides clean, smooth operation of sensitive electronics
- 12-Gallon Long Run Fuel Tank w/ Fuel Gauge
- Provides a run-time of up to 32.4 hours @ 1/2 load
- 120/240V Selector "Full Power" Switch
- Gives you more usable power and added flexibility
- 30A 120/240V (L14-30R) Twist-Lock Receptacle***
- Allows for connection to a manual transfer switch (MTS)
- Allows for connection to a convenience cord
- 1-1/4" Welded Steel Tube Cradle & Integrated Lifting Eye
- Durable, strong protection for easy transport & security on the job
- Hour Meter w/ Maintenance Resets
- Easily monitor run time and track maintenance intervals
- UNIT DOES NOT HAVE IDLE CONTROL (misprint on spec sheet)
- 2-Year Limited Warranty

QUESTION 5

If this was available for sale, would you sell them?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, how many do you think you would sell per year?	

Medium Generator (12 KW)

This would be a standalone generator wired into the heating system, and would establish direct links with the House electrical system. It would be able to power most of the house power, however, would need to be able to prioritize some functions. For example, the air conditioner, a microwave and a coffee maker would have a hard time running simultaneously. Similarly, an electric water heater and an electric stove would also overtax the system. The electricity use and prioritization of uses in the house would be important. Online retail price for a single unit is \$6,699.

It would also be installed outdoors, and would not be hooked into the vent system of the house.

Our Reduced Price: \$6699

View Choose Instant Savings (Lower Price By \$164) ▼

[View Quote](#)
[Order Online](#)



Perkins 12.5 kW Diesel Generator - This Perkins diesel generator is suitable for continuous use or emergency power and has plenty of power to your home, job site or business. This unit operates at 1800 RPM and with its critical exhaust silencer, deep stiff crankcase, isolated valve cover and 4 point vibration mounts, this set runs smooth and quiet.

Like all Central Maine Diesel products, this generator is fully customizable. From enclosure to fuel tank to controls to trailer, you choose the option that is right for you! And, as an added benefit, you will always have the flexibility to upgrade options later.

This unit features a Perkins 1.5L in-line 3-cylinder diesel engine, indirect injection for increased fuel efficiency, low heat rejection and quicker starts, brushless generator end, cool flow radiator w/ fan guards, residential grade muffler, automatic voltage regulation, high volume air filter, control panel w/ hour meter and automatic safety shutdowns for low oil pressure and high water temperature.

Options

Options	Price
Sound Proof Enclosure	+ \$1,595
100 Gallon Subbase Fuel Tank	+ \$1,495
250 Gallon Subbase Fuel Tank	+ \$1,795
Single-Axle Trailer	+ \$2,095

QUESTION 6

If this was available for sale, would you sell them?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, how many do you think you would sell per year?	

Full House Generator (21 kW)

This generator would run the whole house, and would have a smart switch to automatically move between demand loads. However, with control technology, the homeowner should not notice when circuits go on and off. Online retail price for a single unit is \$7,999.

Perkins 21 kW Diesel Generator

Our Reduced Price: \$7999

View Choose Instant Savings (Lower Price By \$136) 

[View Quote](#) [Order Online](#)



Perkins 21 kW Diesel Generator - Whether for a work site, cabin, lodge, or standby emergency power, this Perkins diesel will do the job every day. Day after day. This unit operates at 1800 RPM and runs smooth and quiet with its residential-grade muffler, vibration mounts and 4 cylinder Perkins diesel engine.

Perkins 404D-22G.
Continuous-duty diesel engine.

This unit features a Perkins 404D-22G, 4 cylinder diesel engine, cast iron crankcase with replaceable wet-type cylinder liners, full flow lube oil filtration, brushless generator with AVR, liquid cooling, +/- 1% AC voltage regulation to protect your electronics, oil & water safety shutdowns, steel skid base, vibration mounts, muffler for quiet operation, glow plugs, turn-key start and hour meter.



PERKINS FILTER KIT
(OIL, AIR & FUEL)

QUESTION 7

If this was available for sale, would you sell them?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, how many do you think you would sell per year?	

Please Rank the Units in the Order You would prefer from top to bottom, if you would not sell put a zero.

QUESTION 8

Ranking 1 through 5	Onsite Power Option
	Battery Charger
	Small Generator (2kW)
	Small Generator (5kW)
	Medium Generator (12kW)
	Full House Generator (21kW)

If you would like to discuss further, or would be open to discussing this please provide your

Name_____ and _____Telephone Number

NORA Board Meeting 2019

Education Report



Bronze & Silver Programs

Met in June to review both programs
&
the Technician's Manual.



Tests

- Committee reviewed questions.
- Deleted, revised and added.
- Selected Bronze/Silver only.
- Expanded bank of questions.
- Exploring move to 75 for each test with a pool of 100.

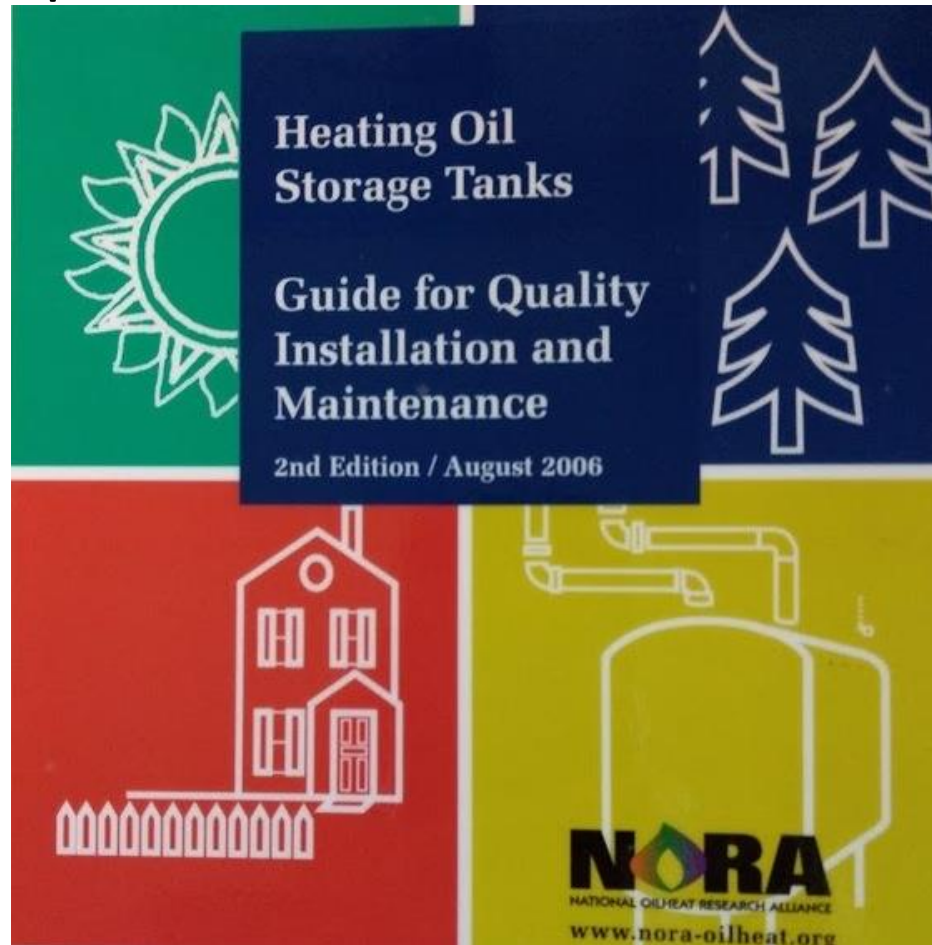
Technician's manual

- Rewrote 2 chapters – technical changes, etc.
- Minor edits to other areas.



Gold Program

Completed final edits to Tank Manual.



Bronze & Silver Programs

Continue to expand network of providers

- Manchester Community College
- East Hampton School District
- Isaac Heating
- Ulster Adult Career Education Center
- Nassau BOCES.....

Questions??



Officers and Executive Committee

Proposed 2020

Immediate Past Chairperson	– Charlie Uglietto
Chairman	- Rick Bologna
First Vice-Chairman	-
Second Vice-Chairman	-
Treasurer	- Eric DeGesero
President	- John Huber

Executive Committee

John McCusker	Global
Mario Bouchard	Granby Industries
Steve Clark	Genessee Fuel
Charles Uglietto	Cubby Oil
Michael Estes	Estes Oil Burner Service
Matt Meehan	Mirabito Fuels
Matt Cota	Vermont Fuel Dealers Association
Rick Bologna	Westmore Fuels