



# Board of Directors Meeting

Mohegan Sun  
Uncasville , CT  
May 20, 2024



Board Meeting  
Mohegan Sun, Earth Ballroom  
May 20, 2024  
3:30 pm

Join Zoom Meeting  
<https://us02web.zoom.us/j/84056659859>  
Meeting ID: 840 5665 9859  
One tap mobile  
840-566-59859# US

- I. Introduction – Chairman Kate Duffey
- II. Approval of Minutes
- III. Financial Information
  - Degree Day & Gallons Losses
  - Preliminary 2023 Financials
  - Q1 2024 Financials
- IV. Research and Development – Director of Laboratory Dr. Thomas Butcher
- V. Education and Training – Bob O'Brien
- VI. NORA 2024 Activities – President Michael Devine
  - 131 East Ames Ct. Expansion and New Term Lease
  - DCAS Meeting April 4th
  - Chevron - REG RFP – May 29th
  - Department of Energy Request for Records
- VII. Executive Committee & Officers for 2024
- VIII. Old Business –
- IX. New Business –
- IX. Adjournment



NORA Board Meeting  
Newport Marriott Hotel & Spa  
Salon II  
September 28th, 2023  
11:00 am

- I. **Introduction** – Chairman Roger Marran & President Michael Devine called the meeting to order at 11:15 am.

The following members of the NORA Board of Directors were in attendance and constituted a Quorum.

Roger Marran	Kate Duffey
Rick Bologna	Eric DeGessero
Allison Heaney	Mario Bouchard
Dan Mattice	Jacqueline Hart
Ted Noonan	Steve Powers
David Coyne	Greg Childs
Bobby Parlett	Chris Fazio
Kristyn Schweitzer	John McCusker
Dave Walton	Mark Caspers
Leann Pannebianco	Carter Vaillancourt

- II. **Approval of Minutes**- A motion was made by Jacqueline Hart and seconded by Rick Bologna and the minutes of the May 22<sup>nd</sup> NORA Board of Directors meeting was submitted and approved.

- III. **Financial Information** –

**NORA 2022 Audit** – Natasha Perkins Auditor / UHY LLP provided a detailed synopsis of the 2022 NORA Audit and its process.

- Our audit was designed to provide reasonable, not absolute, assurance the financial statements are not materially misstated.
- Our audit is a risk-based approach where we focus our procedures on the potential risks identified in the required communications letter listed in other Audit Findings and Issues section.
- The audit report is an unmodified audit report, the best possible result.
- The audit report contains an emphasis of matter that refers to Note 10 of the footnotes regarding the implementation of a new accounting pronouncement (Accounting Standards Update No. 2016-02 *Leases (Topic 842)*).
- The new accounting standard resulted in a new asset – an operating right-of-use asset of \$274,512 for the remaining ability to use the lease at the liquid fuels research center and an operating lease liability of \$281,314 for the present value of the remaining obligation to pay for the rent of that space.
- Overall assets increased due to the increase in the cash held in escrow as required by the NORA statute.
- Overall obligations to the states remained consistent year over year indicating states have been spending their current year budgets. \$4.6 million remains unspent by states.
- Central (National) RD&D spending exceeded current year budget in an effort to spend down amounts that had accumulated to be spent by \$787,000 including \$371,000 that was granted to

states from the Central budget as part of the \$2 million available for those states that fully utilized their RD&D budgets.

- The remaining balances for Central spending not yet utilized over the years are:
  - RD&D \$4.2 million,
  - Efficiency & Upgrade \$193,000, and
  - Consumer Education \$193,000.
- Total net assets unavailable for obligation to be escrowed under the statute is \$8.0 million
- Net Assessments revenue exceeded budget and therefore, RD&D and Efficiency & Upgrade spending fell short of the required minimums of 30% and 15% respectively. Consumer education and administrative costs were within their required maximums of 30% and 7%. To address the shortfall, a budget amendment is necessary. To address this for the future, the 2024 and 2025 state grant budgets have been increased for RD&D and Efficiency & Upgrade to 31% and 16%. The resolution needed from the Board is on the last page.
- During our audit, we identified no material weaknesses like we did in prior year.
- We noted the following significant deficiencies, which are less severe than a material weakness. All resulted in journal entries proposed by us and made by management during the audit:
  - Accounts Payable was Understated – certain invoices paid in 2023 for services received in 2022 were not accrued for Central (national activities)
  - Accounting for Publication Sales – inventory was overstated, publication sales were understated, and cost of sales were understated.
  - Classification of Designated Net Assets – net assets obligated under contract by NORA for central (national) RD&D projects was understated.
  - Accounting for Prepaid State Assessments – The amount a state exceeded their consumer education grant by should have been recorded as a prepaid state assessment asset rather than a reduction to the state grant liability.

A motion to approve the NORA 2022 Audit was proposed by Bob Parlett and was seconded by Jacqueline Hart, there was no discussion and all were in favor.

**NORA 2022 Budget Resolution** – Because of the larger than estimated fuel sales in 2022, the Board of Directors updated the 2022 budget to increase the Research and Development & Energy Efficiency categories.

**Now Therefore Be It Resolved: In 2022, assessments revenue net of amounts required to be maintained in escrow exceeded the original budget for 2022.**

**Be it Further Resolved: As a result, the original budgets for central spending on the research, demonstration, and development program and the heating oil efficiency and upgrade program were insufficient to meet the minimum requirements of Public Law 113-79 that requires a minimum of at least 30% of assessments revenue for research, development, and demonstration and a minimum of at least 15% of assessments revenue for heating oil efficiency and upgrade.**

**Be it Further Resolved:** Therefore, the original budget for 2022 is amended to increase the central research, development, and demonstration budget from \$1,270,000 to \$1,296,784.43 (an increase of \$26,784.43).

**Be it Further Resolved:** The original budget for 2022 is amended to increase the central heating oil efficiency and upgrade budget from \$60,000 to \$73,142.94 (an increase of \$13,142.94).

A motion was made to accept the resolution as stated by Bob Parlett and seconded by Jacqueline Hart, there was no discussion, and all were in favor.

**NORA Budget 2024 – 2025** – President Michael Devine provided a review of the 2024 – 2025 NORA Budget for review. Michael shared with the Board that the NORA Budget Committee and the NORA Executive Committee had met independently regarding the budget and had unanimously approved the budget for submission. Michael made the point, following the presentation, that the budget has been released to the public and that we were still in the public comment period, so we would approve the budget with the understanding that changes could be made based on public feedback. Subsequent to this and following the presentation of the 2024 & 2025 budget Ted Noonan made a motion to approve the budget as presented and Allison Heaney seconded the motion, there was no additional discussion and all voted unanimously to approve the 2024 & 2025 NORA budget.

**NORA Financial Reporting Changes** – Michael Devine provided an overview regarding of some of the initiatives that NORA is undertaking on improving the financial reporting activities. NORA has engaged the service of O’Conner Consulting to provide an evaluation of the NORA financial reporting processes and activities to help evaluate how we can improve our financial reporting. The evaluation suggests that NORA should consider employing a full-time employee whose role would be identified as a Controller. O’Conner Consulting is presently creating a job description for this role and has also helped to identify a consultant that they have worked with to assist us with the job search for this role. NORA hopes to have this new employee in staff by January of 2024.

#### **IV. NORA May – September 2023 Activities – President Michael Devine**

**Energy & Policy Institute** – Michael Devine reported to the NORA Board of Directors that the Energy & Policy Institute has just made a new request of NORA for information regarding the activities of the states of Rhode Island & Vermont. This is the second request from this entity this past year.

**NORA-CFAA Collaboration** – Michael Devine reported that NORA & CFAA have engaged in a new Research and Development contract, whereby CFAA will contribute \$450,000 dollars towards the biodiesel and renewable diesel testing projects that the NORA team is engaged in, with advancing the blending levels of renewable fuels into liquid heating burners and appliances. NORA is very grateful for this collaboration with the CFAA Technical Team led by Scott Fenwick and Steve Howell.

**NORA & CFAA - High Blends Infrastructure Workshops & CSR Bootcamp** – In July and August, NORA & CFAA collaborated in producing two High Blend Infrastructure workshops and two CSR Bootcamps. These events were held in Needham, Massachusetts and Greenwich, Connecticut. Enclosed in this NORA Board packet is a synopsis of these events prepared by Consumer Focus.

**V. Research and Development, Director of Laboratory Dr. Thomas Butcher – Report enclosed**

**VI. Education and Training, Bob O'Brien – Report Enclosed**

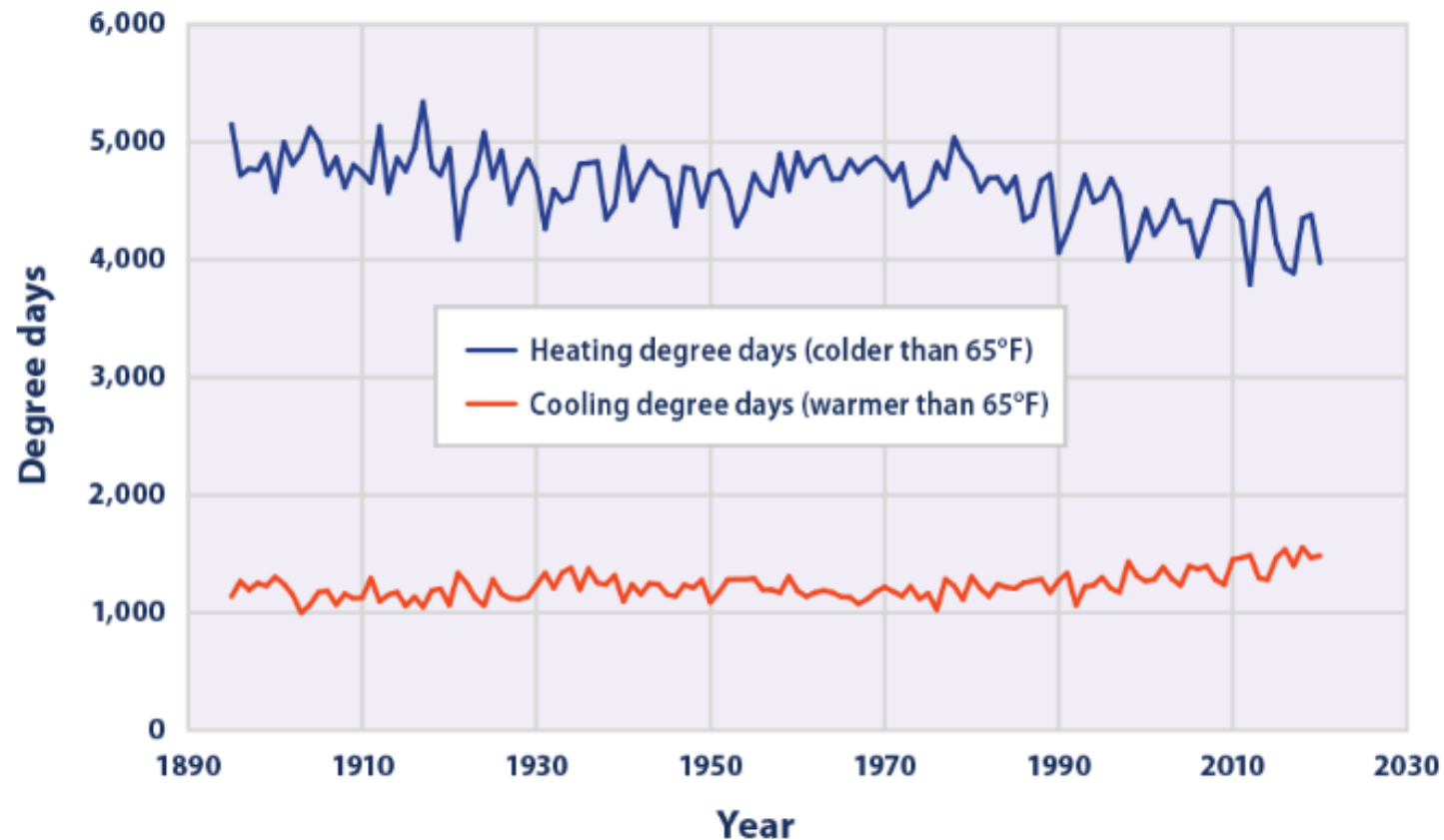
**VII. Old Business – NORA Name Change** During the May 22<sup>nd</sup> Board of Directors meeting a suggestion arose reading the prospect of changing the name of the National Oilheat Research Alliance to another name that does not include the term “Oilheat”. Michael Devine shared that there have been several discussions that have occurred with our in-house council and other industry participants to consider this question and how and when would be the best way to make such a transition.

**VIII. New Business** – There was no suggested new business.

**IX. Adjournment** – A motion to adjourn was made by Allison Heaney and seconded by David Coyne.

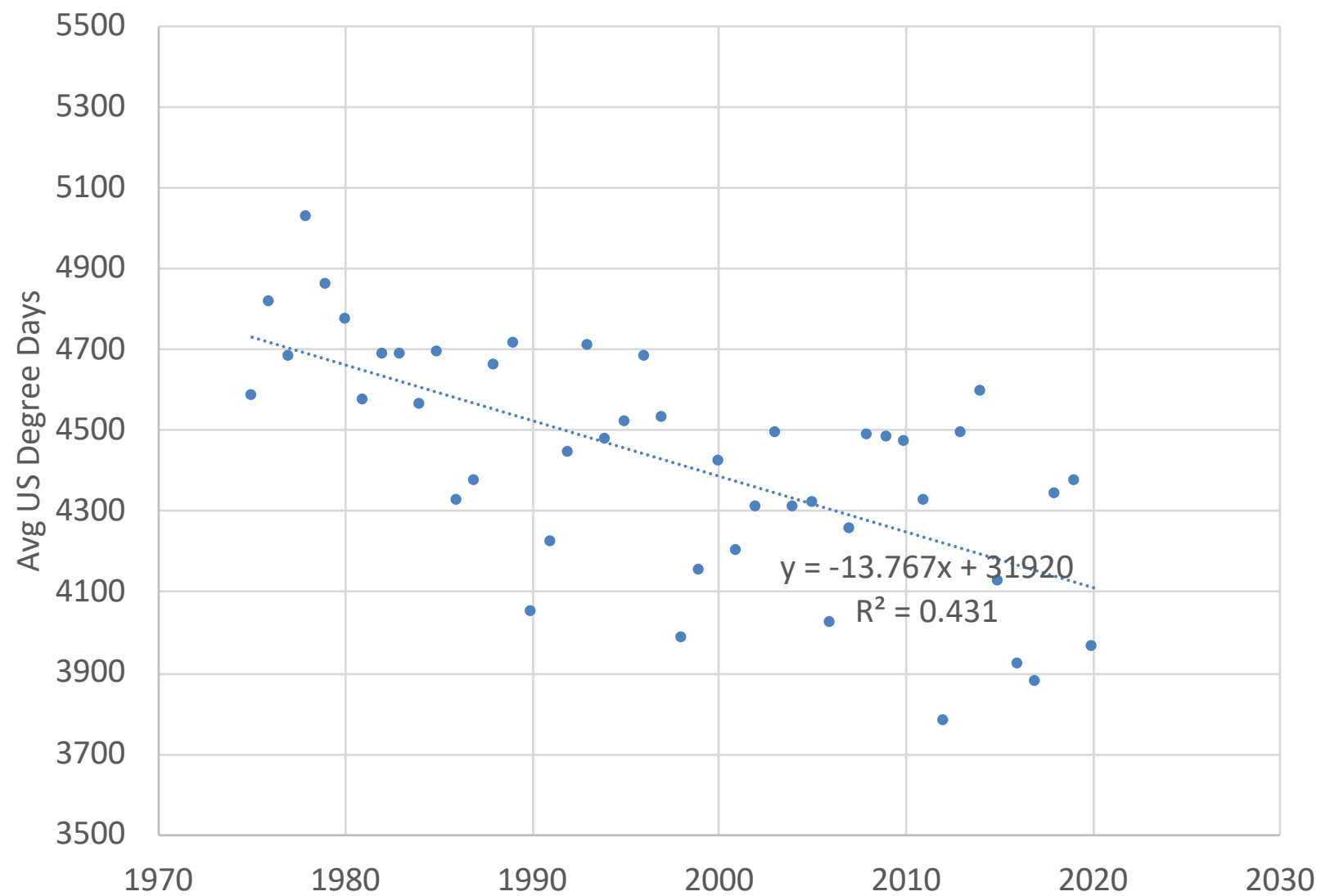
During the last 125 years there has been an average national decline in degree days of **0.14%/ loss per year**

**Figure 1.** Heating and Cooling Degree Days in the Contiguous 48 States, 1895–2020



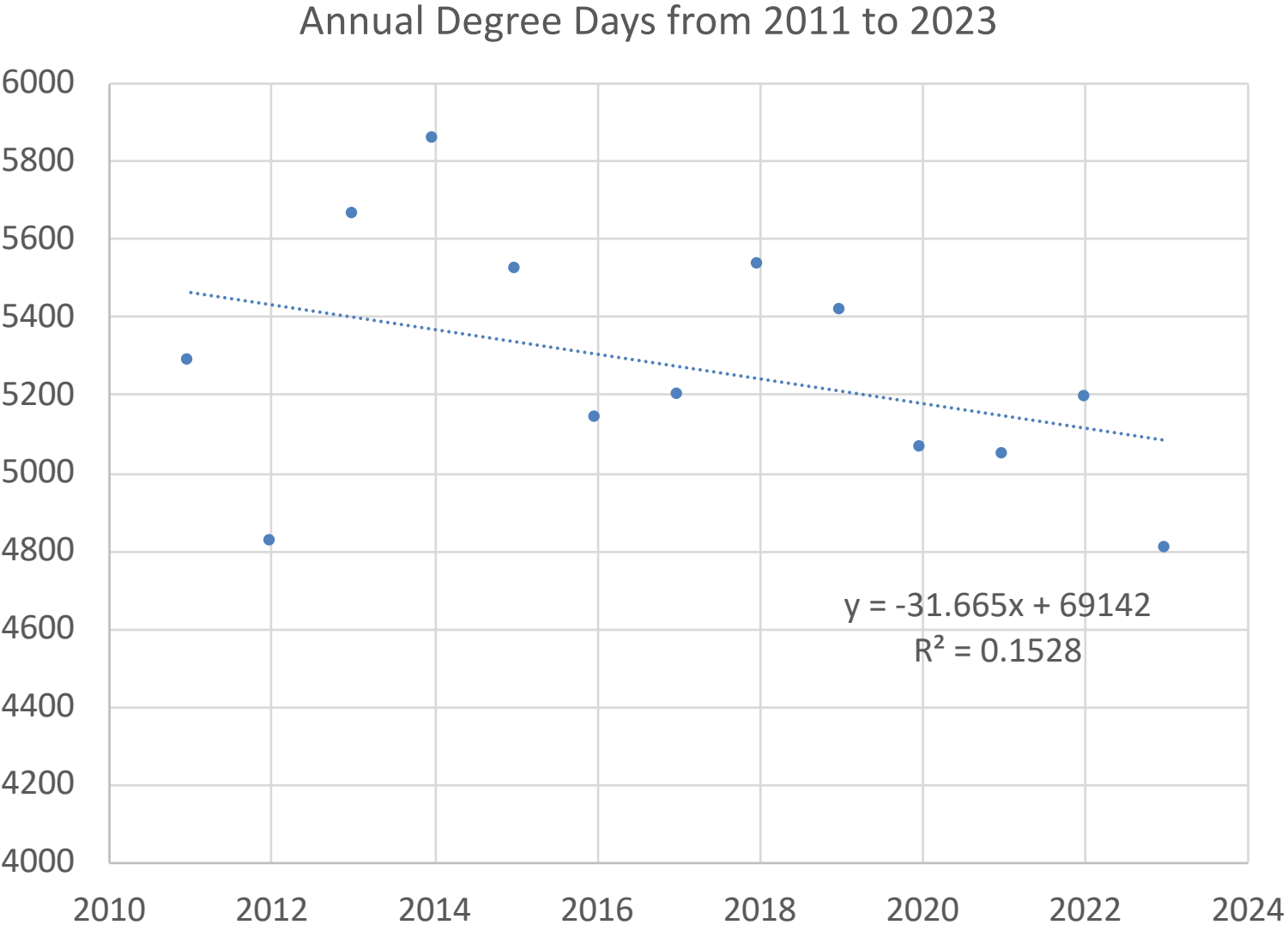
Source: <https://www.epa.gov/climate-indicators/climate-change-indicators-heating-and-cooling-degree-days>

Using the same EPA source, looking at 1975 to 2020 U.S. Average. Slope = -13.767-degree days per year. **0.31% loss per year**

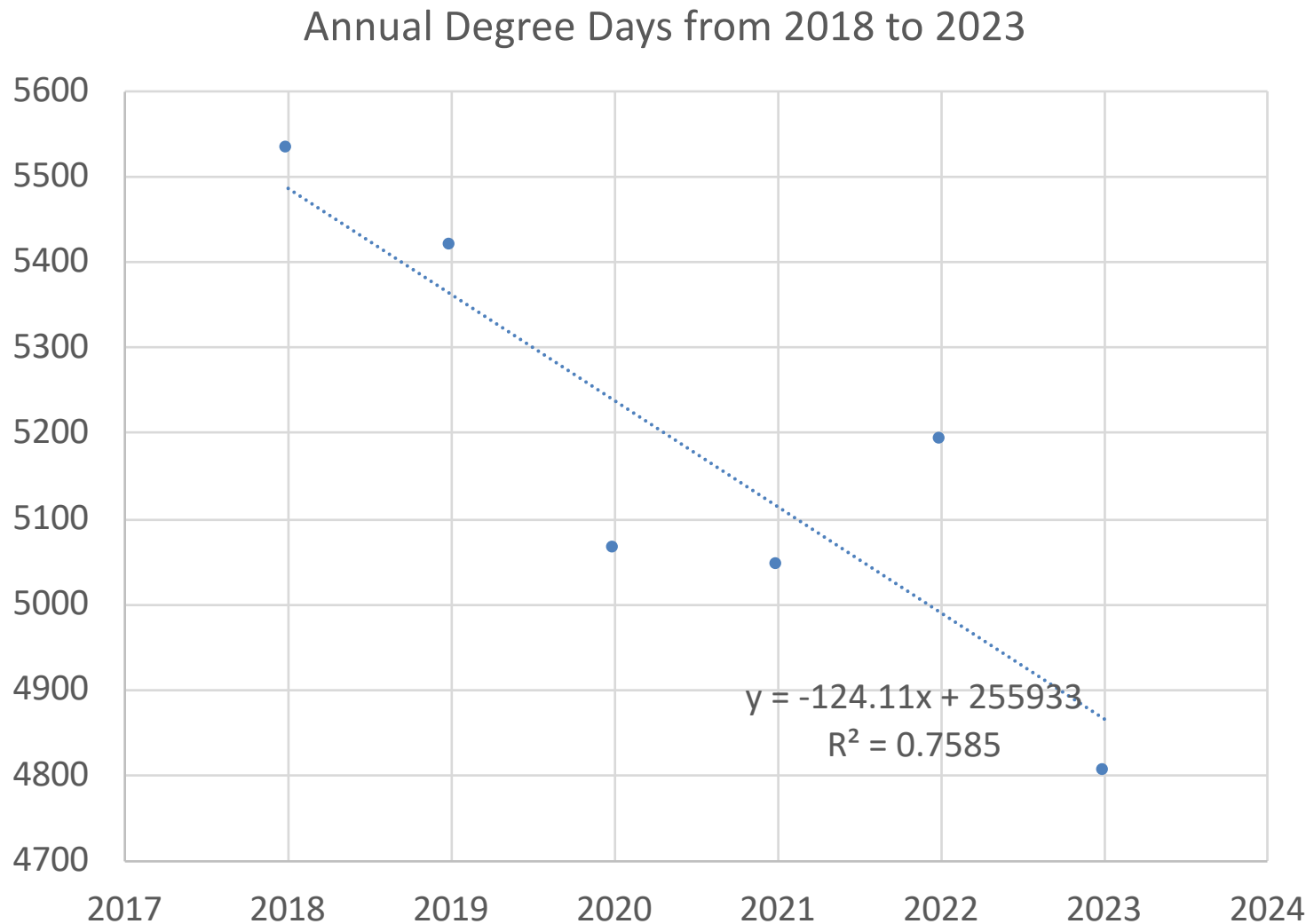




Average of 7 cities – 2011 to 2023 Annual Degree Days. Slope = -31.665 DD/year **0.60% loss per year**



Average of 7 cities – 2018 to 2023 Annual Degree Days. Slope = -124.11 DD/year **2.4% loss per year**



# Declining Heating Gallons

- Declining Degree Days over the last 5 years 2.4% Year over Year
- Same trend decline this past heating Season
- 2022- 2023 gallons off an additional 6% why?
- Consumer behavior & economy
- Improved Equipment Efficiency
- Competition from Propane & Heat Pumps
- Is this an anomaly?





**Internal Financial Statements  
For the Year Ended December 31, 2023**

**YE 2023**

National Oilheat Research Alliance, Inc.  
Internal Financial Statements  
December 31, 2023

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No assurance is provided on these financial statements.

National Oilheat Research Alliance, Inc.  
Financial Summary  
For the Year Ended December 31, 2023

NORA ended the year with a net surplus of \$898K. The annual escrow is calculated as part of the audit and will continue to be reflected as a variance until the audit is finalized.

Collections were approximately \$8.3 million as of December 31st.

Central program expenses of \$2.1 million are behind budget by \$401K through December 31st.

States and Rebates program expenses of \$3.3 million and \$922K, respectively, are over budget by \$616K due to the \$2 million additional Research & Development funds allocated in 2021 and 2022, respectively.

The Unallocated or non-programmatic expenses are approximately \$262K as compared to an annual budget of \$368K.

As of December 31, 2023, the NORA Statement of Financial Position continues to be very strong with \$9.2 million in available cash and \$8.1 million in escrow. This is offset by \$4.1 million in grants payable to the participating states and \$1.9 million in other liabilities. Accounts payable is current as are the other accrued expenses. Net assets are in excess of \$13 million.

Assessments Receivable of \$2.4 million is current and represents amounts due from customers. The balance due from customers as of May 14, 2024, is approximately \$137K, which is expected to be collected during 2024.

During August 2022, NORA entered into a \$350,000 contract with Clean Fuels Alliance America (“CFAA”) for Research Development. As of December 31, 2023, NORA has incurred \$350,000 in expenses; \$77,948 during 2022 and \$272,052 during 2023.

During July 2023, NORA entered into a \$450,000 contract with Clean Fuels Alliance America (“CFAA”) for Research Development. NORA received the first installment of \$236,500 during August 2023 and the second installment of \$213,500 during October 2023. As of December 31, 2023, NORA has incurred \$74,510 in expenses. The remaining balance of \$375,490 is classified as deferred contract revenue on the Statement of Financial Position at December 31, 2023.

National Oilheat Research Alliance, Inc.  
Statements of Financial Position  
December 31, 2023

ASSETS

CURRENT ASSETS:

Cash	\$ 9,212,417
Cash Held in Escrow	8,114,766
Assessments Receivable	2,418,168
Security Deposit	24,514
Other Receivables	15,945
Prepaid Assets	8,890
Inventory - Technicians Manual	7,851
Operating right-of-use asset	183,974
Total Curent Assets	<u>19,987,544</u>

PROPERTY AND EQUIPMENT:

Office Furniture and Equipment	80,076
Website	45,450
Computer Equipment	3,819
Less: Accumulated Depreciation	(83,110)
Less: Accumulative Amortization (Web Site)	(45,450)
Total Property and Equipment	<u>785</u>

TOTAL ASSETS	<u><u>\$ 19,988,329</u></u>
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LIABILITIES AND NET ASSETS

LIABILITIES:

Grants Payable:

State Rebate Obligations - Education	\$ 800,752
State Rebate Obligations - R&D	815,672
State Rebate Obligations - Energy Efficiency	355,126
State Rebate Obligations - Rebates	2,129,472
Total Grants Payable	<u>4,101,022</u>

Other Liabilities:

Accounts Payable	1,172,549
Accrued Salaries & Benefits	75,274
Deferred Contract Revenue	375,490
Refunds Payable	180,000
Operating lease liability	191,606
Total Other Liabilities	<u>1,994,920</u>

Total Liabilities	<u>6,095,942</u>
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NET ASSETS:

Unrestricted Net Assets	545,448
Pre-2014 Reauthorization Net Assets	55,933
Unavailable for Obligation until 10/01/2028	8,042,151
National Spending Not Yet Incurred:	
Research, development, and demonstration - not yet obligated	4,795,501
Research, development, and demonstration - obligated under contract	67,594
Heating oil efficiency and upgrade - not yet obligated	192,521
Consumer education, safety, and training - not yet obligated	193,238
Total Net Assets	<u>13,892,387</u>

TOTAL LIABILITIES AND NET ASSETS	<u><u>\$ 19,988,329</u></u>
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No assurance is provided on these financial statements.

National Oilheat Research Alliance, Inc.  
Statements of Activities  
Budget vs. Actual  
For the Year Ended December 31, 2023

	YTD Actual 12/31/23	Percentage	Annual Budget 2023	Variance
<b>REVENUE:</b>				
Collections and Assessments:				
Collections	\$ 8,372,660	111.74%	\$ 7,492,820	\$ 879,840
Refunds	(1,139,277)		-	(1,139,277)
Escrow	-		(1,873,205)	1,873,205
Net Collections	<u>7,233,383</u>		<u>5,619,615</u>	<u>1,613,768</u>
<b>EXPENSES:</b>				
Program Expenses:				
Consumer Education and Training (Max. 30%)	1,545,290		1,685,885	(140,595)
Education and Training (Central)	175,541		257,936	(82,395)
Education and Training (States)	1,369,749		1,427,949	(58,200)
Research Development and Demonstration (Min. 30%)	3,094,481		1,957,936	1,136,545
Research Development and Demonstration (Central)	1,919,068		1,441,969	477,099
Research Development and Demonstration (States)	1,175,413		515,967	659,446
Home Energy Efficiency Program (Min. 15%)	865,367		842,942	22,425
Home Energy Efficiency Program (Central)	62,514		55,289	7,225
Home Energy Efficiency Program (States)	802,853		787,653	15,200
Total Central	<u>2,157,122</u>	122.90%	<u>1,755,194</u>	<u>401,928</u>
Total States	<u>3,348,015</u>	122.57%	<u>2,731,569</u>	<u>616,446</u>
State Rebates	<u>922,404</u>	100.00%	<u>922,404</u>	<u>-</u>
Office Unallocated Expenses:				
Salaries and Consulting	111,705		165,000	(53,295)
Accounting	18,694		35,000	(16,306)
Insurance	11,228		15,000	(3,772)
Taxes	3,202		3,000	202
Postage	1,643		1,500	143
Web Pages	11,413		15,000	(3,587)
Rent and Telephone	3,293		20,000	(16,707)
Travel	4,182		1,000	3,182
Meeting Expenses	-		3,000	(3,000)
Office Supplies	177		1,000	(823)
Dues & Memberships	8,927		1,000	7,927
Bank Fees	1,046		6,000	(4,954)
Legal Expense	84,000		96,000	(12,000)
Payroll Processing Fees	3,081		-	3,081
Equipment Maintenance	248		5,000	(4,752)
Total Office Unallocated Expenses	<u>262,837</u>	71.52%	<u>367,500</u>	<u>(104,663)</u>
General and Special Projects:				
Assessment and Collection Costs	146,254		120,000	26,254
Annual Report	64,739		45,000	19,739
Total General and Special Projects	<u>210,993</u>		<u>165,000</u>	<u>45,993</u>
Other Expenses/(Income):				
Interest Income	(219,834)		(50,000)	169,834
Contract Revenue	(346,562)		(272,052)	74,510
Other Income-Technicians Manual	(82,172)		-	82,172
Cost of Goods Sold-Technicians Manual	90,112		-	(90,112)
Other Income	(7,487)		-	7,487
Total Other Expenses/(Income)	<u>(565,943)</u>		<u>(322,052)</u>	<u>243,891</u>
Net Surplus	<u>\$ 897,955</u>		<u>\$ -</u>	<u>\$ 897,955</u>

No assurance is provided on these financial statements.





**Internal Financial Statements**  
**For the Three Months Ended March 31, 2024**

National Oilheat Research Alliance, Inc.  
Internal Financial Statements  
March 31, 2024

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National Oilheat Research Alliance, Inc.  
Financial Summary  
For the Three Months Ended March 31, 2024

NORA operated at a deficit of \$1.6 million for the first three months of the year. This is the result of recording the state program expenses (Consumer Ed & Training, Research & Development and Home Efficiency) and state rebates in their entirety up front. Whereas the revenue/collections are recorded throughout the year. We expect this to smooth out as we continue to receive collections.

Collections were approximately \$2.7M for the first three months of the year. This represents 34% of budgeted annual collections.

The annual escrow is calculated at year end and will continue to be reflected as a variance throughout the year.

Central program expenses of \$441K are behind budget by \$1.2 million through March 31<sup>st</sup> as the expenses were not incurred.

States and Rebates program expenses of \$3.1 million and \$672K, respectively, are over budget by \$93K due to the \$2 million additional Research & Development funds allocated in 2021 and 2022, respectively.

The Unallocated or non-programmatic expenses are approximately \$85K as compared to an annual budget of \$356K. We expect the expenses to be incurred in the remainder of the year which will result in reducing the variance.

As of March 31, 2024, the NORA Statement of Financial Position continues to be very strong with \$9.6 million in available cash and \$8.2 million in escrow. This is offset by \$7.3 million in grants payable to the participating states and \$1.1 million in other liabilities. Accounts payable is current as are the other accrued expenses. Net assets are in excess of \$12 million.

Assessments Receivable of \$2.5M is current and represents amounts due from customers. The balance due from customers as of May 14, 2024, is approximately \$671K, which is expected to be collected during 2024.

During July 2023, NORA entered into a \$450,000 contract with Clean Fuels Alliance America (“CFAA”) for Research Development. NORA received the first installment of \$236,500 during August 2023 and the second installment of \$213,500 during October 2023. As of March 31, 2024, NORA has incurred \$174,894 in expenses; \$74,510 in 2023 and \$100,385 in 2024. The remaining balance of \$275,106 is classified as deferred contract revenue on the Statement of Financial Position.

National Oilheat Research Alliance, Inc.  
Statements of Financial Position  
March 31, 2024

ASSETS

CURRENT ASSETS:

Cash	\$ 9,686,354
Cash Held in Escrow	8,211,024
Assessments Receivable	2,576,361
Security Deposit	24,514
Other Receivables	30,760
Prepaid Assets	14,647
Inventory - Technicians Manual	29,288
Operating right-of-use asset	161,192
Total Curent Assets	<u>20,734,140</u>

PROPERTY AND EQUIPMENT:

Office Furniture and Equipment	80,076
Website	45,450
Computer Equipment	3,819
Less: Accumulated Depreciation	(83,172)
Less: Accumulative Amortization (Web Site)	(45,450)
Total Property and Equipment	<u>723</u>

TOTAL ASSETS	<u><u>\$ 20,734,863</u></u>
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LIABILITIES AND NET ASSETS

LIABILITIES:

Grants Payable:

State Rebate Obligations - Education	\$ 1,987,528
State Rebate Obligations - R&D	1,503,900
State Rebate Obligations - Energy Efficiency	1,081,619
State Rebate Obligations - Rebates	2,732,899
Total Grants Payable	<u>7,305,947</u>

Other Liabilities:

Accounts Payable	457,651
Accrued Expenses	32,066
Accrued Salaries & Benefits	30,560
Deferred Contract Revenue	275,106
Refunds Payable	180,000
Operating lease liability	168,514
Total Other Liabilities	<u>1,143,897</u>

Total Liabilities	<u><u>8,449,844</u></u>
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NET ASSETS:

Unrestricted Net Assets	(1,154,494)
Pre-2014 Reauthorization Net Assets	55,933
Unavailable for Obligation until 10/01/2028	8,042,151
National Spending Not Yet Incurred:	
Research, development, and demonstration - not yet obligated	4,888,076
Research, development, and demonstration - obligated under contract	67,594
Heating oil efficiency and upgrade - not yet obligated	192,521
Consumer education, safety, and training - not yet obligated	193,238
Total Net Assets	<u>12,285,019</u>

TOTAL LIABILITIES AND NET ASSETS	<u><u>\$ 20,734,863</u></u>
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No assurance is provided on these financial statements.

National Oilheat Research Alliance, Inc.  
Statements of Activities  
Budget vs. Actual  
For the Three Months Ended March 31, 2024

	YTD Actual 3/31/24	Percentage	Annual Budget 2024	Variance
<b>REVENUE:</b>				
Collections and Assessments:				
Collections	\$ 2,740,395	34.73%	\$ 7,889,748	\$ (5,149,353)
Refunds	(109,087)		-	(109,087)
Escrow	-		(1,972,437)	1,972,437
Net Collections	<u>2,631,308</u>		<u>5,917,311</u>	<u>(3,286,003)</u>
<b>EXPENSES:</b>				
Program Expenses:				
Consumer Education and Training (Max. 30%)	1,482,633		1,716,020	(233,387)
Education and Training (Central)	46,613		280,000	(233,387)
Education and Training (States)	1,436,020		1,436,020	-
Research Development and Demonstration (Min. 30%)	1,241,580		2,050,193	(808,613)
Research Development and Demonstration (Central)	368,812		1,270,000	(901,188)
Research Development and Demonstration (States)	872,768		780,193	92,575
Home Energy Efficiency Program (Min. 15%)	898,127		937,597	(39,470)
Home Energy Efficiency Program (Central)	25,530		65,000	(39,470)
Home Energy Efficiency Program (States)	872,597		872,597	-
Total Central	<u>440,955</u>	27.30%	<u>1,615,000</u>	<u>(1,174,045)</u>
Total States	<u>3,181,385</u>	103.00%	<u>3,088,810</u>	<u>92,575</u>
State Rebates	<u>672,501</u>	100.00%	<u>672,501</u>	<u>-</u>
Office Unallocated Expenses:				
Salaries and Consulting	40,393		165,000	(124,607)
Accounting	6,010		35,000	(28,990)
Insurance	8,799		15,000	(6,201)
Taxes	1,708		3,000	(1,292)
Postage	266		1,500	(1,234)
Web Pages	1,600		15,000	(13,400)
Rent and Telephone	1,595		7,500	(5,905)
Travel	-		7,500	(7,500)
Meeting Expenses	-		5,000	(5,000)
Office Supplies	-		2,500	(2,500)
Dues & Memberships	2,575		5,000	(2,425)
Bank Fees	42		3,000	(2,958)
Legal Expense	21,000		84,000	(63,000)
Payroll Processing Fees	1,081		4,000	(2,919)
Equipment Maintenance	62		3,000	(2,938)
Total Office Unallocated Expenses	<u>85,160</u>	23.92%	<u>356,000</u>	<u>(270,840)</u>
General and Special Projects:				
Assessment and Collection Costs	57,300		230,000	(172,700)
Annual Report	1,825		55,000	(53,175)
Total General and Special Projects	<u>59,125</u>		<u>285,000</u>	<u>(225,875)</u>
Other Expenses/(Income):				
Interest Income	(185,637)		(100,000)	85,637
Contract Revenue (CFAA)	(100,385)		(225,000)	(124,615)
Other Income-Technicians Manual	(22,580)		-	22,580
Other Income	(220)		-	220
Contract Expenses (CFAA)	100,385		225,000	124,615
Cost of Goods Sold-Technicians Manual	7,985		-	(7,985)
Total Other Expenses/(Income)	<u>(200,452)</u>		<u>(100,000)</u>	<u>100,452</u>
Net Deficit	<u>\$ (1,607,367)</u>		<u>\$ -</u>	<u>\$ (1,607,367)</u>

No assurance is provided on these financial statements.

# NORA Research Update

Tom Butcher, Technical Director  
National Oilheat Research Alliance



Board of Directors Meeting  
Eastern Energy Expo  
Mohegan Sun, CT.  
May 2024

# New CFAA Scope of Work 2024

## New Funding of \$550,000

### Highlights / Key Changes:

- Expand In-Lab Head Coking Studies
- Expand High Blend Field Studies – to include RD Blends
- Studies on RD and Elastomers
- Continue cold flow studies – additives, heating
- Support industry work as needed
- Communication – presentations, papers, participation

# High Blend (B100) Field Testing - Key Findings

No system pump / seal / leak problems

No basic combustion problems

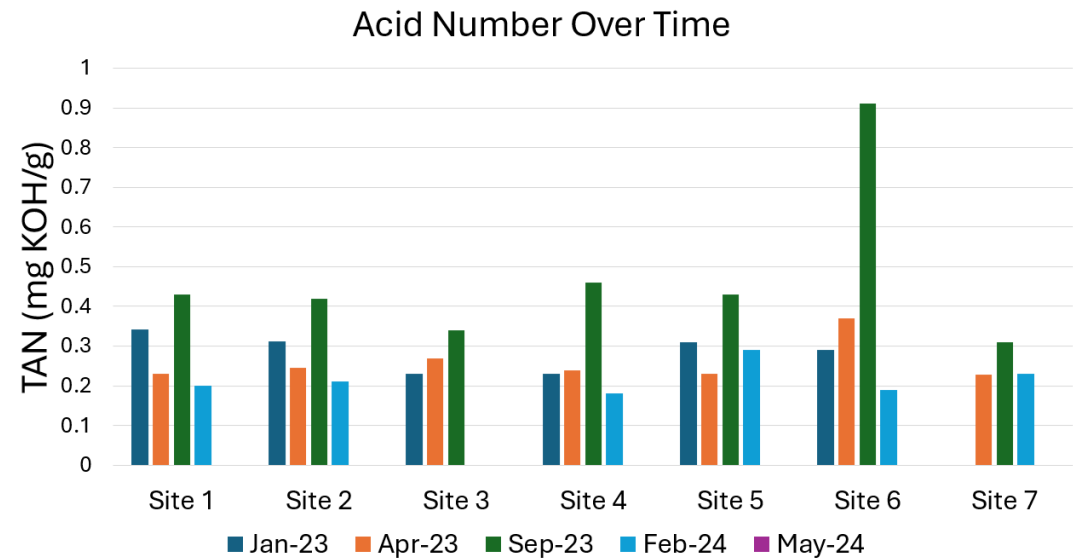
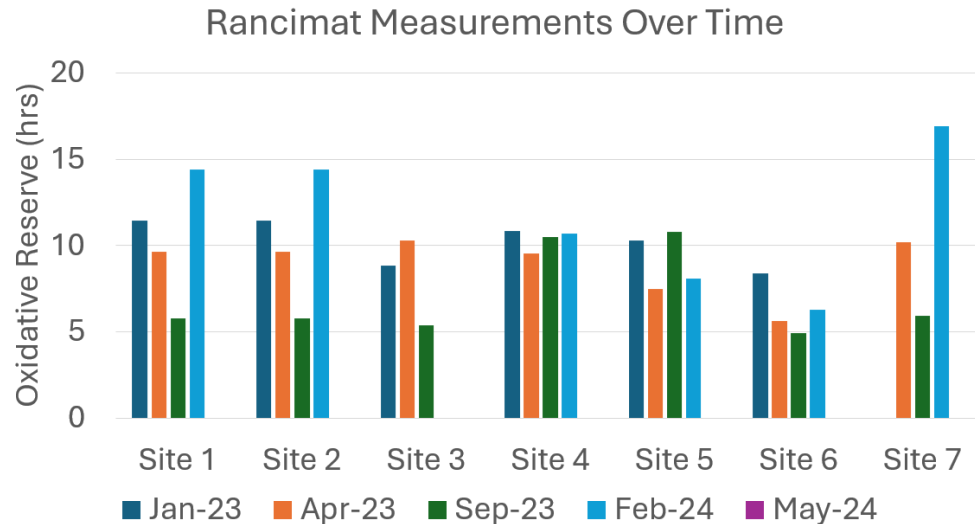
Fuel Quality remains good over entire year

Some reduction in fuel quality over summer

Heating season deliveries enhance fuel quality

Fuel filterable particulates in many cases quite high

Head coking with high biodiesel blends in some cases remains a concern.





# Field Studies – Head Coking 1 - Mass



Site 1



Site 2



Site 3



Site 6



Site 7



Site 8

## Field Studies – Head Coking 2 – Long Island



Site 6



Site 11



Site 10



Site 8

# Head Coking Factors

## Hardware

- Control settings

- Cycling rates

- Burner design

- Combustion chamber “temperature”

- Fuel heating.

## Fuel

- Trace components

- Blends which increase lower temperature volatility.

## Service Practices

- Burner head cleaning protocols.

# In-Lab Head Coking Tests

- 4-day testing performed at the NORA lab
- 3000 cycles, 60s on and 60s off
- Managed by lab control system
- Condition of head monitored before and after testing





B100



RD80/B20



RD50/B50



RD100

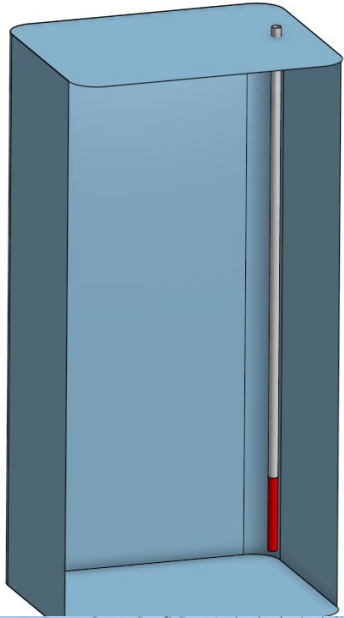
# Blue Flame Burner

- As part of explorations, testing was done on a blue flame burner
- Buderus blue flame burner not in market, but an interesting approach since there is no head and fuel is vaporized before reaching flame zone
- Flame tube that contains entire flame and provides recirculation zone that cools it – cooler flame results in lower NO<sub>x</sub>
- Any fuel deposit is quickly evaporated
- No coking observed at all with B100





# CEMA Tank Test 2023-2024



- 225W in-tank heaters in each tank programmed to turn on at 50°F air temperature
- Line heaters installed on supply lines also turn on at the same temperature
- Systems monitored by CEMA and periodic visits from NORA
- Successful operation throughout heating season 2023-24 without any failures, down to 10°F outside temp
- Thanks to CEMA folks for all their help and support

# Concept for a Heated Outside “Shed”

NORA has started a collaboration with SUNY Morrisville, upstate New York, which includes integrating renewable liquid fuels with their course program.

As part of this we have designed and built a heated outdoor enclosure for B100.

Temperatures in this part of New York can fall below zero during the winter, proving a great test location.

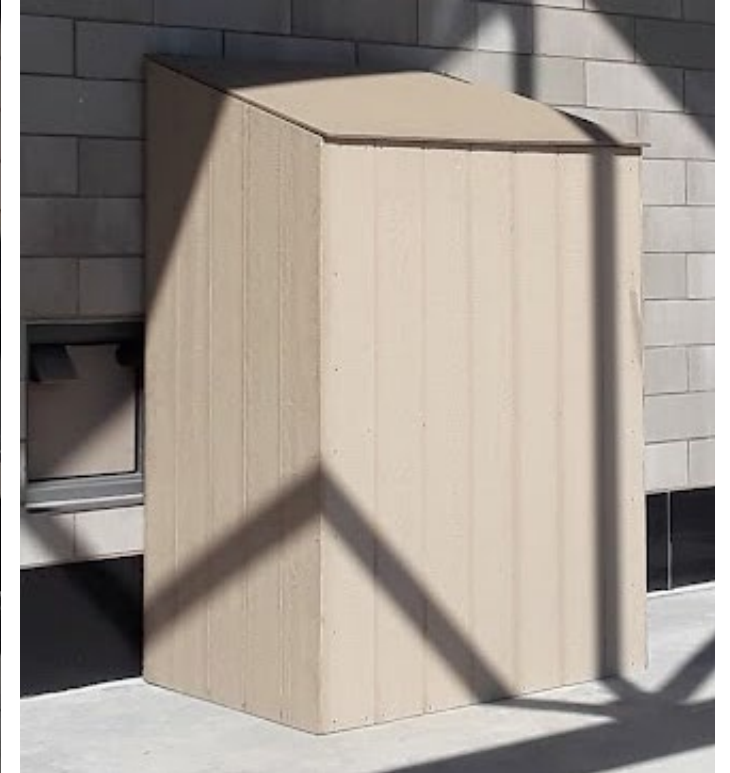




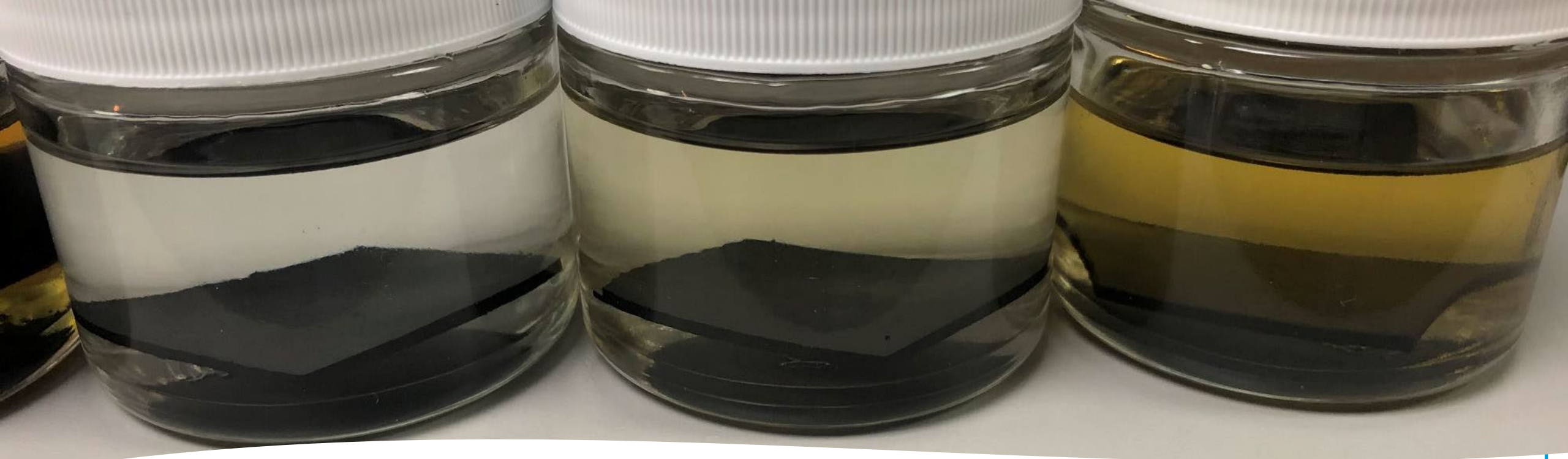
# Heated Tank Enclosure



3" foam board insulation  
2 X 100 watt heating blankets in air space  
Thermostat control



Limited testing has been done to date. Temperature as low as 12°F.  
Very good performance. To be continued next heating season.



## Elastomer Testing

- Measuring the impact of Renewable Diesel and Biodiesel on the soft materials found throughout the industry
- Currently testing various Nitriles and Viton slabs with RD100, B100 and RD80/B20. More fuel blends planned

# Ethyl Levulinate (EL)

## EL Completed Testing

- Fuel blending/separation
- Elastomer compatibility
- Filter compatibility
- Long term storage
- Combustion properties
- Commercial level boiler testing
- EL100 field study





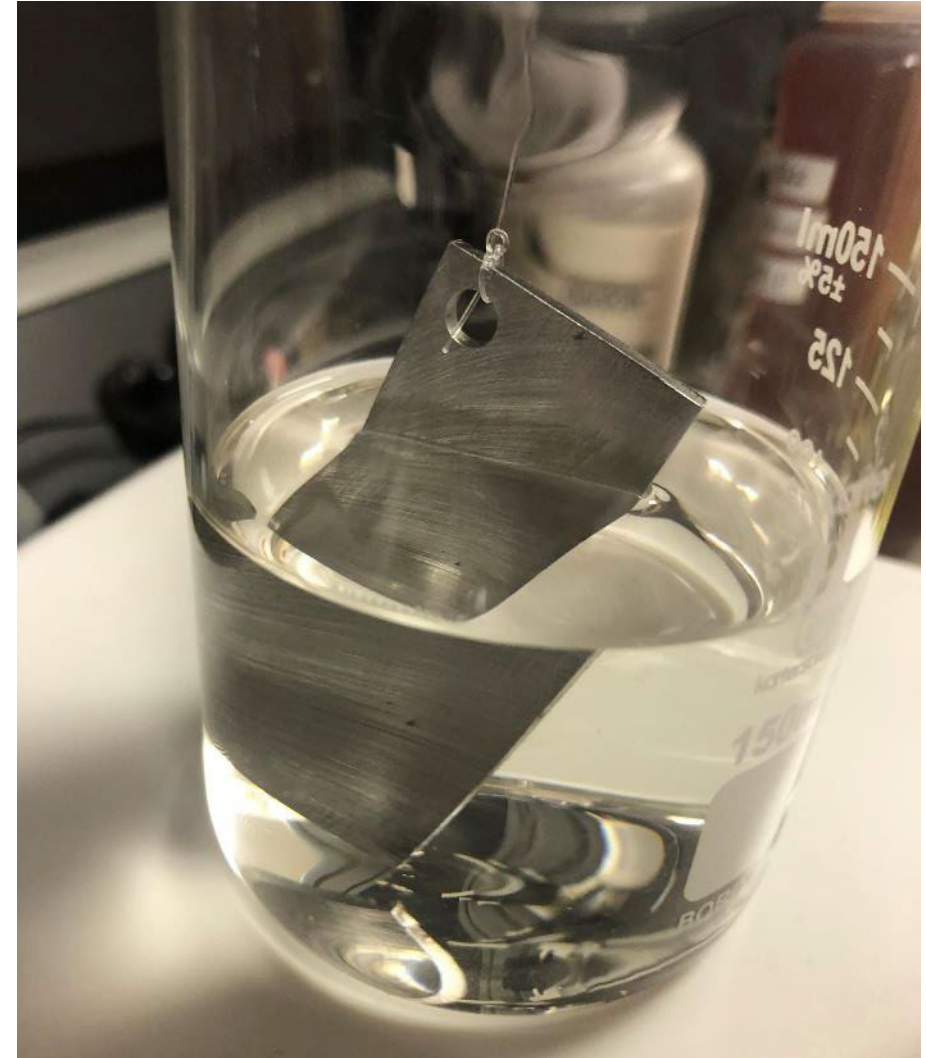
# Planned Testing

## **Storage Stability – D4625.**

Purpose – to evaluate if a storage stability specification for EL is needed. Explore changes in TAN and peroxide over time with water content as a parameter.

## **Steel Corrosion – D665.**

Purpose – to evaluate if a steel corrosion specification is needed if EL meets all other specifications. Water content as a parameter



# Draft ASTM Specifications for EL

Property	Test Method	Required Value
Density kg/m <sup>3</sup>	D4052	1000 to 1020
Flash Point °C	D93A	>80
Kinematic Viscosity at 40 °C min max	D445	1.4 4.0
Water, percent by mass	D1364	<1.0
Acid Number mg KOH/g, max	D664	<0.5
Sulfur content ppm	D2622	<15
Cloud Point °C	D5773	<-15
Pour Point °C	D97	<-40
Electrical Conductivity pS/m	D2624	>2,000
Copper Strip Corrosion max	D130	No. 3
Steel Corrosion	D665	Pass
Lubricity HFRR @ 60 °C micron max	D6079/D7688	520

# Conferences / Presentations / Papers

**ASHRAE** June 2024 – B100 Net Zero Home Concept

**IASH** (Int. Assoc. for Storage and Handling of Liquid Fuels) Sept 2024 – EL

**CT DEEP Hearing on the State ACT Implementation**

**Net Zero Home with B100**

**Indoor air quality and liquid fuels**

**Filtration** – internal report completed

**Outside Tank Testing at CEMA** – internal draft completed

**Field Testing Report** – internal draft near completion

**Stony Brook University** – MS Thesis on head coking work.

# NORA Education Update

Bob O'Brien  
Uncasville , CT  
May 2024



# Expanding Education

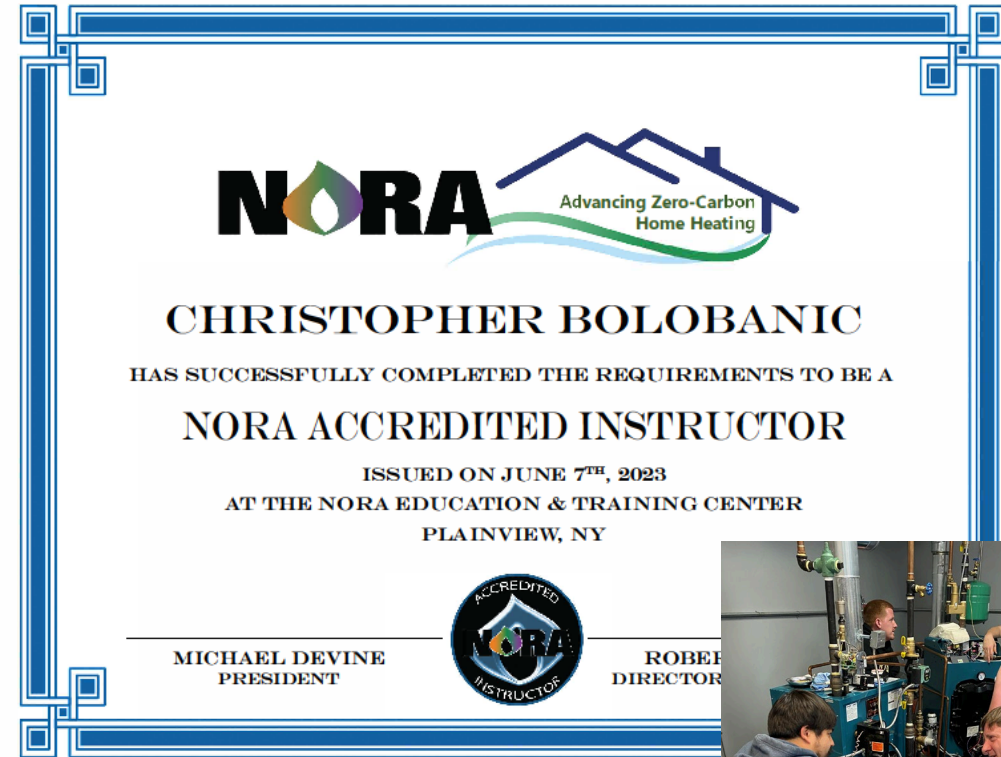


- Techs
- CSR's
- Instructors
- Building Performance



# Accredited Instructor Program

- Instructors are technically oriented but....
- Improve classroom & teaching skills
- June 2023, January 2024  
June 2024





The NORA Accredited Instructor Program (AIP) ensures technicians trained in NORA schools, unions, and companies in the heating liquid heating fuels industry, have been provided with an education that positions them, their customers and their companies for success.

Facilitated by a professional "teaching" instructor, this intensive three-day program focuses on improving classroom teaching skills, presentation, class preparation and capacity to engage your students, to maximize their retention and comprehension of the subject. AIP uses live instruction, demonstration, and peer review.

[Interested in future Workshops?](#)

[Read about past Workshops](#)

## NORA Accredited Instructors



+ Christopher Bolobanic

+ Charlie Burbham

+ Wayne Lawrence

+ Ronald Mannino

+ Joe Maroney



+ Robert O'Brien

+ Jeff Rozga

+ Michael Warn

+ Alan Wornham



Brenda Huber

### AIP Educational Consultant

Mrs. Huber has shared her learner-centered focus and instructional strategies as an instructor development trainer for federal, state, and industry clients for the past five years. In addition, she has applied adult learning theories and instructional design best practices to create interactive, training solutions for federal clients and local school districts. She also has 10 years of experience developing communications and publication materials for trade and professional associations. Ms. Huber has a BA in Communications and a master's in education in Multilingual/Multicultural Education and a master's in education in Instructional Design and Technology. She was named Instructor of Excellence in 2019 by the National Highway Institute and is the author of the Learners First: Creating Engaging and Interactive Learning Experiences handbook.

# Accredited Instructor Program

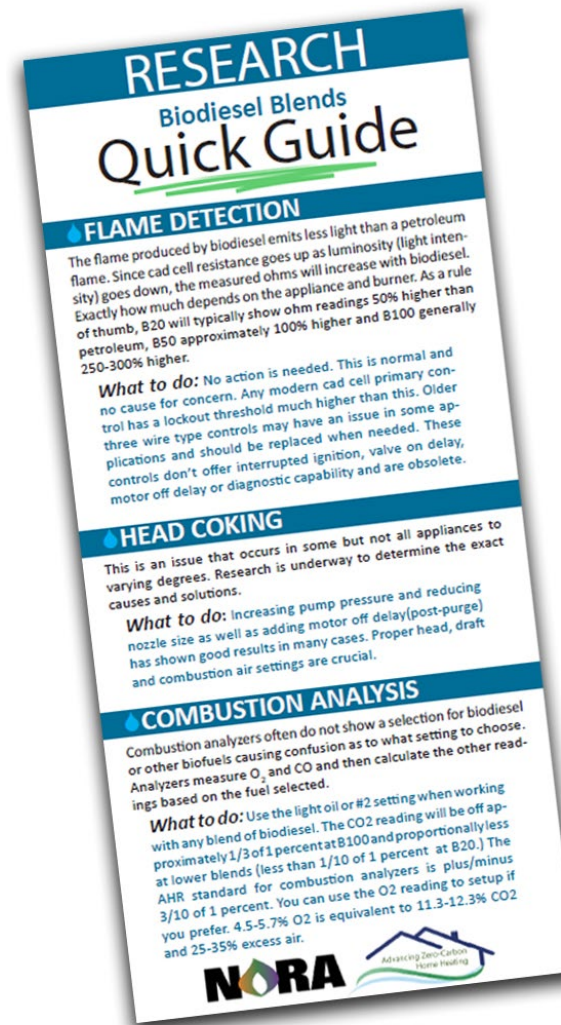
- Outcome & objective based education
- Three-day program
- Next session in June 2024



# Biodiesel Quick Guide Card

- Actionable suggestions for field issues

Distributed: Approx: 27,000





# CSR FAQ Cards

- CSR's need answers to consumer queries
- Concise and easily understandable

Distributed: Approx. 13,000



# Biodiesel Tech Training

- OESP Chapter meetings-11 so far 23-Date
- SUNY Morrisville
- Wholesaler location training-unreached segment
- RD training



# Alaska DOC



- Establish an oil-heating curriculum in multiple facilities
- Approved and out for bid
- Provide support



# EPA 608 Testing

- NORA is approved to administer EPA 608 exams both in person and online
- Needed to purchase and handle refrigerants
- Hybrid systems



# IECC



Adopted in whole or part  
by 49 states, including  
every oil-heat state





## • Commercial

- Successfully kept combustion of liquid fuels in the code
- Blocked heat pump infrastructure
- NORA submitted a proposal to include renewable liquid fuels as eligible to offset on site renewable energy requirements
- Passed subcommittee 9-2
- Failed in main committee 17-10

## • Residential

- NORA submitted a proposal to include Energy Star B20 rated Boilers & Furnaces as more efficient HVAC options to meet code requirements
- Passed subcommittee 5-2
- Failed main committee 19-10
- Proposed & passed new definitions

# Appeals

- AGA and AHRI among others filed appeals
- Electrification infrastructure & Efficiency Options
- Appeal board declined appeals
- Executive board overruled
- Electrification to appendix
- Efficiency to reference





## 2024 International Energy Conservation Code [CE Project]

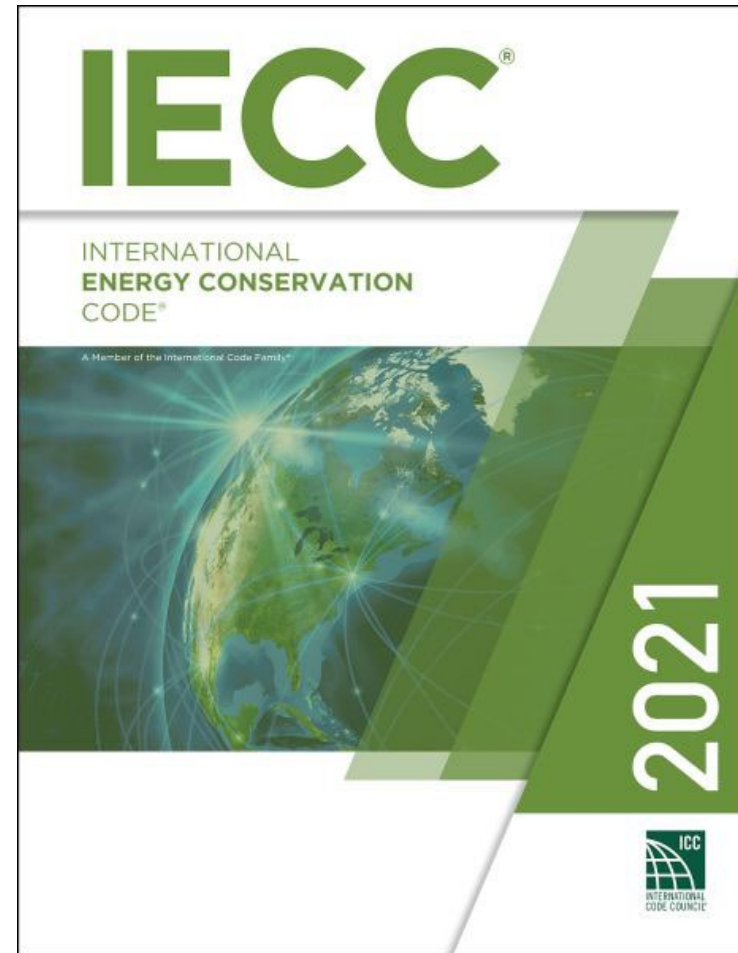
Add new definition as follows:

- **BIODIESEL BLEND** *A homogeneous mixture of hydrocarbon oils and mono alkyl esters of long chain fatty acids.*
- **FUEL GAS** *A natural gas, manufactured gas, liquified petroleum gas or a mixture of these.*
- **FUEL OIL** *Kerosene or any hydrocarbon oil having a flash point not less than 100°F (38°C).*
- **LIQUID FUEL** *A fuel oil or biodiesel blend.*

## Fuel oil replaced by liquid fuels throughout code

# NORA Code Committee

Reps from across industry  
Formulate plan to promote  
renewable liquid fuels as a  
decarbonization option  
Organize a defensive strategy  
against anti-combustion and anti-  
renewable fuel proposals



# Building Performance Association



- Exhibited in Saratoga
- February 13-14 2024
- Energy Auditors, HVAC contractors
- Renewable fuels as the fastest decarbonization solution

# HVAC Excellence



- HVAC and P&H communities aren't familiar with renewable fuels
- Nationwide conference for HVAC educators
- 2023- Introducing Technicians to Liquid Renewable Fuels
- 2024- Decarbonizing Hydronic Systems

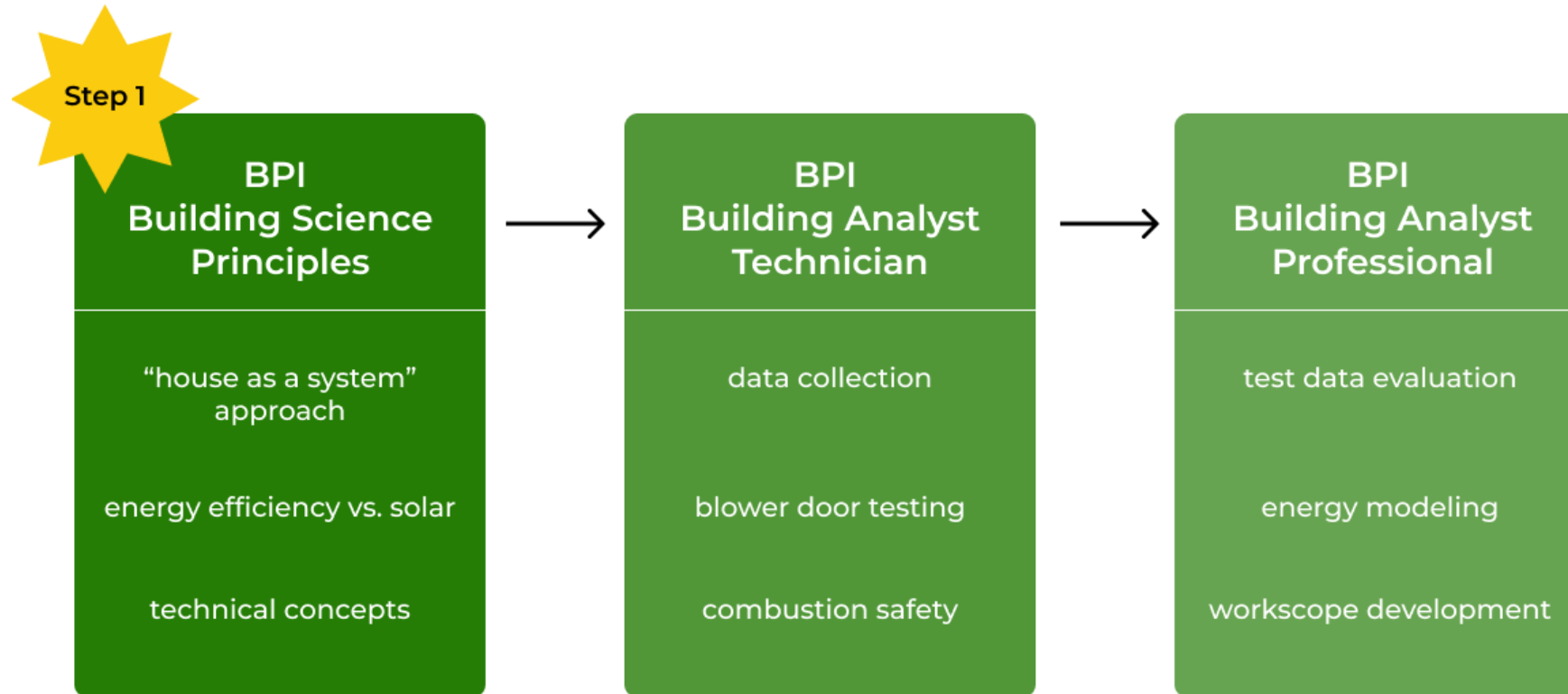
# NORA/BPI

- NORA will become a BPI approved testing center Summer 2024
- State /Federal programs
- Diversification opportunity
- BPI Standards Technical Committee – JL & RO
- Chair of BPI STC effective 1/24



# BPI Pathway

## Skill Increase With Each BPI Certification





# NORA Silver = BPI Heating Specialist

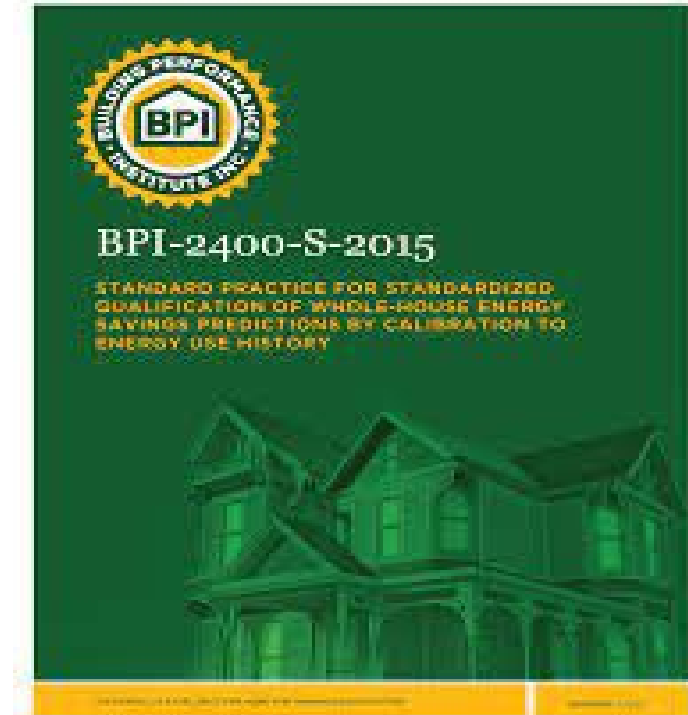


- BPI Added Heat Pump
- Both written and field tests are mandatory



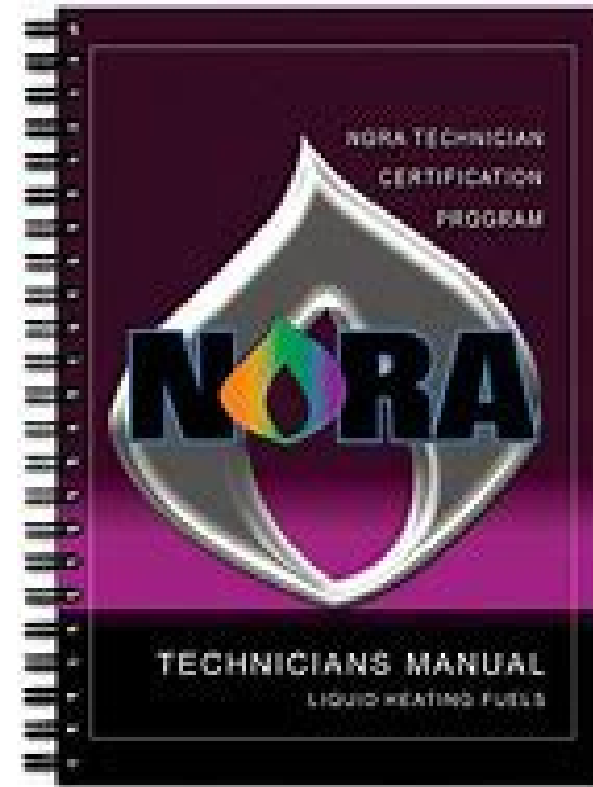
# BPI 2400

- Protocol to predict energy savings for various upgrades



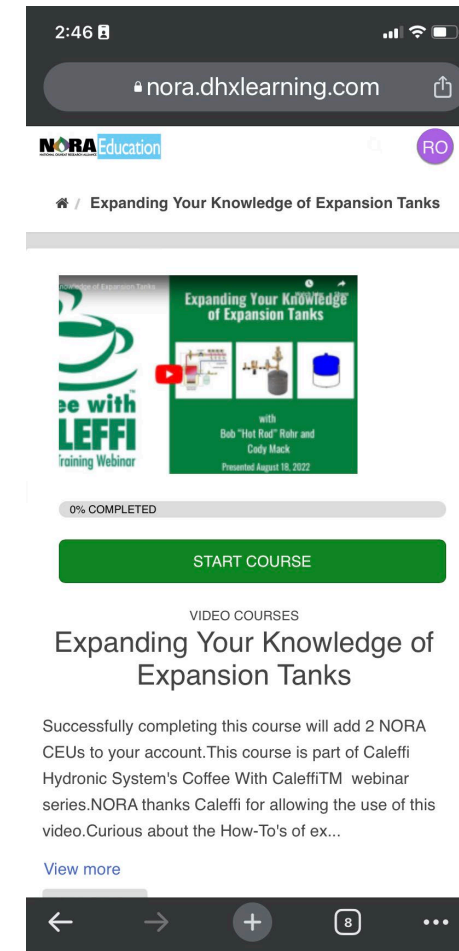
# Curriculum Updates

- PDF downloadable
- Audio file accompaniment
- Power points
- Quizzes
- 3800+ sales/print
- Biofuels update
- Alternate fulfillment?



# CEU's

- All renewals and upgrades are done via CEU's not testing
- Adding new video classes continually
- Most recently 5 from Caleffi



# Continuing Education

## Changing technology requires constant learning



1920's



2020's

# Bioheat Prerequisite

[NORA's Main Site](#)[About NORA Certification](#)[Technicians Manual](#)[Technical Resources](#)

Required Course

## IMPORTANT

*Effective December 9, 2022, all recertifications and certification upgrades require the course*

### **Bioheat® Technical Guidance (NORA-109-1)**

#### BRONZE CERTIFICATION

To upgrade to Silver Certification, twenty NORA approved credits (CEUs) are required along with three years in-field experience. Two of the twenty CEUs must come from the "Bioheat® Technical Guidance" course.

#### SILVER CERTIFICATION

To renew silver certification, twenty-four NORA approved credits( CEUs) are required. Two of the twenty-four CEUs must come from the "Bioheat® Technical Guidance" course.

#### GOLD CERTIFICATION

To upgrade to Gold certification, Silver certification is required along with five years experience and completing four of the NORA Gold Advanced courses. In addition to these, the "Bioheat® Technical Guidance" course is required.

To renew to Gold certification, twenty-four NORA approved credits( CEUs) are required. Two of the twenty-four CEUs must come from the "Bioheat® Technical Guidance" course.

Look for this course in "Online Courses"

#### Why Bioheat®?

- Renewable
- Made in the USA
- Low carbon
- It's the best option for Oilheat to meet carbon dioxide reduction goals



#### VIDEO COURSES

Bioheat® Technical Guidance  
(NORA-109-1)



# Technical Resource Center

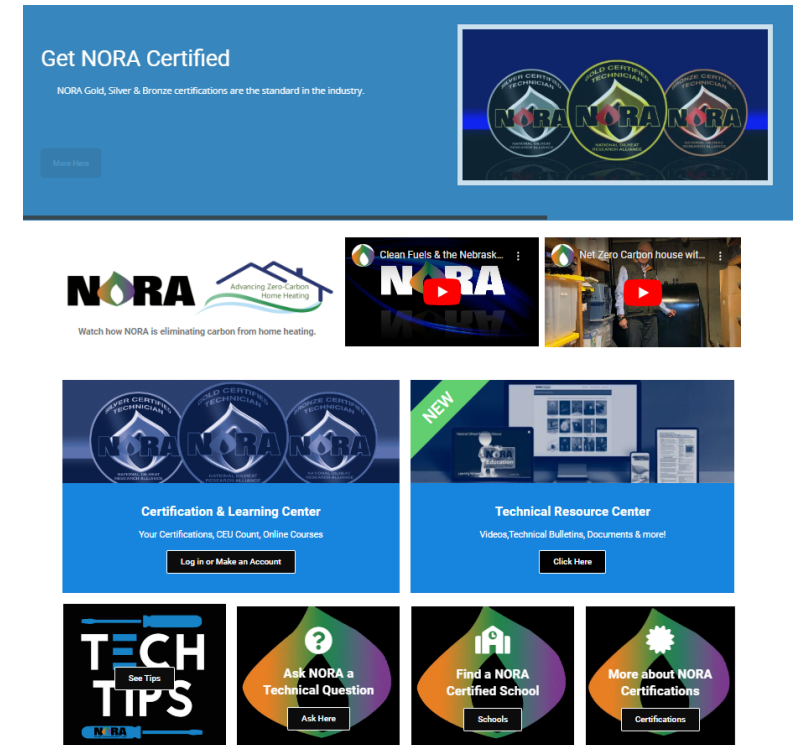
- Continually updateable
- OEM bulletins & guides
- OEM videos
- NORA generated content
- Short task-oriented videos
- “Living addendum”
- Social Media

The screenshot displays the NORA Technical Resource Center website. At the top, a blue banner features the text "Get NORA Certified" and "NORA Gold, Silver & Bronze certifications are the standard in the industry." Below this is a "More Here" button and a row of three circular certification logos: Silver, Gold, and Bronze. The main content area includes a NORA logo with the tagline "Advancing Zero-Carbon Home Heating" and a video player showing "Clean Fuels & the Nebraska..." and "Net Zero Carbon house wit...". Below the video player are two blue boxes: "Certification & Learning Center" with a "Log in or Make an Account" button, and "Technical Resource Center" with a "Click Here" button. At the bottom, there are four colorful buttons: "TECH TIPS" (See Tips), "Ask NORA a Technical Question" (Ask Here), "Find a NORA Certified School" (Schools), and "More about NORA Certifications" (Certifications).



# Snapshot

- **9,800:** active visitors in 2023
- **9,900:** Tech Manual & other tech materials downloads
- **6,000:** Tech Manual audio file downloads
- **53,000:** YouTube views since 2021
- **600:** New Bronze Certifications (12 months)
- **5,100:** CEU course completions (12 months)

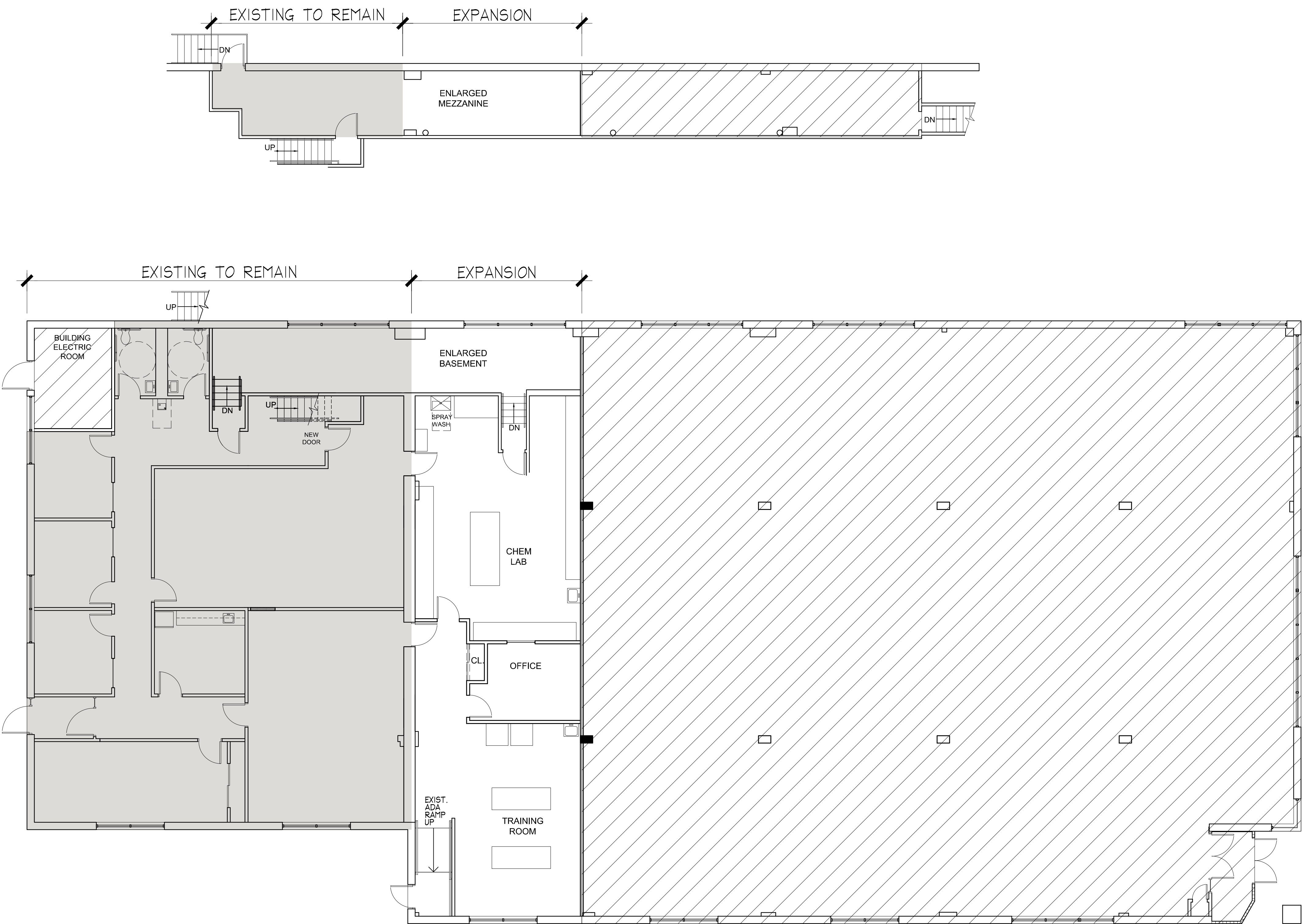


# 131 EAST AMES COURT

PLAINVIEW, NY

DATE: 4-19-24  
JOB #: 24-09 (13-26)

Images are for graphical purposes, and dimensions are subject to normal construction deviation, not to scale.



0 4' 8' 16'  
SCALE: 1/8" = 1'-0"



ARCHITECTURE • URBAN PLANNING  
210 West Rogues Path • Cold Spring Hills, NY 11743



We Facilitate Your Business

May 6, 2024

Mr. Robert Anton  
RH at East Ames Court LLC  
5 Aerial Way, Suite 100  
Syosset, NY 11791

**Re: Expansion and lease amendment for NORA at 131 East Ames Court, Plainview, NY**

Dear Bob.

As agreed, please prepare lease amendments to include the following:

- Tenant:** National Oilheat Research Alliance (NORA)  
131 East Ames Court  
Plainview, NY 11803  
Mr. Michael Devine, Executive Director
- Size:** The size of the suite will be increased from 3,786 square feet to approximately 5,927 square feet rentable, as per plan to be attached to the lease amendment.
- Lease Commencement:** As soon as work can be completed, on or about September 1, 2024.
- Term:** New term to expire December 31, 3032.
- Workletter:** Landlord will demise and construct the additional space as per plan attached to the amendment, providing new plumbing, lighting, paint and floorcovering (selected from Landlord's samples.)
- Parking:** Tenant will have parking for 20 cars, and may reserve three (4) of these spaces for their exclusive use.



Mr. Robert Anton

-2-

May 6, 2024

**Rental Rate:**

Base rent will escalate by 3% on each anniversary of the lease commencement. Tenant's other additional rent obligations, e.g. increase in taxes, share of water bill, will continue as per the existing lease.

Year	Annual Rent	
1	\$136,212.40	Through 12/31/2025
2	\$140,298.77	
3	\$144,507.74	
4	\$148,842.97	
5	\$153,308.26	
6	\$157,907.50	
7	\$162,644.73	

Option 1	Annual Rent
8	\$167,524.07
9	\$172,549.79
10	\$177,726.29
11	\$183,058.08
12	\$188,549.82

Option 2	Annual Rent
13	\$194,206.31
14	\$200,032.50
15	\$206,033.48
16	\$212,214.48
17	\$218,580.92

**Security:**

The existing security deposit of \$21,146.10 will be increased to equal \$27,107.46, which is based upon the rent for the last two months of the new term.

**Renewal Option:**

Tenant will have two (2) five-year options to renew at a continuation of the base rent plus 3% annual escalations. Option must be exercised at least one year prior to the expiration of the prior term.





Mr. Robert Anton

-3-

May 6, 2024

**Rent Concession:** The base net rent will be waived for the 1<sup>st</sup> month of the lease. Tenant will be responsible for additional rent during the concession period.

**Broker:** Hunt Corporate Services, Inc. to be paid by landlord, per separate agreement.

All other lease terms shall remain the same. Please have lease amendments delivered to me for delivery to the tenant and tenant counsel.

Sincerely,  
Hunt Corporate Services, Inc.

*David G. Hunt*

David G. Hunt, MCR, CCIM  
President

DGH/mtf





	2024 Executive Committee	2024 Officers
Kate Duffey	Executive Committee	Chair
	Executive Committee	Vice Chair
Roger Marran	Executive Committee	Past Chair
Eric DeGessero	Executive Committee	Treasurer
Michael Devine	Executive Committee	President
Charles Uglietto	Executive Committee	
Allison Heaney	Executive Committee	
Claudette Townsend	Executive Committee	
Leann Pannebianco	Executive Committee	
Mario Bouchard	Executive Committee	
Sandra Farrell	Executive Committee	
Matt Cota	Executive Committee	
Daniel Mattice	Executive Committee	
Steve Clark	Executive Committee	
Gary Sippin	Executive Committee	
Jacqueline Hart	Executive Committee	
John McCusker	Executive Committee	
Krystyn Schweitzer	Executive Committee	
Steve Powers		
Bill Reichert Jr.		
Carter Vaillancourt		
Justin Jeffers		
David Coyne		
Steve Oehlert		
Brent Moore		
Katie Foster		
Randy Groft		
Doug Fredericks		
Bobby Parlett		
Chris Fazio		
Hal Johnson		
Mihael Lamperelli		
Mike Van Doren		
Dan Singer		
Dave Walton		
Scott Vandino		
Levi Bourne		
Mark Caspers		