

Thank you for your decision to inter-calibrate your research with the World Meteorological Organization [WMO] community.

Please note, the following seven (7) steps describe the MOU process. Time frames of 5 weeks for the customer to receive the countersigned MOU agreement is common.

1. **Work with Duane on completing the correct Memorandum of Understanding (MOU) template. (Duane can e-mail you this).**
 2. **Once customer has completed filling out the MOU, they are to e-mail the signed MOU back to Duane Kitzis. If customer is a University, they are required to send a copy of their Purchase Order (PO) along with the signed MOU back to Duane at duane.r.kitzis@noaa.gov.**
 3. **Duane will send the signed MOU and Purchase Order directly to his administrative support Sandy McClelland for processing.**
 4. **Sandy McClelland will put together a packet to obtain counter signature on the MOU and send it to our NOAA Headquarters and Finance Office in Silver Springs, MD.**
 5. **NOAA Headquarters Office will mail the customer a countersigned copy of the MOU directly (The countersigned MOU is normally sent to the customer's person that signed the MOU).**
 6. **NOAA Finance will invoice the Customer via e-mail. The invoice will be e-mailed to the contact name the customer has listed for invoicing on Page 1 of the MOU.**
 7. **Once NOAA Finance has invoiced the Customer, the Customer can send a check to the billing/invoice address specified on the invoice, or do a Fedwire to an account specified on the ESRL GML invoice.**
- **NOTE: A foreign bank cannot make the payment directly – it must work through a U.S correspondent bank. The payment must be in U.S. dollars. The purchasing business/company or University is required to pay all Fedwire Fees prior to sending payment to NOAA!! Please make sure these fees are paid for before making your payment in full to NOAA.**

THE MOU IS VALID FOR 60 DAYS (AFTER THE YEAR, MONTH, and DAY) OF THE MOU AGREEMENT NUMBER. If not submitted by that date, acceptance is at the discretion of NOAA/GML. It may be that NOAA will require an updated MOU version and/or fixed fees.

Attached is a DOC/NOAA purchasing document [MOU].

Purchaser MUST complete all text in red in this document, or the MOU cannot be accepted.

E-mail a signed copy of this document to Duane Kitzis at duane.r.kitzis@noaa.gov or refgas@noaa.gov, or the project cannot be accepted or started. We cannot accept any other revisions to this document [MOU].

U.S. Universities are required to provide a copy of their Purchase Order (PO) with the signed MOU.

Complete the following red text in the MOU:

- **Purchaser, Invoice contact name and address on the Page 3,**
- **DUN and Bradstreet Number (DUNS), and Taxpayer ID (TIN) on Page 3. This information is required for all Requesting U. S. Businesses and Universities,**
- **Section 4, Name, telephone and complete shipping address of Requesting Business or University,**
- **Page 6, top of page Taxpayer ID (TIN) – fill in information,**
- **Section 6, Technical and administrative/budget points of contact for this agreement,**
- **Section 9, signature and signatory contact information.**

Any questions, please email me, Duane Kitzis, duane.r.kitzis@noaa.gov

I cannot accept the work to make your standards until I have received an e-mailed copy or 1 hard copy of this completed document. My contact information is as follows:

Duane R. Kitzis
National Oceanic and Atmospheric Administration (NOAA)
Global Monitoring Laboratory (GML)
Carbon Cycle Greenhouse Gases (CCGG)
325 Broadway – R/GML1
Boulder, CO 80305, USA Phone:
303-497-6675
Fax: 303-497-6290
E-mail: duane.r.kitzis@noaa.gov
Web Site: <https://gml.noaa.gov/ccl/>

MEMORANDUM OF UNDERSTANDING

THROUGH WHICH

[Name of Requesting Business or University]

**IS PURCHASING
Trace Gas Air Standards**

**FROM
Earth System Research Laboratory (ESRL)
Global Monitoring Laboratory (GML)
Office of Oceanic and Atmospheric Research (OAR)
National Oceanic and Atmospheric Administration (NOAA)
U.S. Department of Commerce (DOC)**

Agreement No: _____
Date: _____

Contact Name and Address that NOAA should send invoices to:

Required:

Name:	
Title:	
Address:	
City, State, Zip	
Phone:	
Fax:	
E-Mail:	

Required Information:

FOR REQUESTING U.S. BUSINESS or UNIVERSITY ONLY:	
Dun & Bradstreet No:	
Tax Payer ID No:	

NOAA ESRL GML ACCNT INFORMATION
DUNS/BPN: 162008767
EIN: 84-1040636
ALC: 13-14-0001
OMB Max Code: 006-48
TAS: 13X1450
BETC: COLL

1. PARTIES AND PURPOSE

This Memorandum of Understanding (MOU) establishes an agreement between _____ [\[Name of Requesting Business or University\]](#) and Earth System Research Laboratory, [Global Monitoring Laboratory](#) (ESRL/GML), through which Non Federal Businesses and Universities will pay ESRL/GML for calibrated trace gas air standards, including shipping and handling.

2. BACKGROUND

High precision measurements of the trace gases CO₂, CH₄, CO, N₂O, and SF₆ are being undertaken by many laboratories of various nations in order to better understand the emissions and biogeochemical cycles of these gases. There can be no integration of all these various measurement projects unless the data are referenced to common well-defined calibration scales. The consistency required for optimally usable atmospheric CO₂ measurements and intercomparison must be no worse than 0.1 umol/mol for the northern hemisphere and 0.05 umol/mol in the southern hemisphere [World Meteorological Organization (WMO), 1993]. Because of stringent quality controls necessary for the measurement of long-lived trace gases, stable reference gas standards are an integral part of any long-term measurement program.

ESRL GML serves as the [Central Calibration Laboratory \(CCL\)](#)¹ for the WMO Global Atmosphere Watch. In this role, GML maintains and distributes gas standards for CO₂, CH₄, CO, N₂O, and SF₆ for atmospheric monitoring. The need for gas standards at ambient mixing ratios has not been filled by a private company or corporation demonstrating the desired level of consistency over time.

The [Greenhouse Gas Global Reference Network](#)² group (GGGRN) of ESRL/GML has been involved with making CO₂ standards since the early 1970s [Miller, 1974] and over the years has expanded to include methane, carbon monoxide, and the stable isotopes of CO₂. GGGRN can fill and calibrate compressed gas cylinders for use as standard reference gases by other laboratories for measurements of CO₂, CH₄, CO, and the stable isotopes of CO₂ (¹³C and ¹⁸O).

3. AUTHORITY

The authorities for ESRL/GML to enter into this agreement are:

- (1) 33 U.S.C. § 883e, which authorizes NOAA to enter into agreements, with, and to receive and expend funds made available by, any State or subdivision thereof, any Federal agency, or any public or private organization, or individual, for surveys or investigations authorized herein, or for performing related surveying and mapping activities, including special-purpose maps, and for the preparation and publication of the results thereof, and to establish the terms of any agreement entered into under this section, including the amount of funds to be received, and may contribute that portion of the costs incurred by the National Oceanic and Atmospheric Administration, including shiptime and personnel expenses, which NOAA

¹ <https://gml.noaa.gov/ccl/>

² <https://gml.noaa.gov/ccgg/index.html>

determines represents the amount of benefits derived by the Administration from the agreement.

- (2) 33 U.S.C. § 883d, which authorizes NOAA to increase engineering and scientific knowledge by conducting developmental work for the improvement of surveying and cartographic methods, instruments, and equipments; and to conduct investigations and research in geophysical sciences (including geodesy, oceanography, seismology, and geomagnetism).

4. TERMS AND CONDITIONS

ESRL/GML will achieve full cost recovery for the goods and services it is providing under this agreement.

Requesting Business or University is responsible for paying all FEDWIRE and/or Automated Clearing House (ACH) payment processing fees prior to sending full payment amount due on MOU to U.S. Department of Commerce, NOAA.

Requesting Business or University assumes responsibility for the safe handling of compressed gas cylinders upon the receipt of cylinders from ESRL/GML.

Compressed Gas Cylinders are regulated by U.S. Law under CFR Title 49, parts 106-179.

This Agreement is subject to the availability of funds.

Standards:

Unless otherwise stated, cylinder is size N150, 29.5 liter internal volume, Ceodeux brass packless, GCA590 valved.

Logistics for services are:

4-6 weeks to fill

4-6 weeks to calibrate per trace gas species.

Isotopes may take an additional 3 months.

Standard turnaround time varies due to seasonal logistics and calibration queue.

Standards will be delivered to:

Requesting Business or University must state who and where the standards will be shipped to. Ship and Deliver Standards to:

Name:	
Title:	
Address:	
City, State, Zip	
Phone:	
Fax:	
E-Mail:	

INCLUDE IMPORTATION BROKER CONTACT INFORMATION IF THERE IS ONE.

For importation pro-forma invoice, we need your **tax ID number:** _____.

Return Shipping and handling:

DAP – Delivered at Place (named place of destination)

Requesting Business and Universities pay for carriage to the named place, except for costs related to import clearance, and assumes all risks prior to the point that the goods are ready for unloading by the buyer. Import clearance = import duty and VAT and not the Import Customs Clearance. There is no seller obligation for import clearance.

One recalibration for CO₂, CH₄, CO, N₂O/SF₆ after use is included in the cost of the standard gas. THIS IS HIGHLY RECOMMENDED EVERY 3 YEARS FOR PRECISION WORK AND SHOULD AT LEAST BE PERFORMED AT THE END OF THE CYLINDER'S USE [20 atm pressure].

ESRL/GML will provide calibration of gases to **Requesting Business or University, who will pay ESRL/GML in advance for its services**, based on the following price table:

NOAA ESRL GML CALIBRATION COSTS for FY2023 Effective 01-OCT-2022	COST FY2023	UNIT	Q.	TOTAL
N265 Aluminum cylinder, 46.4 liter volume, [+ 8 weeks]	\$1,285	Each	0	\$0.00
N80 Aluminum cylinder, 15.8 liter volume	\$490	Each	0	\$0.00
N60 Aluminum cylinder, 10.8 liter volume	\$445	Each	0	\$0.00
N30 Aluminum cylinder, 5.9 liter volume	\$363	Each	0	\$0.00
N150 Aluminum cylinder, 29.5 liter volume	\$617	Each	0	\$0.00
NWR filling only	\$564	Each	0	\$0.00
Aculife cylinder N150	\$806.00	Each	0	\$0.00
NWR Filling (Aculife size N150)	\$880.00	Each	0	\$0.00
Multi-species targeting	\$109	Each	0	\$0.00
CO2 on WMO scale 250-800 µmol/mol, CH4 WMO scale 300-5000 nmol/mol	\$1,477	Each	0	\$0.00
CO2 outside WMO scale, CH4 analysis	\$1,509	Each	0	\$0.00
Stable Isotopes of CO2 [13C & 18O]	\$868	Each	0	\$0.00
CO RANGE 40-500 nmol/mol	\$825	Each	0	\$0.00
N20 / SF6 analysis by ECD	\$694	Each	0	\$0.00
Analysis for CFCs by GC-ECD	\$541	Each	0	\$0.00
Calibration by GCMS	\$905	Each	0	\$0.00
Additional recalibrations	\$368	Each	0	\$0.00
Shipping and handling, Foreign – 1 to 3 cylinders	\$200	Each	0	\$0.00
Shipping and handling, Foreign – 4 to 9 cylinders	\$123	Each	0	\$0.00
Shipping and handling, Foreign – 10 or more cylinders	\$31	Each	0	\$0.00
Shipping and handling, Domestic – 1 to 3 cylinders	\$89	Each	0	\$0.00
Shipping and handling, Domestic – 4 to 9 cylinders	\$44	Each	0	\$0.00
Shipping and handling, Domestic – 10 or more cylinders	\$19	Each	0	\$0.00
Financial Management Service Collection Cost *	\$3.27	Per MOU	1	\$3.27

* Required on all agreements by the Department of Treasury per Office of Management & Budget Circular A-25, 15-01 February 1, 2015 and User Fee Treasury Financial Management Service Revenue Collection Expenses Policy Memorandum 21-01 dated February 16, 2022.				AMOUNT DUE
TOTAL AMOUNT OF PAYMENT DUE TO ESRL/GML				\$3.27

5. TRANSFER OF FUNDS

Payment is required in advance of, or simultaneously with, the rendering of goods or services provided by ESRL/GML.

Requesting Business or University is responsible for all payment transfer fees and costs. When making payment using FEDWIRE or Automated Clearing House (ACH), your banking institution will charge a **FEDWIRE or ACH payment processing fee** (example \$10.00, \$20.00, \$35.00 and up to \$60.00) for them to make this method of payment to NOAA. **This fee MUST be paid to your bank prior to making payment to NOAA,** as payment to NOAA must be for exact amount owed in MOU.

To purchase from ESRL/GML, one (1) original signed copy of this “Memorandum of Understanding”, along with payment or appropriate funding document should be mailed to the ESRL/GML Technical Contact listed in the contact section below.

Payment should reference project number 36R1MAA-PDK, as appropriate, and be made in US dollars payable to NOAA/DOC.

If you are unable to make payment upon submission of signed MOU, you will receive a NOAA invoice. NOAA will invoice the Requesting Business or University for the full amount of goods or services upon receipt of the fully signed MOU. **The Requesting Business or University is expected to make payment upon receipt of the NOAA invoice** by check according to the Invoice instructions, or electronic payment can be made according to the Attachment A instructions at the end of this MOU.

All funding documents (PO’s, etc.), if submitted, **must** contain the following information:

- All costs shown in U.S. Dollars,
- All text in English,
- A clear description of goods and services being paid for,
- Clear invoicing and ship to (standards delivered to) instructions along with names, addresses, phones, faxes and email addresses.
- Funding document should reference Project Number 36R1MAA-PDK as appropriate, and be made payable in US dollars to NOAA/DOC
- Universities are required to provide a copy of their Purchase Order (PO).

For Requesting U.S. Businesses/Universities only:

- Employer Identification Number(s),
- Dun & Bradstreet Number(s),

6. CONTACTS

The technical points of contact for this agreement are:

NOAA GML Technical Contact:

Duane Kitzis/GGGRN
National Oceanic and Atmospheric Administration (NOAA)
Earth System Research Laboratory (ESRL)
Global Monitoring Laboratory (GML)
Carbon Cycle Greenhouse Gases (CCGG)
325 Broadway – R/GML1
Boulder, CO 80305, USA
Phone: 303-497-6675
Fax: 303-497-6290
E-mail: duane.r.kitzis@noaa.gov
Web Site: <http://www.cmdl.noaa.gov/ccl/>

Business or University Technical Contact:

Name:	
Title:	
Address:	
City, State, Zip	
Phone:	
Fax:	
E-Mail:	

Fiscal and budgetary communications can be directed to:

NOAA GML Budgetary Contact:

Samantha Middel
Administrative Officer
NOAA/ESRL GML
325 Broadway – R/GML
Boulder, CO 80305, USA
Phone: 303-497-5533
Fax: 303-497-5590
E-mail: samantha.middel@noaa.gov

Business or University Budgetary Contact:

Name:	
Title:	
Address:	
City, State, Zip	
Phone:	
Fax:	
E-Mail:	

The parties agree that if there is a change regarding the information in this section, the party making the change will notify the other party in writing of such change.

7. DURATION OF AGREEMENT, AMENDMENTS AND MODIFICATIONS

This agreement will become effective when signed by both parties. The agreement will terminate when the Requesting Business receives all materials and analysis results, but no later than three years from the effective date. This agreement may be amended at any time by mutual written consent of the parties

Any party may terminate this agreement by providing thirty days written notice to the other party. In the event of termination, all amounts unexpended by ESRL/GML as of the date of ESRL/GML's receipt of a notice of termination from the Requesting Business or University; or, as of the date of ESRL/GML's sending a notice of intent to terminate to the Requesting Business or University, shall be promptly refunded to Requesting Business or University, less any amounts required to close the account.

8. RESOLUTION OF DISAGREEMENTS

Should disagreements arise on the interpretation of the provisions of this agreement or amendments and/or revisions thereto, that cannot be resolved at the operating level, the area(s) of disagreement shall be stated in writing by each party and presented to the other party for consideration. If agreement or interpretation is not reached within 30 days, the parties shall forward the written presentation of the disagreement to respective higher officials for appropriate resolution.

9. SIGNATURES

**[Signature of person who has authority
to bind Requesting Business or University
to this agreement]**

Date

Name:

Title:

Address:

City, State, Zip:

Phone:

Fax:

E-Mail:

Eric Locklear
Acting OAR Chief Financial Officer/CAO
Mail Code: R/CFO1
U.S. Department of Commerce (DOC)
National Oceanic and Atmospheric Administration (NOAA)
Office of Oceanic and Atmospheric Research (OAR)
1315 East West Highway, Bldg. SSMC3
Silver Spring, MD 20910-3282
Phone: (240) 393-2849
E: Mail: eric.locklear@noaa.gov

Date

ATTACHMENT A – PAYMENT INSTRUCTIONS

Please be sure to include within the funds transfer identifying information linking the payment to the invoice, i.e., ESRL/NOAA invoice#, Agreement #, PO#/Funding document, and Project # as referenced in Part 4 of this agreement.

If there are problems completing the bank transfer, or check payment contact Sandy McClelland @ sandy.mcclellan@noaa.gov .

Please note that there are 2 distinct methods of electronic funds transfers (1) or (2) or payment can be made by choice (3) a check. Note: account numbers, etc., are different and unique for both methods.

CHOICE (1) - FEDWIRE

**UNITED STATES DEPARTMENT OF COMMERCE - NOAA
FEDWIRE Instructions**

Please provide the following instructions to your Financial Institution for the remittance of FEDWIRE payments to NOAA.

NOTE: When making payment using FEDWIRE or Automated Clearing House (ACH), A foreign bank cannot make the payment directly – it must work through a [U.S correspondent or intermediary bank](#)³. The payment must be in U.S. dollars.

When making payment using FEDWIRE or Automated Clearing House (ACH), your international bank will let you know what [Correspondent or Intermediary banking institution](#) they will use to make the FEDWIRE transfer to NOAA. The correspondent or intermediary bank will charge your company a FEDWIRE or ACH payment processing fee (example \$10.00, \$20.00, \$35.00 and up to \$60.00) for them to make this method of payment to NOAA. **Your company MUST pay this processing fee to the correspondent or intermediary bank used prior to making payment to NOAA. Payment to NOAA must be for exact amount owed in MOU.** The payment must be in U.S. Dollars.

FEDWIRE FIELD TAG	FEDWIRE FIELD NAME	REQUIRED INFORMATION
{1510}	Type/Subtype	1000
{2000}	Amount	<i>(enter payment amount)</i>
{3400}	Receiver ABA routing number * (see notation * below chart)	021030004
{3400}	Receiver ABA short name	TREAS NYC
{3600}	Business Function Code	CTR <i>(or CTP)</i>
{4200}	Beneficiary Identifier (account number)	13140001
{4200}	Beneficiary Name	NOAA
{5000}	Originator	<i>(enter the name of the originator of the payment)</i>
{6000}	Originator to Beneficiary Information – Line 1	NOAA GML
{6000}	Originator to Beneficiary Information – Line 2	36R1MAA-PDK (Project Number)
{6000}	Originator to Beneficiary Information – Line 3	MOU Number/Receivable Number
{6000}	Originator to Beneficiary Information – Line 4	PO Number

* The financial institution address for Treasury’s routing number is: FRB of New York, 33 Liberty Street, New York, NY 10045

NOTE: A foreign bank cannot make the payment directly – it must work through a U.S correspondent bank. The payment must be in U.S. dollars. The purchasing business/company or University is required to pay all FEDWIRE Fees, **please make sure these fees are made prior to making the Fedwire payment.**

³ [Correspondent Banks vs. Intermediary Banks: Understanding the Difference \(investopedia.com\)](https://www.investopedia.com/terms/c/correspondent-bank-vs-intermediary-bank/)

CHOICE (2) – ACH Credit Instructions:

**UNITED STATES DEPARTMENT OF COMMERCE - NOAA
ACH Credit Instructions**

Please provide the following instructions to your Financial Institution for the remittance of Automated Clearing House (ACH) credits to NOAA.

Note: Your banking institution will charge an ACH processing fee (example \$10.00, \$20.00, \$35.00 and up to \$60.00) to make the ACH payment to NOAA. This fee MUST be paid to your bank prior to making payment to NOAA as payment to NOAA must be for exact amount owed.

NACHA RECORD TYPE CODE	NACHA FIELD	NACHA DATA ELEMENT NAME (WITH SYMBOL REFERENCE)	REQUIRED INFORMATION
5	3	Company Name	<i>(enter the name of the payor)</i>
5	6	Standard Entry Class Code	CCD
5	9	Effective Entry Date	<i>(enter intended settlement date)</i>
6	2	Transaction Code*	22
6	3 & 4	Receiving DFI Identification (ABA routing #) @	051036706
6	5	DFI Account Number	540023
6	6	Amount	<i>(enter payment amount)</i>
6	8	Receiving Company Name #	DOC NOAA GML 36R1MAA-PDK #
SYMBOL REFERENCE		DATA ELEMENT NAME	
*		ACH <u>debits</u> are not permitted to this ABA routing number. All debits received will be automatically returned	
@		Bank Name: Credit Gateway – ACH Receiver Address: 33 Livingston Ave. St. Paul, MN 55107 Phone: 1-877-815-1206	
#		Required Identifying Information such as DOC NOAA GML, Project # 36R1MAA-PDK, MOU #, Invoice # If the payment cannot be identified, it will be returned.	

The Requesting Business or University is required to pay all Wire Transfer Fees, please make sure these fees are paid prior to making the ACH payment.

CHOICE 3 – SENDING A CHECK:

******IMPORTANT**** WHERE TO MAIL A CHECK PAYMENT:**

DO NOT MAIL YOUR CHECK TO BOULDER CO. MAIL CHECKS TO THE ADDRESS SHOWN BELOW USING THESE INSTRUCTIONS:

Note: When trying to make an electronic payment, if your bank goes through their US based partner, the payment should transfer. Should the Federal Reserve Bank (FRB) not recognize your foreign (to USA) bank, it would then be best to send payment in the form of a check. When making payment by check, please mail payment to the address below:

MAKE CHECK PAYABLE TO:

U.S. Department of Commerce, NOAA

MAIL PAYMENT WITH COPY OF THE INVOICE TO (only NOAA address accepting checks):

**U.S. Department of Commerce, NOAA
Receipts for Reimbursable Projects
PO Box 979008
St. Louis, MO 63197-9000**

Reference the following on all checks & payments. If information below is missing, the payment will be returned to sender:

- DOC/NOAA GML
- 36R1MAA-PDK Project #, and
- MOU# **MOUGRN23xxx** (MOU # assigned to your MOU by GML) in memo area of check.
 - Example Check Memo Line using above information:
➤ **DOC/NOAA GML/36R1MAA-PDK, MOU # GRN23xxx**

CHECKS MAILED TO BOULDER OR ANY OTHER ADDRESS THAN THE ABOVE MAILING ADDRESS WILL NOT BE CREDITED. THE ABOVE ADDRESS IN ST. LOUIS, MO IS THE ONLY LOCATION ACCEPTING CHECK PAYMENTS FOR NOAA. THE OTHER LOCATIONS, DUE TO EXTENDED TELEWORK, ARE NOT MANNED AND EMPLOYEES ARE TELEWORKING.