

OFFICE OF THE CITY ATTORNEY
CHARLES PARKIN, City Attorney
333 West Ocean Boulevard, 11th Floor
Lona Beach, CA 90802-4664

FOURTH AMENDMENT TO AGREEMENT NO. 34497

34497

THIS FOURTH AMENDMENT TO AGREEMENT NO. 34497 is made and entered, in duplicate, as of June 24, 2019, for reference purposes only, pursuant to a minute order adopted by the City Council of the City of Long Beach at its meeting on March 13, 2018, by and between AECOM TECHNICAL SERVICES, INC., dba AECOM, a California corporation ("Consultant"), with a place of business at 999 Town and Country Road, Orange, California 92868, and the CITY OF LONG BEACH, a municipal corporation ("City").

WHEREAS, City requires specialized services requiring unique skills to be performed in connection with preparation of a Climate Action and Adaptation Plan; and

WHEREAS, City and Consultant (the "Parties") entered into Agreement No. 34497 (the "Agreement") whereby Consultant agreed to provide these services; and

WHEREAS, the Parties entered into a First Amendment to the Agreement to revise the scope of work;

WHEREAS, the Parties entered into a Second Amendment to the Agreement to revise the scope of work and increase the amount of the Agreement by \$313,464 for a total not to exceed amount of \$727,141; and

WHEREAS, the Parties entered into a Third Amendment to the Agreement to extend the term to ~~June 8, 2020~~ ^{January 8, 2020} and attach a revised scope of work; and

WHEREAS, the Parties desire to include additional services;

NOW, THEREFORE, in consideration of the mutual terms, covenants, and conditions herein contained, the Parties agree as follows:

1. The Scope of Work in Exhibit "A" to the Agreement is hereby amended to include additional services more particularly described in Exhibit "A-4", attached hereto and incorporated by this reference.

2. Except as expressly modified herein, all of the terms and conditions contained in Agreement No. 34497 are ratified and confirmed and shall remain in full force

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and effect.

IN WITNESS WHEREOF, the Parties have caused this document to be duly executed with all formalities required by law as of the date first stated above.

AECOM TECHNICAL SERVICES, INC.,
dba AECOM, a California corporation

July 22, 2019

By [Signature]
Name William Anderson
Title _____

July 22, 2019

By E.A. Drake
Name ELIZABETH A. DRAKE
Title _____

Tom Modica
Assistant City Manager

"Consultant"

EXECUTED PURSUANT
TO SECTION 301 OF
THE CITY CHARTER

CITY OF LONG BEACH, a municipal
corporation

Sept. 5, 2019

By [Signature]
City Manager

"City"

This Fourth Amendment to Agreement No. 34497 is approved as to form on

August 15, 2019.

CHARLES PARKIN, City Attorney

By [Signature]
Deputy

EXHIBIT “A-4”

Scope of Work

April 10, 2019

Alison Spindler, AICP
Long Beach Development Services, Planning Bureau
333 West Ocean Blvd., 5th Fl
Long Beach, CA 90802

Subject: City of Long Beach Oil and Gas Memo

Dear Ms. Spindler:

Below, please find the details of AECOM's request to release client contingency in the amount of \$17,517 for purposes of completing the attached scope of work for the Oil and Gas Memo.

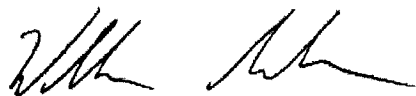
The work is underway consistent with the NTP email received from you on April 1st, 2019 and will be completed consistent with the schedule detailed in the attached scope of work.

Release of Contingency Fund for Oil and Gas Memo:

To cover costs associated with the understanding lifecycle emissions occurring within the city boundary, provide a more holistic view of the city's contribution to global emissions, and provide high-level recommendations to transition away from oil and gas activity over time.

Budget: \$17,517

Sincerely,



William (Bill) Anderson
Vice-President
(619) 610-7708
William.Anderson3@aecom.com

Ryan Wiggins
Project Manager
(619) 610-7718
Ryan.Wiggins@aecom.com

Memorandum

To: Alison Spindler
From: Ryan Wiggins
CC: Claire Bonham-Carter, Joshua Lathan, Christopher Koontz
Date: April 2, 2019
Subject: City of Long Beach Oil and Gas Memo Scope and Budget

AECOM SCOPE OF WORK

AECOM understands the City of Long Beach wishes to understand the lifecycle emissions associated with oil and gas extraction operations occurring within the city boundary to provide a more holistic view of the city's contribution to global emissions. The results of this analysis can be used to enhance the information provided through a traditional community inventory or consumption-based inventory.

AECOM will develop a memorandum (memo) that achieves the following purposes:

- ▶ To understand the GHG footprint of gas and oil operations in Long Beach,
- ▶ To understand how the carbon intensity of these operations in Long Beach compares with oil and gas extraction elsewhere in California and internationally,
- ▶ To give an overview of what happens to the oil and gas that is extracted in Long Beach,
- ▶ To describe how gas and oil operations in Long Beach are regulated by the State,
- ▶ To provide descriptions of best practices in technological interventions to minimize lifecycle emissions from gas and oil operations, and
- ▶ To give a high-level overview of recommendations to transition away from gas and oil activity over time

Task 1 – Quantify Lifecycle Emissions from Oil and Gas Extraction

AECOM will quantify the lifecycle footprint of oil and gas produced in Long Beach. Based on guidance from the California Air Resources Board (ARB), we will use the Oil-Climate Index to find life cycle emissions factors (expressed as kg CO₂e per barrel of crude oil) for an oil field that most closely resembles the fields in Long Beach. The Oil-Climate Index provides emissions factors for the upstream, midstream, and downstream phases of the oil extraction and use process. We will combine the lifecycle emissions factors with City-provided data on the volume of oil and natural gas produced in Long Beach to estimate total lifecycle emissions from this activity.

AECOM will evaluate the lifecycle emissions factors from the Oil-Climate Index to determine if natural gas-related emissions associated with oil well extraction are included in the factors. If not, the combustion- and distribution-related emissions associated with the volume of natural gas produced in Long Beach will be added to the oil emissions as well.

AECOM will prepare the emissions calculations in a standalone Excel file to be submitted with the final memo for the City's records.

Deliverables:

- ▶ Lifecycle emissions quantification file (Excel)

Task 2 – Develop Oil and Gas Memo

AECOM will prepare a brief memo that includes the following sections to achieve the purposes defined above. AECOM will submit a draft memo for City review, and will incorporate one consolidated set of comments into a final Oil and Gas Memo.

Summary of Oil and Gas Footprint

The results of the quantitative analysis from Task 1 will be summarized in the memo, including a brief description of the data sources and methodology used.

Comparison of Carbon Intensity of Long Beach Gas and Oil with Other Areas

In this section, we will provide a brief comparison of the carbon intensity from gas and oil produced in Long Beach versus that extracted elsewhere. The comparison will be based on information provided in the Oil-Climate Index that supports a global comparison perspective, an ARB study on the carbon intensity of crude oil produced in California, and information specific to oil produced in Long Beach provided by staff from Signal Hill Petroleum.

What Happens to Oil and Gas Pumped from Long Beach

AECOM will provide a summary description of the end use of oil and gas produced in the city to further contextualize the lifecycle emissions analysis.

State Regulation of Gas and Oil Operations

We will summarize how the oil and gas industry in Long Beach is regulated by the state, including California's Cap and Trade program, and provide a short case study describing how Synergy Oil complied with regulations and its current efforts of wetland restoration and operational efficiency improvements.

Near-term Recommendations - Technological Interventions to Minimize Lifecycle Emissions

AECOM will develop a bulleted list of near-term recommendations for emissions control technology to minimize lifecycle emissions from oil and gas operations with brief descriptions of the potential mitigation actions. The actions will be based on general industry best practices of options that exceed California's existing requirements, and will primarily focus on minimizing process and fugitive emissions from onsite well activity. This section will not include a baseline analysis of the currently-employed control technologies at oil and gas operations in Long Beach. It also will not make site-specific recommendations for specific operators in Long Beach or include quantitative analysis of how such actions could reduce emissions over time.

Long-term Recommendations - Transition from Gas and Oil Activity

This section will provide long-term strategy recommendations for transitioning away from fossil fuel extraction activity in the city. As with the previous section, AECOM will develop a list of high-level bullet point actions with brief descriptions. Where applicable, the list will draw from the broader GHG reduction actions developed for the CAAP, including consumer-focused actions to reduce local fossil fuel demand, increasing renewable gas supplies from Long Beach Gas and Oil, and advocacy and leadership efforts from the City.

A narrative discussion will support the bulleted list of recommendations to frame the overarching timing of action to reduce fossil fuel use as it relates to the City's new 2045 net zero emissions aspirational goal. Pending the results of the lifecycle analysis, the narrative could describe how use of local oil and gas resources are the lowest emissions option in the near-term, and that cessation of local energy extraction could result in the use of more carbon-intensive alternatives if the CAAP's energy efficiency and renewable energy actions have not yet been fully implemented.

This section will not include a quantitative analysis of emissions reduction potential for the recommendations. The section will also not include an economic analysis of this long-term transition away from local gas and oil extraction, such as alternatives designed to maintain local energy-sector jobs or replace the economic income generated by the Oil and Gas Department.

Assumptions:

- ▶ No additional research will be completed to analyze the final consumers/end use of oil extracted in Long Beach beyond that previously described in the Climate Resolve research for the Scientific Community Meeting. This research indicates that all natural gas produced in Long Beach is consumed in Long Beach, and that all oil produced in Long Beach is consumed within California.
- ▶ The near- and long-term recommendations to minimize emissions from oil and gas extraction activities will be descriptive and qualitative in nature, and will not include quantitative analysis.
- ▶ The City will provide one consolidated set of comments on the draft memo.

Deliverables:

- ▶ Draft Oil and Gas memo (Word)
- ▶ Final Oil and Gas memo (PDF)

Task 3 – Discuss Results of Oil and Gas Memo with LB350

AECOM will present the findings of the memo to members of LB350 in an effort to demonstrate the City's responsiveness to the organization's request for the analysis, and to develop support for the upcoming CAAP. An AECOM team member will attend the meeting to answer technical questions and explain the relationship of the memo to the city's emissions inventories, including how the lifecycle emissions analysis overlaps with emissions calculated in the city's traditional and consumption-based inventories.

Assumptions:

- ▶ AECOM staff attends an in-person meeting with LB350 and City staff
- ▶ City staff organizes the meeting venue and logistics

BUDGET AND SCHEDULE

	Budget	Schedule (Deliverable Dates)
1 – Quantify Lifecycle Emissions from Oil and Gas Extraction	\$3,817	April 22
2 – Develop Oil and Gas Memo	\$11,233	April 29 (Draft) May 20 (Final)
3 – Discuss Results of Oil and Gas Memo with LB350	\$2,292	TBD
ODCs	\$175	-
Total	\$17,517	-

DETAILED BUDGET TABLE

Team Member	Claire Bonham-Carter	Ryan Wiggins	Joshua Lathan / Amruta Sudhalkar	Alia Rahman	Kindal Keen
Role	Project Director	Project Manager	GHG Mitigation Lead	GHG Mitigation Analyst	Oil and Gas Specialist
Rate	\$283	\$150	\$143	\$95	\$86
1 – Quantify Lifecycle Emissions from Oil and Gas Extraction			8	20	9
Activity data collection and QA/QC, emission factor data collection, quantification of emissions			8	20	9
2 – Develop Oil and Gas Memo	7	4	16	38	32
Summary of Oil and Gas Footprint			2	12	3
Comparison of Carbon Intensity of Long Beach Gas and Oil with Other Areas			2	6	4
What Happens to Oil and Gas Pumped from Long Beach			2	6	1
State Regulations of Gas and Oil Operations			2	6	2
Near-term Recommendations - Technological Interventions to Minimize Lifecycle Emissions	3*		2		16
Long-term Recommendations - Transitioning from Oil and Gas Activity			2	8	2
Draft and Final Memo	4	4	4		4

Team Member	Claire Bonham-Carter	Ryan Wiggins	Joshua Lathan / Amruta Sudhalkar	Alia Rahman	Kindal Keen
3 – Discuss Results of Oil and Gas Memo with LB350			16		
Meeting preparation, attendance, and travel			16		
Total Labor Hours	7	4	40	58	41
Total Labor Cost	\$1,984	\$600	\$5,730	\$5,497	\$3,531
ODCs (meeting travel)			\$175		
Total	\$17,517				

* QA/QC review work on this item will be completed by a senior oil and gas specialist