APPLICATION FOR GAS STORAGE FACILITY

Pursuant to AS 38.05.180(u) and 11 AAC 83.500-520

Kenai Loop Gas Storage Facility

Submitted by: Hilcorp Cook Inlet, LLC

May 11, 2026

Contents

SECTION I: APPLICANT INFORMATION

A. Applicant Identity

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B. Applicant Qualifications

Hilcorp Cook Inlet, LLC, the applicant, and Hilcorp Alaska, LLC, the proposed operator (collectively "Hilcorp") is the largest oil and gas producer in Cook Inlet, Alaska. Hilcorp has extensive experience in:

- Oil and gas exploration, development, and production operations in Cook Inlet
- Subsurface reservoir management and engineering
- Regulatory compliance and environmental stewardship
- Infrastructure development and operations
- Storage and production of gas in the Cook Inlet Basin (Kenai Gas Field - Pool 6, Swanson River Unit, Pretty Creek Unit)

Hilcorp possesses the technical expertise, operational experience, and financial resources necessary to safely develop and operate the proposed gas storage facility. Hilcorp Cook Inlet, LLC is qualified to hold leases with the Alaska Department of Natural Resources and posesses all of the necessary licenses and registrations in order to conduct business in the State of Alaska.

SECTION II: DESCRIPTION OF PROPOSED STORAGE FACILITY

A. Project Name and Location

Project Name: Kenai Loop Gas Storage Facility

Storage Area of Interest (SAOI):

- Seward Meridian, Township 6 North, Range 11 West, Sections 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33 & 34
- Seward Meridian, Township 5 North, Range 11 West, Sections 3, 4, 5, & 6

B. Target Storage Formation

Formation: Tyonek 91-2 Sand

Type Well and Interval: The target storage interval correlates with the Tyonek 91-2 Sand from 9,693' MD (9,687' TVD) to 9,812' MD (9,804' TVD) as encountered in the KENAI LOOP 1-1 well (API No. 50-133-20595-00) situated in Section 33, Township 6 North, Range 11 West, Seward Meridian, Alaska.

Interval Thickness: Approximately 119 feet (measured depth) / 117 feet (true vertical depth)

Depth Range: Approximately 9,687' to 9,804' TVD

C. Project Purpose and Scope

The Kenai Loop Gas Storage Facility will provide utility-scale underground natural gas storage to ensure uninterrupted delivery of natural gas for power generation and heating needs throughout southcentral Alaska. The facility will store natural gas owned by Hilcorp Cook Inlet, LLC and may be converted to a regulated utility in the future to allow storage of third-party gas.

D. Proposed Operations Timeline

Development Schedule:

- **Well Drilling:** 2027-2029
- **Surface Facility Construction:** 2027-2028
- **Commissioning:** Q2 2028
- **Commercial Operations:** Q2 2028

Target Commercial Operations Date: Second Quarter 2028

The facility will operate on a seasonal injection/withdrawal cycle:

- **Injection Period:** April through October (low-demand months)

- **Withdrawal Period:** November through March (high-demand months)

E. Strategic Importance

The Kenai Loop Gas Storage Facility is strategically positioned to receive and store natural gas that may arrive in the Cook Inlet Basin from:

1. **LNG Imports:** Liquefied natural gas imported to meet regional demand
2. **North Slope Pipeline:** Natural gas delivered via pipeline from Alaska's North Slope

The Q2 2028 commissioning date ensures the facility will be operational in time to support these potential new gas supply sources, providing critical storage infrastructure to balance seasonal demand and ensure reliable delivery throughout southcentral Alaska.

SECTION III: GEOLOGICAL AND ENGINEERING DATA

A. Regional Geology

The Kenai Loop area is located within the Cook Inlet Basin, a prolific hydrocarbon-producing basin in southcentral Alaska. The basin contains thick sequences of Tertiary sedimentary rocks, including the Tyonek Formation, which is part of the Kenai Group.

The Cook Inlet Basin is a forearc basin that developed during the Tertiary period in response to subduction along the Alaska Peninsula. The basin contains up to 25,000 feet of Tertiary sedimentary rocks, primarily consisting of mainly non-marine sandstones, siltstones, shales, coals, and conglomerates. The Kenai Group, which includes the Tyonek Formation, represents fluvial to deltaic depositional environments.

B. Storage Reservoir Characteristics

The primary storage reservoir targeted for the Kenai Loop Gas Storage Facility is the Tyonek 91-2 Sand, a unit within the Tyonek Formation of the Kenai Group. This interval is characterized by fine to medium-grained, moderately to well-sorted sandstones with a composition ranging from quartzose to arkosic. These sandstones are typical of fluvial channel deposits, reflecting deposition within meandering stream systems. According to data from the Kenai Loop 1-1 well (the KL 1-1),[1] the Tyonek 91-2 Sand occurs at a true vertical depth (TVD) of approximately 9,687 to 9,804 feet, with a gross interval thickness of 117 feet.

Reservoir properties, as estimated from the KL 1-1 well and regional Tyonek Formation data, indicate a net pay thickness between 15 and 40 feet, subject to confirmation through detailed petrophysical analysis. Porosity values are estimated to range from 17% to 25%, while permeability for these channel sandstones typically falls between 20 and 150 millidarcies. The

[1] 50-133-20595-00

formation temperature at reservoir depth is approximately 162°F, and the original reservoir pressure is estimated at about 4,800 psi. Water saturation is expected to be in the 35% to 55% range, and the gas gravity is approximately 0.56.

The depositional environment is interpreted as a fluvial channel system, dominated by meandering streams. This setting has led to the development of high-quality reservoir rock, with good to excellent reservoir quality anticipated. Key factors supporting this assessment include a high net-to-gross ratio typical of channel sandstones, preservation of porosity at depth, moderate to high permeability, and a history of native gas production from the interval.

The vertical seal for the storage interval is provided by interbedded coals, shales, and siltstones of the Tyonek Formation that overlie the Tyonek 91-2 Sand. These fine-grained floodplain and overbank deposits are laterally extensive and have demonstrated effective sealing capacity throughout the Cook Inlet Basin. Multiple sealing intervals, with a combined thickness of more than 100 feet above the storage interval, consist primarily of shale, siltstone, and coal. These rocks have sufficient capillary entry pressure to contain gas at storage pressures and exhibit extensive lateral continuity, as indicated by regional well control.

Evidence supporting seal integrity includes hydrocarbon accumulations within the target Tyonek sands, which demonstrate the effectiveness of the seal. There is no evidence of vertical migration or seal breach in the area, and pressure data from regional wells indicate compartmentalization of the reservoir.

Structurally, the Kenai Loop area is situated on the flank of the larger Cannery Loop anticline, on the western margin of the Cook Inlet Basin. The structure is characterized by a gentle eastward dip of 2 to 5 degrees toward the basin center, with no major faults identified in the immediate storage area, thus minimizing faulting risk. Stratigraphic trapping is the dominant closure mechanism, and the storage reservoir extends across multiple sections within the SAOI. The regional tectonic setting is relatively stable, with low to moderate seismicity typical of the Cook Inlet region.

Well control for the project is anchored by the KL 1-1, located in Section 33, Township 6 North, Range 11 West, Seward Meridian, with a total depth of 10,680 feet. This well is completed as a single-interval gas producer, targeting the Tyonek 91-2 Sand from 9,698 to 9,717 feet measured depth. Available data from this well include wireline logs, mud logs, and a pressure transient analysis (PTA) conducted on May 17, 2011. In total, four wells have been drilled in the Kenai Loop area, including KL 1-1, KL 1-2,[2] KL 1-3,[3] and KL 1-4.[4] Multiple wells across the greater Kenai area have encountered and produced from Tyonek Formation sands, providing a robust dataset for understanding reservoir properties, pressure regimes, and seal effectiveness.

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[2] 50-133-20597-00
[3] 50-133-20602-00
[4] 50-133-20618-00

Preliminary reservoir modeling of the Tyonek 91-2 Sand, coupled with the planned four-well development program, yields an estimated areal extent of about 800 to 1,500 acres for the storage reservoir. The average net pay is estimated at 20 feet, with an average porosity of 22%. The resulting pore volume is calculated to be approximately 34 to 36 billion cubic feet (Bcf) at standard conditions.

The total gas storage capacity for the facility is projected at 34 Bcf, with cushion gas requirements ranging from 1 to 6 Bcf, depending on market needs. The working gas capacity, or the volume available for seasonal cycling, is estimated at 28 to 33 Bcf. The design allows for maximum injection and withdrawal rates of 20 to 30 million cubic feet per day (MMcf/d), based on the use of three compressors and four wells.

Operating pressures are expected to range from a minimum of 60 psi, necessary to maintain cushion gas and reservoir integrity, up to a maximum of 3,000 psi. The facility will consist of four storage wells, spaced approximately 0.5 to 1.0 mile apart to optimize reservoir drainage, and is designed for annual injection and withdrawal cycles with an anticipated facility life of over 30 years.

Seasonal operations are planned, with injection of working gas occurring during the summer months (April through October) to fill capacity over a seven-month period, followed by withdrawal to meet peak demand during the winter months (November through March).

Note: all capacity estimates are preliminary and subject to confirmation through well testing and regulatory review; conservative values have been used pending further data acquisition.

SECTION IV: OPERATIONAL PLAN

A. Development Plan and Timeline

2027:

- **Q1-Q3:** Permitting and site preparation
- **Q3-Q4:** Commence well drilling
- **Q3-Q4:** Begin surface facility construction

2028:

- **Q1:** Continue well drilling and facility construction
- **Q2:** Complete initial wells and surface facilities
- **Q2:** Facility commissioning and testing
- **Q2:** Begin receiving gas for storage
- **Q3-Q4:** Continue development drilling as needed

2029:

- **Q1-Q4:** Complete remaining development wells
- **Ongoing:** Full commercial operations

Critical Path Activities:

1. Regulatory approvals: AOGCC storage injection order, drilling permitts
2. Surface lease from City of Kenai
3. Storage lease City of Kenai/Private/State storage rights owners
4. Pipeline right-of-way acquisitions
5. Long-lead equipment procurement (compressors, dehydration units)
6. Well drilling and completion
7. Surface facility construction
8. Pipeline construction to KNPL
9. Commissioning and startup

B. Well Specifications

Proposed Storage Wells: 4 wells[5]
Well Type: Vertical or directional wells for optimal reservoir access)
Target Formation: Tyonek 91-2 Sand
Target Depth: Approximately 9,700' - 9,800' TVD
Well Locations: All wells will be drilled from the same pad. Bottom hole locations to be determined based on optimal spacing for reservoir characteristics.
Well Spacing: Well spacing to optimize reservoir drainage and minimize well interference to be determined pursuant to Storage Injection Order proceedings before the AOGCC.

Well Design:
Casing Program (Typical):

- **Conductor Pipe:** 20" to 100-150 feet (set in cement)
- **Surface Casing:** 13-3/8" to 2,500-3,000 feet (cemented to surface)
- **Intermediate Casing:** 9-5/8" to 8,000-8,500 feet (cemented to surface)
- **Production Casing:** 7" to total depth ~10,000 feet (cemented across storage interval)

Wellhead: API 10,000 psi working pressure wellhead with dual safety valves
Completion Design:

- **Type:** Perforated completion in Tyonek 91-2 Sand
- **Perforations:** 4 shots per foot, 60-degree phasing (if perforated completion)
- **Tubing:** 4-1/2" production tubing with packer
- **Downhole Safety Valve:** Surface-controlled subsurface safety valve (SCSSV)

Well Testing:

- Pressure transient testing to determine reservoir properties
- Injectivity testing

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[5] Although drilling additional wells could potentially increase daily deliverability and injectivity, four new wells are expected to provide enough gas for the immediate railbelt demand. This approach is reasonable based on assumption of success in light of the reservoir's characteristics.

- Deliverability testing
- Mechanical integrity testing (MIT) per AOGCC requirements

C. Surface Facilities

Location: City of Kenai or private surface lease area and pipeline rights-of-way
Site Footprint: 400' x 400' pad (approximately 3.75 acres)
Site Preparation:

- Grading and compaction
- Gravel surfacing
- Drainage and erosion control
- Security fencing
- Access road improvements

Major Equipment and Infrastructure:
Well Equipment:

- (4) Storage wells with wellheads and manifolds
- (4) Production line heaters (to prevent hydrate formation during withdrawal)
- (4) Production separators (gas/liquid separation)
- Well manifold and piping system

Compression Facilities:

Injection Compressors:

- (3) Storage injection compressors
- Estimated total: 3,000-3,600 HP (1,000-1,200 HP each)
- Type: Reciprocating compressors
- Suction pressure: 700-750 psi (from KNPL)
- Discharge pressure: 3,000 psi (to storage reservoir)
- Capacity: 10 MMcf/day each

Production Compressors:

- (3) Storage production compressors
- Estimated total: 4,800-5,400 HP (1,600-1,800 HP each)
- Type: Reciprocating compressors
- Suction pressure: 60 psi (from storage reservoir)
- Discharge pressure: 700-750 psi (to KNPL)
- Capacity: 10 MMcf/day each

Gas Processing:

- (2) Glycol dehydration modules (TEG - triethylene glycol)
- Capacity: 15-20 MMcf/day each
- Purpose: Remove water vapor to meet pipeline specifications

Produced Water Handling:

- (2) 200-barrel produced water storage tanks

Power Generation:

- **Primary Power:** Grid connection from local utility / Gas-fired generators
- **Backup Power Generation:** Diesel or natural gas-fired generators for emergency operations
- **Uninterruptible Power Supply (UPS):** For critical control systems

Pipeline Infrastructure:

- **12-inch pipeline** connection to Kenai Natural Pipeline (KNPL)
- **Pipeline length:** Approximately 1 mile
- **Design pressure:** 1,440 psi (Class 600 or as required)
- **Material:** API 5L Grade X52 or X60 carbon steel
- **Coating:** Fusion-bonded epoxy (FBE) or equivalent
- **Cathodic protection:** Impressed current system
- **Right-of-way:** To be acquired from various owners along the route
- **Pipeline facilities:** Block valves, pig launchers/receivers, pressure regulation

Utilities:

- **Electrical Service:** [Voltage and capacity to be specified based on load analysis]
- **Water Supply:** Well or municipal
- **Wastewater:** Septic system or connection to municipal sewer
- **Communications:** Fiber optic, microwave, or cellular for SCADA and business communications

Environmental Controls:

- Secondary containment for fuel storage
- Spill prevention and response equipment
- Stormwater management system
- Erosion and sediment control
- Noise mitigation (if required)

Control and Safety Systems:

The control and safety systems for the pipeline facility are comprehensive, ensuring operational reliability and personnel protection. Central to these systems is a climate-controlled control building that houses essential components such as the Supervisory Control and Data Acquisition (SCADA) system, programmable logic controllers (PLCs), operator workstations, communications equipment, and electrical distribution panels. This environment allows operators to effectively monitor and manage pipeline operations in real time.

Emergency Shutdown (ESD) systems are implemented to address critical situations swiftly and safely. These include automatic shutdown mechanisms that activate when high or low pressure is detected, as well as fire and gas detection interlocks that help prevent hazardous incidents. Manual ESD stations are also provided for direct intervention, and well surface safety valves add an extra layer of protection at the wellhead.

Fire protection measures are robust, featuring a fire detection system, strategically placed portable fire extinguishers, and a fire water system if required by the local fire marshal. These provisions are designed to quickly identify and control any fire-related emergencies, minimizing risk to both personnel and infrastructure.

Gas detection is another critical safety aspect. The facility is equipped with combustible gas detectors to identify potential leaks, H_2S detectors if hydrogen sulfide is present, and toxic gas monitoring systems to ensure air quality and safety standards are consistently met.

Security at the site is maintained through several integrated features. Perimeter fencing, typically six to eight feet high and constructed of chain link, surrounds the facility to prevent unauthorized access. Security lighting enhances visibility during nighttime hours, and access control systems regulate entry to sensitive areas. In addition, video surveillance provides continuous monitoring, and warning signage alerts personnel and visitors to potential hazards within the facility.

D. Pipeline Right-of-Way

Hilcorp plans to acquire approximately one mile of pipeline right-of-way from various landowners. This route will extend from the storage facility to the connection point with the Kenai Natural Gas Pipeline (KNPL). The precise pipeline route will be surveyed and optimized to ensure efficient connection between the storage facility and KNPL.

During the route survey, Hilcorp will identify all private and public landowners along the proposed path. The acquisition process will involve negotiated easement agreements, fair market value compensation, and securing both temporary construction easements and permanent pipeline easements as required.

The primary purpose of the pipeline is to facilitate the injection of gas from KNPL into storage during low-demand periods, typically from April through October. Conversely, during high-demand months from November to March, the pipeline will enable withdrawal of gas from storage back into KNPL. Additionally, the pipeline will connect to regional gas transmission infrastructure and is designed to accommodate future gas imports, such as those from LNG facilities or gas delivered via the North Slope pipeline through KNPL.

Pipeline design and construction will adhere to industry standards and regulations, specifically ASME B31.8 and 49 CFR Part 192. Construction will follow all applicable codes and standards, and the pipeline will undergo hydrostatic testing prior to operation. It will also be equipped with in-line inspection (pigging) capability and cathodic protection monitoring to ensure its integrity and safe operation.

E. Injection and Withdrawal Operations

Injection Operations (April - October):
Source of Gas:

The gas storage facility sources natural gas primarily from the Kenai Natural Pipeline (KNPL). Additional supply may originate from Hilcorp Cook Inlet production assets or other regional operators. Looking ahead, the facility is designed to accommodate potential future imports, including liquefied natural gas (LNG) and gas transported via the North Slope pipeline, ensuring flexibility and reliability in meeting storage requirements.

Injection Process:

During the injection phase, gas is received from KNPL at a pressure range of 700 to 750 psi. Upon arrival, the gas is metered into the facility to ensure accurate measurement of volumes. Injection compressors then elevate the gas pressure up to 3,000 psi, preparing it for storage. The pressurized gas is injected into the storage reservoir through four designated storage wells. Throughout the injection operation, continuous monitoring of injection rates and pressures is maintained to ensure safe and efficient performance.

Injection Rates:

Operational targets for injection rates are set at 20 million cubic feet per day (MMcf/day), with peak rates reaching up to 30 MMcf/day when all compressors are active. Minimum injection rates, achievable with a single compressor, range from 5 to 10 MMcf/day. Over the seven-month injection period, the facility anticipates a total seasonal injection of 4 to 5 billion cubic feet (Bcf) of gas, providing substantial capacity to meet regional demand fluctuations.

Injection Pressure Management:

Pressure management during injection is critical to operational safety and reservoir integrity. Tubing pressure in each well is monitored continuously, and injection pressure is maintained below the maximum allowable threshold. Injection rates are adjusted as necessary to prevent over-pressuring, and the system is equipped with automatic shutdown capabilities triggered by high-pressure alarms, ensuring compliance with safety protocols.

Gas Quality Specifications (Injection):

Gas injected into the storage reservoir must meet specific quality criteria to ensure compatibility with downstream applications and regulatory requirements. The heating value is maintained between 950 and 1,150 Btu per standard cubic foot (Btu/scf). Water content is limited to less than 4 pounds per MMcf, and hydrogen sulfide (H_2S), if present, must not exceed 0.25 grain per 100 scf. carbon dioxide (CO_2) content is typically below 2%, and the hydrocarbon dewpoint must be less than 20°F at 1,000 psi. The gas must be free of liquids, dust, gums, and other deleterious substances to protect equipment and reservoir performance.

Withdrawal Operations (November - March):

Withdrawal operations are conducted during the winter months to meet increased demand. Gas is delivered to KNPL for distribution to end users, including Southcentral Alaska power generation facilities as well as residential and commercial heating customers. The withdrawal process involves gas flowing from the storage reservoir through four storage wells. Line heaters are used to prevent hydrate formation by heating the gas, after which it passes through production separators to remove any liquids. Production compressors then boost the gas to KNPL delivery pressure (700–750 psi), and dehydration units ensure water content meets pipeline specifications.

Withdrawal Rates:

Target withdrawal rates are set at 20 MMcf/day, with peak capability up to 30 MMcf/day when all compressors and wells are operational. Minimum withdrawal rates, achievable with one compressor, range from 1 to 10 MMcf/day. Over the five-month withdrawal period, the facility expects to deliver a seasonal total of 4 to 5 Bcf, ensuring reliable supply during peak consumption periods.

Withdrawal Pressure Management:

Proper management of withdrawal pressures is essential to maintain reservoir performance and safety. Bottomhole pressure in all wells is monitored, and withdrawal pressure is kept above the minimum allowable range (2,500–3,000 psi). Withdrawal rates are adjusted to preserve cushion gas, and the system incorporates automatic shutdown features activated by low-pressure alarms, minimizing risks to well integrity and operational safety.

Gas Quality Specifications (Withdrawal):

Withdrawn gas must meet KNPL pipeline specifications, with a heating value between 950 and 1,150 Btu/scf. Water content is limited to less than 7 lbs/MMcf, H_2S must not exceed 0.25 grain per 100 scf, and CO_2 content must remain below 2%. The hydrocarbon dewpoint is maintained below 20°F at delivery pressure, and the gas must be free of liquids and solids to ensure safe and efficient pipeline operations.

Monitoring and Measurement:

The facility employs comprehensive monitoring and measurement systems to ensure operational integrity and regulatory compliance. Reservoir monitoring includes continuous wellhead pressure tracking and periodic pressure transient analysis to assess performance. Temperature is monitored both downhole (via periodic surveys) and at the wellhead (continuously). Gas composition is analyzed to detect any changes in quality. Reservoir performance is tracked using material balance calculations, injection and withdrawal histories, and pressure-volume relationships. Well integrity is assured through mechanical integrity tests (MIT) as required by AOGCC, casing pressure monitoring, and a robust inspection and maintenance program. Flow measurement includes custody transfer metering, individual well flow meters, orifice and ultrasonic meters, continuous flow rate recording, and volume reconciliation. Pressure and temperature are logged at wellhead, pipeline, compressor suction and discharge points, and key facility locations, with data stored in a SCADA system for real-time access, trending, and historical retrieval. Gas quality monitoring utilizes gas chromatographs, heating value calculations, and water dewpoint measurement. Equipment monitoring covers compressor performance, dehydration unit efficacy, separator operation, heater control, preventative maintenance, and rotating equipment surveillance. Leak detection is managed through fixed gas detection systems, annual pipeline surveys, and periodic infrared camera inspections. Environmental monitoring addresses air emissions, stormwater, groundwater, and noise, as required by permits.

Business Continuity:

To ensure uninterrupted operations, the facility maintains backup control systems and power generation capabilities. Spare parts inventory, vendor support agreements, insurance coverage, and established recovery procedures further reinforce business continuity, enabling rapid response and recovery in the event of operational disruptions.

SECTION V: LAND AND SURFACE USE

A. Subsurface Storage Rights and Ownership Discussion

Hilcorp Cook Inlet, LLC seeks to lease gas storage rights within the Storage Area of Interest (SAOI) from the State of Alaska for any lands within the SAOI where the State holds such rights.

Legal Description of SAOI:

Township 6 North, Range 11 West, Seward Meridian:
Section 19-22, 27-34: All

Township 5 North, Range 11 West, Seward Meridian:
Section 3- 6: All

Total Area: Approximately 16 sections (10,240 acres)

The Airport Lands – City of Kenai/State of Alaska Mixed Estate

In 1963, the USA deeded the City of Kenai lands for airport use (the Airport Lands)[6] subject to certain restrictions and a reservation of

> all oil and gas in the land above described, together with the right to prospect for, mine and remove the same under applicable laws and regulations heretofore and hereafter established by the Secretary of the Interior

[6] *See* quitclaim deed filed of record at deed book 27, page 303 in the Kenai Recording District for a full legal description of the Airport Lands.

The State of Alaska’s interest in the SAOI’s Airport Lands is derived from rights acquired via patent 50-86-0386, wherein the USA deeded to the State of Alaska

> All oil and gas in the land above-described, together with the right to prospect for, mine and remove the same under applicable laws and regulations heretofore and hereafter established by the Secretary of the Interior.

To the following:

> Those certain lands described in that Quitclaim Deed dated December 1, 1963, by and between the United States of America, as Grantor, and the City of Kenai, as Grantee, recorded April 20, 1964, in (Deed) Book 27, Page 303, in the Kenai Recording District.

The conveyance of only the “oil and gas” to the State of Alaska introduces ambiguity as to the owner of the porespace rights to the Airport Lands. The City of Kenai and its successors-in-title or the State of Alaska could both have colorable claim.

Additionally, the State of Alaska may have acquired additional rights to the following tracts within the Airport Lands via referenced deeds:

KPB Parcel ID	**BOOK**	**PAGE**	**NOTES**
04323028	2002-007448-0		Unreleased Restrictions
04331001	74	55	Res. Subsurface Rights
04331002	74	55	Res. Subsurface Rights
04331014	74	55	Res. Subsurface Rights
04331015	74	55	Res. Subsurface Rights
04336041	2002-012210-0		

Notwithstanding any ambiguity as to storage rights to the Airport Lands, generally, Hilcorp believes that the State of Alaska has acquired the full “bundle of sticks” to some of these tracts via merger of title and may own additional rights within the SAOI that appropriate for storage leasing.

Kenai Loop Gas Field: History and Recent Suspension

The Kenai Loop Gas Field was developed under competitive oil and gas leases issued by the State of Alaska, Alaska Mental Health Trust, and Cook Inlet Region, Inc. Unsuccessful attempts to form a unit for the Kenai Loop Field have resulted in remaining oil and gas leases: ADL 391094, leased from the State of Alaska and MHT 93000382, lease from the Alaska Mental Health Trust, and C-061680 from Cook Inlet Region, Inc. (the “Oil and Gas Leases”).

Recently, the current operator of the Kenai Loop Field, AIX Energy, submitted an application to the State of Alaska for suspension of production. The Division of Oil and Gas approved this suspension. Significantly, AIX Energy has indicated in its suspension application that it does not plan to resume production operations at Kenai Loop. This declaration effectively signals the end of the field's productive life under the current operator and raises important questions about the future disposition of the field, the unproduced native gas, and storage rights to the lands currently subject to the Oil and Gas Leases, which may be held by myriad parties – specifically the City of Kenai, the State of Alaska, as well as the original oil and gas lessors.

The suspension approval and AIX Energy's stated intention not to resume production create a critical juncture for consideration of alternative uses of the Kenai Loop infrastructure and subsurface resources. Hilcorp believes that any discussion and deliberation around the award of storage rights should necessarily include a competitive element, consistent with the intentions of the Alaska Land Act. The Alaska statutes provide no preferential treatment to a storage applicant that is also a producer and contemplates that storage and production rights may be held by different parties; therefore, a competitive process should similarly apply to any future storage rights allocation. While utilization of some existing surface facilities may be prudent from an economic and environmental standpoint, significant modifications and additional components would need to be constructed to repurpose the field. Furthermore, some of the existing wells would require plugging and abandonment to meet regulatory requirements and ensure reservoir integrity for alternative uses. Hilcorp's current proposal does not contemplate the utilization of any existing Kenai Loop infrastructure.

Hilcorp is uniquely positioned to complete both the surface and subsurface work required for any future development or repurposing of the Kenai Loop facilities in an efficient, cost-effective manner. With extensive operational experience on the Kenai Peninsula and proven expertise in well abandonment, facility modifications, and regulatory compliance, Hilcorp can leverage any existing infrastructure while ensuring that any transition meets the highest standards of safety and environmental stewardship. The competitive allocation of storage rights would serve the public interest by ensuring that the State of Alaska receives maximum value from its resources while selecting the operator best qualified to execute the complex technical work required.

SECTION VI: LEASING PROCEDURE

Hilcorp is proposing an exploration and feasibility model to project development. The proposed lease form is structured to allow for a period of exploration, testing, and regulatory activity (a Primary Term) in order to assess and confirm that the target storage zones are suitable. During the Primary Term, if tests indicate positive results, Hilcorp will apply to the AOGCC for a Storage Injection Order over the identified reservoir. This process will adjudicate the areal extent of the reservoir as well as impose operational limits on the on the storage reservoir. Upon the conclusion of the SIO process, Hilcorp would commence construction and Storage Injection Operations and, upon commissioning of the facility, relinquish any acreage not subject to the SIO. The lease would then remain in effect for the fixed period described in the proposed form.

Hilcorp is proposing:

1. Five year primary term – to perform subsurface investigation, achieve a storage injection order, commence storage operations. Upon the commencement of storage operations the lease would enter its secondary term.
2. A Fifty year term during which storage operations will be conducted.

SECTION VII: PUBLIC INTEREST DETERMINATION

A. Need for the Facility

The Kenai Loop Gas Storage Facility addresses critical infrastructure needs for southcentral Alaska's evolving natural gas supply landscape:

1. Support for New Gas Supply Sources

A. Need for the Facility

The Kenai Loop Gas Storage Facility is designed to address the evolving infrastructure needs of southcentral Alaska, providing a critical solution for the region's shifting natural gas supply landscape. As local production from Cook Inlet fields declines, the community faces increasing challenges in meeting its energy demands. The facility's development serves as a proactive response, ensuring reliable access to natural gas and supporting the region's future growth and stability.

Strategically, the facility is scheduled to be operational by the second quarter of 2028. This timing is critical, as it coincides with anticipated changes in Alaska's gas supply, including the potential for LNG imports and the completion of a proposed natural gas pipeline from the North Slope.

LNG Imports:

With local gas production waning, the facility is positioned to supplement supply with LNG imports, ensuring regional demand is met. Underground storage is essential, as it allows for the seasonal management of imported gas, maximizing the effectiveness of new LNG infrastructure and maintaining a steady supply for consumers.

North Slope Pipeline:

The proposed pipeline from Alaska's North Slope to southcentral markets is expected to deliver gas volumes that may exceed immediate demand. The storage facility will enable excess gas to be stored during periods of low demand and withdrawn during peak times, ensuring a reliable supply year-round and providing a buffer when pipeline capacity is limited.

2. Seasonal Demand Balancing

Southcentral Alaska experiences pronounced seasonal fluctuations in natural gas demand. During the winter months, heating and electric power needs surge, resulting in peak demand that can be two to three times higher than in summer. Conversely, the summer months see reduced heating and power requirements, presenting an opportunity to inject gas into storage for later use. This seasonal balancing minimizes reliance on expensive peak supply alternatives and enhances system efficiency and economics.

Winter Peak Demand (November - March):

In winter, residential and commercial heating needs reach their highest levels, electric power generation is ramped up to supplement hydroelectric sources, and industrial demand remains steady. These factors combine to create a period of intense gas usage, demanding robust supply solutions.

Summer Low Demand (April - October):

As summer arrives, heating demand falls sharply, electric power generation decreases due to increased hydroelectric availability, and industrial demand remains consistent. This period of low demand allows for gas injection into underground storage, preparing reserves for the winter months.

Storage Benefits:

The facility’s ability to store gas during the summer when supply exceeds demand and withdraw it in winter when demand peaks is essential for maintaining system reliability. This approach bridges seasonal gaps, reduces the need for costly emergency supplies, and stabilizes the region's energy economy.

3. Supply Security and Reliability

Underground gas storage is a cornerstone for energy security in southcentral Alaska. It protects the region from production outages in Cook Inlet fields, buffers supply during pipeline disruptions or maintenance, and provides backup during extreme weather. By reducing dependence on single supply sources, the facility contributes to a more resilient and diversified energy system.

Supply Disruptions:

The storage facility offers protection against various supply disruptions, including outages from local fields, pipeline interruptions, and extreme weather events. By providing an accessible backup supply, it ensures continuous energy delivery even in challenging circumstances.

System Reliability:

Reliable underground storage supports uninterrupted gas delivery to critical users such as hospitals and schools, strengthens electric power generation, prevents supply shortages during peak periods, and enhances overall energy system resilience.

Economic Benefits:

The facility also brings substantial economic advantages. By enabling supply and demand balancing, it reduces price volatility, avoids costly emergency supply alternatives, and supports more favorable long-term supply contracts. Reliable energy supply fosters economic development and helps attract additional investment to the region.

4. Infrastructure Readiness

With a target operational date in Q2 2028, the facility is positioned to be ready as new gas supplies arrive in the basin. Timely development ensures that storage infrastructure is available before LNG import facilities or the North Slope pipeline come online, preventing supply and demand mismatches and maximizing Alaska's ability to utilize new resources.

Timing Considerations:

Early development of the storage facility is crucial. Delays could result in missed opportunities, stranded investments in gas import or pipeline infrastructure, and supply/demand mismatches. Ensuring the facility is operational ahead of new supply arrivals secures Alaska's energy future.

Infrastructure Integration:

The storage facility will be integrated with the existing Kenai Natural Pipeline and regional gas transmission systems, enabling efficient delivery of stored gas to end users and supporting the future expansion of Alaska's gas infrastructure.

5. Regulatory and Policy Support

The project aligns with Alaska's energy policies and regional planning efforts. It supports the state's goals of maximizing the benefits of natural resource development, ensuring reliable and affordable energy supplies, promoting economic growth, and generating revenue from state lands.

B. Benefits to Alaska

The Kenai Loop Gas Storage Facility is a strategic investment in Alaska's energy infrastructure, positioning the state to efficiently utilize gas from multiple sources and supporting energy security and reliability for southcentral Alaska. The facility enables potential future projects, such as gas import terminals or the North Slope pipeline, and demonstrates Alaska's commitment to energy infrastructure development.

Economic Diversification:

By facilitating the transition from declining Cook Inlet production to new supply sources, the facility supports ongoing economic viability and attracts future investment. It positions Alaska as a leader in energy storage technology and contributes to the diversification of the state's economy.

Economic Benefits:

The facility represents a significant capital investment, with preliminary estimates totaling $100 million. This includes $20 million for well drilling and completion and $80 million for surface facilities and equipment. The construction phase (2027-2028) is expected to employ 150-250 workers, generate 300,000-500,000 labor hours, and stimulate the local economy through procurement of goods and services. Long-term operations will provide stable employment for 8-12 permanent staff and additional maintenance contractors, with an average annual payroll of $1.5-2.5 million.

Tax Revenue:

The project will generate property tax revenue for the Kenai Peninsula Borough, sales tax on equipment and materials during construction, and fuel tax on vehicles. Annual payments to government and landowners are estimated between $200,000 and $500,000, including rentals, storage fees, and pipeline right-of-way payments.

Lease Payments:

Lease payments to the State of Alaska, City of Kenai, and private landowners further contribute to the project's economic impact, with annual rental and storage fees supporting local and state revenues.

Local Economic Impact:

Construction and operation of the facility will support Alaska businesses, including hotels, restaurants, suppliers, and service providers. Enhanced energy infrastructure will attract additional investment and foster regional economic development, while improved energy reliability will support business growth and expansion.

Energy Security Benefits:

Reliable Gas Supply:

The facility will ensure reliable gas supply for over 50,000 residential customers and support more than 500 MW of gas-fired electric capacity. It will enable industrial and commercial growth and reduce the risk of supply shortages during extreme weather events.

Price Stability:

By reducing natural gas price volatility and enabling long-term fixed-price contracts, the facility protects consumers from price spikes during supply disruptions and improves the affordability of energy for residents and businesses.

Energy Independence:

The storage facility reduces Alaska's dependence on single supply sources, enables the state to control its energy destiny, and supports potential future gas exports, further strengthening Alaska's energy security posture.

Environmental Benefits:

Air Quality:

Natural gas is a cleaner-burning fuel compared to oil or coal, helping to reduce local air pollutants and maintain air quality in southcentral Alaska.

Land Use:

The facility will have a minimal surface footprint, with permanent disturbance limited to 10-15 acres. Underground storage further reduces surface impacts, and reclamation efforts will restore temporary disturbance areas, ensuring compatibility with other land uses.

C. Timing and Urgency

The 2027 Final Investment Decision (FID) and Q2 2028 operational target underscore the urgent need for storage infrastructure to be in place before new gas supplies arrive in the Cook Inlet Basin. A critical timeline has been established: permitting and regulatory approvals are scheduled for 2025-2026, construction will begin in 2027 following the FID, and operations are expected to commence in 2028. Potential LNG imports or the North Slope pipeline may be operational in the late 2020s, making the facility's readiness essential.

Consequences of Delay:

Inability to Utilize New Gas Supplies:

If storage infrastructure is not available when new gas arrives, the region will face supply and demand mismatches, inability to store excess gas for winter use, and potential curtailment of gas supply. Investment in gas import or pipeline infrastructure may be stranded, resulting in lost opportunities.

Continued Energy Supply Uncertainty:

Without adequate storage, declining Cook Inlet production will continue to threaten the region's energy security, increasing the risk of supply shortages during peak demand periods, gas supply emergencies during extreme weather, and broader economic impacts from unreliable energy supply.

Lost Economic Opportunities:

Delays would postpone construction jobs, operational employment, and ongoing economic benefits. There is a risk that investment may shift to other regions, reducing Alaska's competitiveness in the energy sector.

Increased Costs:

Construction cost inflation, estimated at 5-10% per year, would further increase project expenses if development is delayed, underscoring the importance of timely action.

1. Support for New Gas Supply Sources

The facility is strategically planned to be operational by Q2 2028, providing essential support for the region's evolving gas supply needs. Southcentral Alaska is currently facing declining natural gas production from Cook Inlet fields, prompting the potential necessity for LNG imports to supplement local production and meet regional demand. By balancing supply and demand, these storage operations ensure efficient utilization of LNG import infrastructure, offering stability and flexibility to the market.

North Slope Pipeline:

Additionally, a natural gas pipeline from Alaska's North Slope to southcentral markets has been proposed. Such a pipeline would deliver volumes of gas that may exceed immediate local demand. Underground storage would allow surplus gas to be stored during low-demand periods and later withdrawn during times of high demand. This approach not only ensures a reliable gas supply throughout the year, but also provides a buffer when pipeline capacity is constrained, further enhancing energy security for the region.

2. Seasonal Demand Balancing

Natural gas demand in southcentral Alaska varies significantly by season. During the winter months (November through March), residential and commercial heating needs peak, electric power generation increases as a backup to hydroelectric sources, and industrial demand remains steady. Peak demand during this period can be two to three times higher than in the summer. In contrast, the summer months (April through October) see a sharp decrease in heating demand and a reduction in electric power generation due to the availability of hydroelectric power, while industrial demand remains steady. This seasonal fluctuation provides the opportunity to inject gas into storage during low-demand periods and withdraw it during high-demand months. This strategy reduces reliance on expensive peak supply alternatives and improves overall system efficiency and economics.

Storage Benefits:

The ability to store gas during the summer when supply exceeds demand and withdraw it during the winter when demand is highest is key to maintaining system reliability. By bridging seasonal gaps, underground storage helps to reduce the need for costly emergency supply sources, enhance system efficiency, and stabilize the region's energy economy.

3. Supply Security and Reliability

Underground gas storage is instrumental in enhancing energy security for southcentral Alaska. It protects against production outages from Cook Inlet fields, buffers supply during pipeline disruptions or maintenance, and provides backup during extreme weather events. This storage capability also reduces dependence on single supply sources, contributing to a more resilient and diversified energy system.

System Reliability:

By ensuring uninterrupted gas delivery to critical users such as hospitals and schools, supporting reliable electric power generation, and preventing supply shortages during peak demand, underground storage significantly enhances the resilience of the overall energy system.

Economic Benefits:

Storage infrastructure helps to reduce price volatility by balancing supply and demand, avoiding high-cost emergency alternatives, and enabling more favorable long-term supply contracts. Reliable energy supply supports economic development and attracts investment, strengthening the regional economy.

4. Infrastructure Readiness

The Q2 2028 operational date ensures the facility will be ready as new gas supplies arrive in the basin. Timely development is critical; LNG import facilities or the North Slope pipeline may become operational in the late 2020s, and storage infrastructure must be in place beforehand to avoid mismatches between supply and demand. Early completion will allow Alaska to efficiently receive and utilize new gas supplies, while delays could result in stranded investments and missed opportunities.

Infrastructure Integration:

The storage facility is designed to connect with the existing Kenai Natural Pipeline (KNPL) and integrate seamlessly with the regional gas transmission system. This integration enables efficient delivery of stored gas to end users and supports future expansion of Alaska's gas infrastructure.

5. Regulatory and Policy Support

The project aligns closely with Alaska's energy policies and goals. The state seeks to develop its natural resources for maximum benefit, ensure reliable and affordable energy supplies, promote economic development and job creation, and generate revenue from state lands. Gas storage has been identified as a need in regional energy plans and is supported by local utilities and stakeholders, demonstrating broad alignment with both state and regional priorities.

B. Benefits to Alaska

Strategic investment in energy infrastructure positions Alaska to receive and efficiently utilize gas from multiple sources, enhances energy security and reliability, and supports the state's energy policy goals. It also enables future gas import and pipeline projects, underscoring Alaska's commitment to infrastructure development and supporting economic diversification. As Cook Inlet production declines, storage infrastructure helps transition the region to new supply sources, maintain economic viability, attract investment, and position Alaska as a leader in energy storage technology.

Capital Investment:

The estimated total project investment is $100 million, with $20 million allocated to well drilling and completion, and $80 million for surface facilities and equipment. This substantial investment is expected to yield significant economic benefits for the region.

Construction Employment (2027-2028):

Construction will generate a peak workforce ranging from 150 to 250 workers and entail 300,000 to 500,000 total labor hours. The multiplier effect of this employment will stimulate the local economy through increased spending on goods and services.

Operations Employment (2028+):

Once operational, the facility will require 8 to 12 full-time staff, including supervisors and technicians. Maintenance and support contractors will periodically add 5 to 10 positions. The average annual payroll is projected to be $1.5 to $2.5 million, supporting long-term stable employment for over 30 years.

Tax Revenue:

The facility will contribute property tax to the Kenai Peninsula Borough, sales tax on equipment and materials during construction, and fuel tax on equipment and vehicles. These contributions will benefit local and state governments.

Lease Payments:

Annual rental payments to the State of Alaska are estimated at $50,000 to $100,000, subject to negotiation, with additional storage fees payable to the State and City of Kenai. Pipeline right-of-way payments to private landowners are also anticipated, with total estimated annual payments to government and landowners ranging from $200,000 to $500,000.

Local Economic Impact:

The procurement of goods and services from Alaska vendors during construction and operations, along with increased business for local hotels, restaurants, and suppliers, will support regional economic development. Enhanced energy infrastructure will attract additional energy-related businesses and investments, fostering business growth and expansion.

Energy Security Benefits:

Reliable Gas Supply:

The facility will ensure reliable gas supply for more than 50,000 residential customers in southcentral Alaska, support electric power generation exceeding 500 MW of gas-fired capacity, and enable industrial and commercial growth. It will also reduce the risk of supply shortages during extreme weather events.

Price Stability:

By reducing natural gas price volatility, the facility will enable long-term fixed-price contracts and protect consumers from price spikes during supply disruptions. This will make energy more affordable for residents and businesses in the region.

Energy Independence:

The project will reduce dependence on single supply sources, enable Alaska to chart its own energy future, support potential future gas exports, and enhance the state's energy security posture.

Environmental Benefits:

Air Quality:

Utilizing natural gas, which burns cleaner than oil or coal, will reduce local air pollutants such as NOx, SOx, and particulates, helping to maintain air quality in southcentral Alaska.

Land Use:

The facility will require a minimal surface footprint, with only 10–15 acres permanently disturbed. Underground storage further minimizes surface impacts, ensuring compatibility with other land uses and allowing for reclamation of temporary disturbance areas.

C. Timing and Urgency

The timeline for the facility reflects the urgent need for storage infrastructure to be in place before new gas supplies arrive in the Cook Inlet Basin. Permitting and regulatory approvals are scheduled for 2025–2026, with a final investment decision and construction beginning in 2027, and operations commencing in 2028. The late 2020s may also see LNG imports or the North Slope pipeline become operational, underscoring the importance of completing storage infrastructure on schedule.

Consequences of Delay:

Inability to Utilize New Gas Supplies:

If storage is not available as new gas supplies arrive, mismatches between supply and demand will occur. Excess gas during summer months cannot be stored for winter use, leading to potential curtailment of gas supply or inability to accept deliveries, and resulting in stranded investment in gas import or pipeline infrastructure.

Continued Energy Supply Uncertainty:

As Cook Inlet production declines, the risk of supply shortages during peak demand periods increases, raising the potential for energy emergencies during extreme weather and economic impacts from unreliable supply.

Lost Economic Opportunities:

Delays will postpone construction jobs and economic activity, delay operational jobs and ongoing benefits, and may result in lost investment to other regions or states, reducing Alaska's competitiveness in the energy sector.

Increased Costs:

Furthermore, construction cost inflation, estimated at 5–10% per year, will raise project expenses if development is delayed, underscoring the importance of timely action.

Conclusion

In summary, the proposed storage infrastructure delivers substantial environmental, economic, and operational advantages for southcentral Alaska. By enabling efficient use of cleaner-burning natural gas, improving air quality, and minimizing land disturbance, the project supports the region's transition to a more sustainable energy future. Timely implementation is critical to ensure readiness for new gas supplies, avoid supply disruptions, and maximize economic opportunities. Delays would not only increase costs, but also risk energy shortages, lost investments, and diminished regional competitiveness. Ultimately, the application demonstrates that moving forward with storage is essential for securing reliable, affordable, and environmentally responsible energy for Alaska's communities.