Western Energy Storage and Transportation Header

(WEST Header Project)

Non-Binding Open Season Storage and Transportation Request Form

July 2, 2018

Sponsored by:

Western Energy Storage and Transportation Header Project Description

("WEST Header Project")

The WEST Header Project is the proposed construction of a new approximately 650-mile, large-diameter interstate natural gas pipeline designed to move natural gas ***bi-directionally*** between multiple receipt points and multiple delivery points, including storage, throughout multiple states in the Western Energy Corridor. The WEST Header Project is being designed to maximize the 40 BCF of High Deliverability, Multi-Cycle ("HDMC") salt cavern storage (currently FERC certificated and under development by Magnum Gas Storage ("MGS")) located near Delta, Utah. The proposed WEST Header Project will provide access to prolific natural gas supplies at or near the Opal Hub in Wyoming, Goshen Hub near Salt Lake City, UT and Permian Basin supplies flowing westbound to locations at or near Ehrenberg, AZ. The WEST Header Project anticipates allowing for receipts/deliveries directly into the Salt Lake City Valley, at or near the Opal Hub, the Goshen Hub, the Las Vegas, NV market, the Southern CA market and Phoenix/Tucson, AZ market (through Needles/Topock/Blyth/Ehrenberg), as well as potential international exports to Mexico at Yuma, AZ and West Coast LNG exports, including via Energia Costa Azul near Ensenada, Baja California, Mexico.

The WEST Header Project, through its FERC approved market rate-based storage tariff and a new proposed FERC pipeline transportation tariff, will offer a wide variety of highly flexible transportation, storage and storage-related services, including:

- Firm Transportation and/or Wheeling Services
- No-Notice Storage including Transportation Services
- Multi-Turn Firm Storage Services
- Firm Hourly Balancing Services
- Load Following Services
- Firm Park and Loan Services
- Enhanced Interruptible & Interruptible Storage and Transportation Services
- Enhanced Interruptible & Interruptible Park and Loan Services
- Enhanced Interruptible & Interruptible Wheeling Services
- Interruptible Hourly Balancing Services
- Interruptible Transportation & Wheeling Services

These services will be particularly well suited to meet the needs of the dynamic energy markets of the Western US, including natural gas-fired electric power generators, natural gas distribution companies, gas producers, gas pipelines, LNG exporters and gas marketers that wish to develop significantly enhanced intra-day market optionality, load following services, hourly balancing services, peak-hour deliverability, supply reliability, avoid imbalance penalties, manage portfolio risks and provide reliable/highly flexible supply and producer services options. Driven by aggressive Renewable Portfolio Standards, a recent Wood Mackenzie study commissioned by the Western Electricity Coordinating Council ("WECC") establishes solar capacity doubling to 36 GW and wind generating capacity increasing 9 GW by 2026, requiring flexible gas generation sources to act as buffer, thereby increasing volatility in power burn. To support this renewable initiative, up to 13 GW of gas-fired generation capacity may need to be added in the Western Interconnection by 2030. Additionally, recently announced West Coast LNG projects could create the potential for an additional 2,000,000 Dth/day of capacity needed to service these export facilities. Finally, 9 GW of coal plants and 2 GW of nuclear plants are planned for retirements in the Western Interconnection by 2026 creating room for intermittent renewable and gas capacity.

Who owns/operates the WEST Header Project?

The WEST Header and MGS are wholly owned subsidiaries of Magnum Energy Midstream Holdings, LLC ("MEM"). MEM is a wholly owned subsidiary of Magnum Development, LLC, a Haddington Ventures, LLC, portfolio company. Haddington principals have been involved in the merchant gas transportation and storage business since its emergence in the early 1990s. A list of Haddington's active and realized investments can be viewed at www.hvllc.com.

Why the name "WEST Header" Project?

Most traditional natural gas pipeline infrastructure projects have been designed to flow uni-directionally, from supply point to end-user. Historically single directional flows worked well for traditional 24-hour ratable gas deliveries. With the introduction of intermittent renewable energy sources, the need for strategically located natural gas infrastructure to provide intra-day flexibility has become increasingly important. By utilizing multiple HDMC salt caverns for gas storage and large capacity pipe for natural gas transportation, the WEST Header Project is being designed with increased flexibility of gas flows in mind. In fact, the WEST Header Project can be described as an environmentally friendly pipeline project that further enables the development of intermittent renewable energy resources by providing a "shock absorber" or "battery" that allows for intraday flexibility in managing the growing "duck curve." True ***bi-directional, intra-day, no-notice, hourly load following, peak hour supply reliability and traditional storage and transportation service***, will be available to meet the current and future hourly demands of the Western Energy Corridor. In short, The WEST Header Project is being designed to function as a "true header" pipeline.

Why is the WEST Header Project necessary?

The Western US Energy markets are currently undergoing a significant paradigm shift. This paradigm shift is being driven by several factors, including aggressive solar and wind capacity development in the Western Interconnection, increasingly tighter pipeline balancing requirements, long-term reliability issues with existing infrastructure, hydro uncertainty, along with coal and nuclear retirements. Additionally, as producers of Rockies natural gas seek new domestic and international markets, including potential West Coast LNG exports and exports to Mexico, the need for strategically located deliverability options is becoming increasingly important.

With this paradigm shift in dynamics comes a significant increase in volatility for the markets. MEM believes that strategic, dependable and flexible natural gas infrastructure projects such as the WEST Header Project will be critical in providing the tools necessary for managing this volatility. The WEST Header Project initiative is grounded in three basic beliefs:

1) Renewable energy investments such as wind and solar will continue to be developed on a utility scale for the foreseeable future. Consequently, this leads to an increase in the intermittency of renewable energy sources for years to come, and thereby increasing energy market volatility.
2) Additional natural gas fired generation in the Western U.S energy markets will be required to maintain system flexibility and provide for system reliability during hours of renewable energy intermittency.
3) New flexible and strategically located natural gas infrastructure will be required to:
    a. provide a reliable and timely fuel source to manage the increase in volatility associated with the development of additional gas fired generation and renewable intermittency;
    b. to maintain system integrity throughout the Western U.S. energy markets and;
    c. effectuate future anticipated deliveries to new markets including West Coast LNG and international markets.

What's the design capacity of the WEST Header Project?

Current scope for the WEST Header calls for a combination of 24-inch, 36-inch, 42-inch, and 48-inch pipe to be utilized in the design. Design capacity for the West Header will potentially be up to 2,000,000 Dth/day.

MGS is currently certificated for up to 40,000,000 Dth of working gas storage capacity, utilizing four caverns. Each natural gas storage cavern will have working gas capacity of approximately 10,000,000 Dth.

The intent of this non-binding Open Season is to gauge Shipper interest in the WEST Header Project to transport and store natural gas supplies. The level of Shipper interest in the WEST Header Project will ultimately determine the size and scope of the overall facilities.

What rate(s) does the WEST Header Project anticipate charging?

The WEST Header Project, through its FERC approved market rate-based tariff and a new proposed FERC cost of service-based pipeline transportation tariff (including a daily reservation recourse rate), will offer a wide variety of highly flexible transportation, storage and storage-related services. The estimated initial recourse rate(s) for storage and transportation services will be calculated using the WEST Header Project's estimated cost of the facilities, estimates for operation and maintenance expenses based on costs for similar facilities, the billing determinants under the WEST Header Project, and other cost factors. All reservation rates will be dependent on the final WEST Header Project scope and facility requirements, which will be determined following the completion of this Open Season.

In addition to the applicable storage and transportation rates, shippers may also be responsible for compressor fuel and line loss make-up retention, electric power charges, commodity charges and all applicable surcharges as approved or required by the Federal Energy Regulatory Commission for transportation service under the WEST Header Project, all as amended from time to time.

What is the required contractual term for the WEST Header Project?

The West Header Project seeks a primary term for firm service of fifteen years (15) or longer for anchor/foundation shippers. MEM may consider but reserves the right to accept or reject any requests for firm service under the WEST Header Project with a primary term of less than 15 years.

When will the WEST Header Project be in service?

MEM anticipates placing the MGS portion of the Project in place by winter of 2020/2021. Given the level of interest in the WEST Header Project from the marketplace, MEM anticipates placing the WEST Header Project in service by Summer 2021, subject to the necessary approvals which include a Certificate of Public Convenience and Necessity from the Federal Energy Regulatory Commission (FERC).

Proposed Project Timeline:

- MGS anticipated in-service date: Winter 2020/2021
- WEST Header FERC 7(c) application – filed with FERC 3Q 2018
- FERC issues Final NEPA Documents – expected Spring 2019
- FERC order issuing certificate – expected Summer 2019
- FERC issues notice to proceed with construction – estimated Summer 2019
- WEST Header anticipated in-service date: Summer 2021

Is there a map for the proposed WEST Header Project?

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Non-Binding Open Season Storage and Transportation Request Form

Scan and send completed request form via email to:

kholder@magnumdev.com or cwallat@magnumdev.com

Full Shipper Name: _____

Address: _____

Contact Person: _____

Phone Number: _____

Email Address: _____

Term: Shipper requests a primary contract term of _____ years.

Product and Volume Requested: [please check (✓) all that apply]

(✓)	Product Offerings	Volume	Units
_____	Firm Transportation and/or Wheeling Service	_____	Dth/d
_____	No-Notice Storage including Transportation Services	_____	Dth/d
_____	Multi-Turn Firm Storage Services	_____	Dth
_____	Firm Hourly Balancing Services	_____	Dth/d
_____	Load Following Services	_____	Dth/d
_____	Firm Park and Loan Services	_____	Dth/d
_____	Enhanced IT & IT Storage and Transportation Services	_____	Dth/d
_____	Enhanced IT & IT and Loan Services	_____	Dth/d
_____	Enhanced IT & IT Wheeling Services	_____	Dth/d
_____	Interruptible Hourly Balancing Services	_____	Dth/d
_____	Interruptible Transportation & Wheeling Services	_____	Dth/d

Please express the amount of capacity desired in terms of Dth/d for each desired primary receipt and delivery point(s). For additional receipt or delivery points not identified as part of this Open Season, please specify the name or general description of the point.

Requested Primary Receipt Point	Requested Primary Delivery Point	Requested Dth/day

Other Services: Please describe other services that may be of interest:

_____

_____

Creditworthiness Criteria: The terms and conditions governing any creditworthiness requirements will be set forth in Shipper's precedent agreement (PA) for firm transportation and storage service under the WEST Header Project.

Bid Deadline: In order for shipper to participate in this non-binding open season, this completed form should be received by MEM no later than 5:00 p.m. MDT on August 31, 2018 (or such later date as may be announced by MEM).

Non-Binding Solicitation Details: Shipper understands and agrees that this request is a preliminary non-binding solicitation that may be accepted or rejected by MEM on a not-unduly discriminatory basis and any transport arrangements that result from this non-binding open season may be relied upon to negotiate and enter into binding Precedent Agreements ("PA"). The intent of this non-binding Open Season is to gauge Shipper interest in the WEST Header Project. MEM anticipates that as part of any PA(s), the storage and/or transportation quantity, rights, term, fees and any other services associated with the WEST Header Project, will be negotiated. MGS will evaluate all proposals received; however, MEM shall not be obligated to award any capacity. Potential shippers should specify in detail the proposed contract term, quantities, and any other elements of the services offered. If sufficient interest is shown, MEM will open negotiations to enter into binding PA(s) for services with those potential shippers submitting proposals deemed preliminarily acceptable.

This non-binding open season storage and transportation request is hereby submitted by:

By (signature): _____

Print signer's name: _____

Signer's title: _____

Date: _____

For questions please contact:

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or

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