

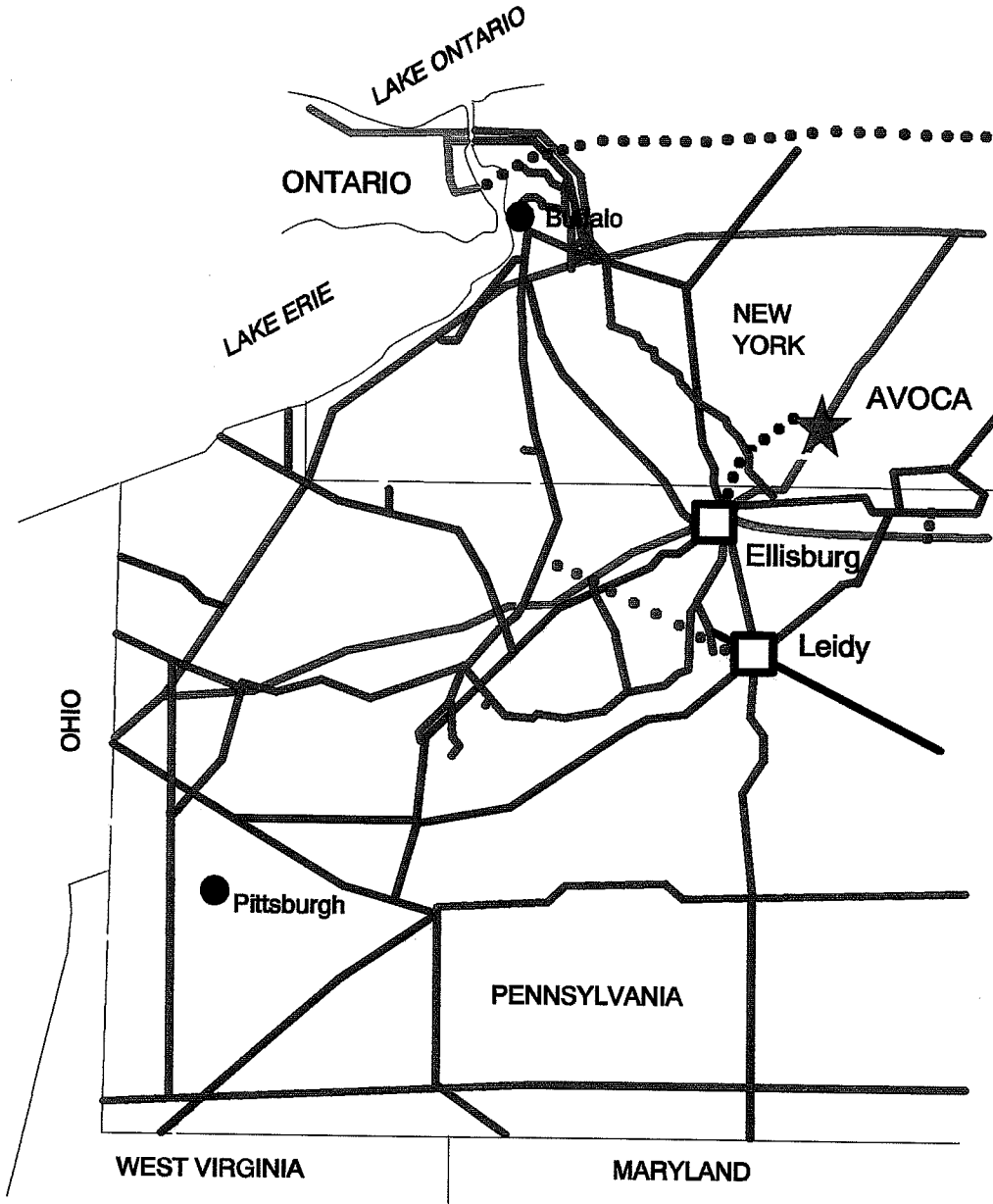
APPENDIX A-2

STORAGE PROJECT MAPS

APPENDIX A-2
STORAGE PROJECT MAPS
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EMPRESS	OUACHITA RIVER
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KIOWA	RUSH CREEK
LAUREL FIELDS	SOUTHWEST WYOMING
LODI	SPINDLETOP
MANCHESTER	TEN SECTION
MOSS BLUFF	THOMAS CORNERS
	WASHINGTON 10

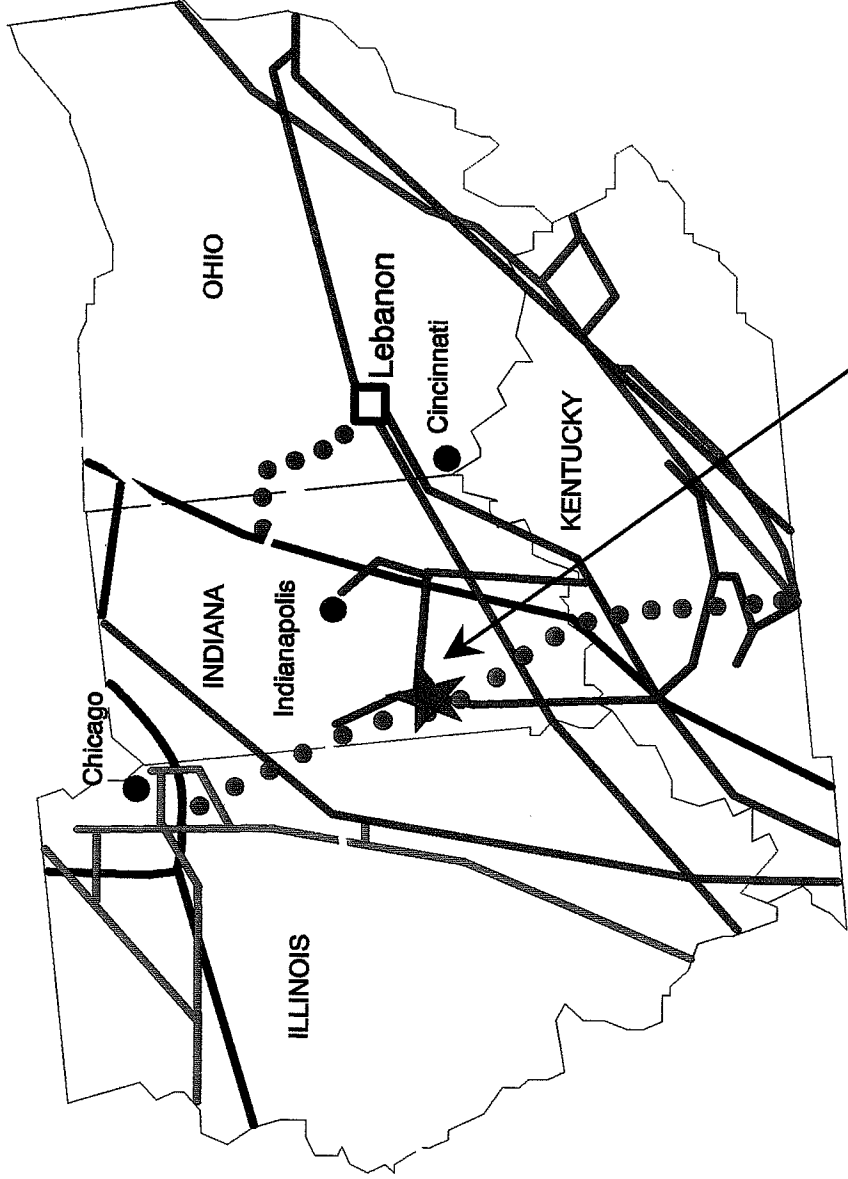
AVOCA NATURAL GAS STORAGE (NY)



KEY			
National Fuel Gas	Columbia Gas	TransCanada Pipelines	Hubs
NFG (proposed)	Texas Eastern	Penn-York Energy	Cities
Tennessee Gas	Transcontinental Gas	North Penn Gas	
CNG Transmission	Empire State	AVOCA NATURAL GAS STORAGE	

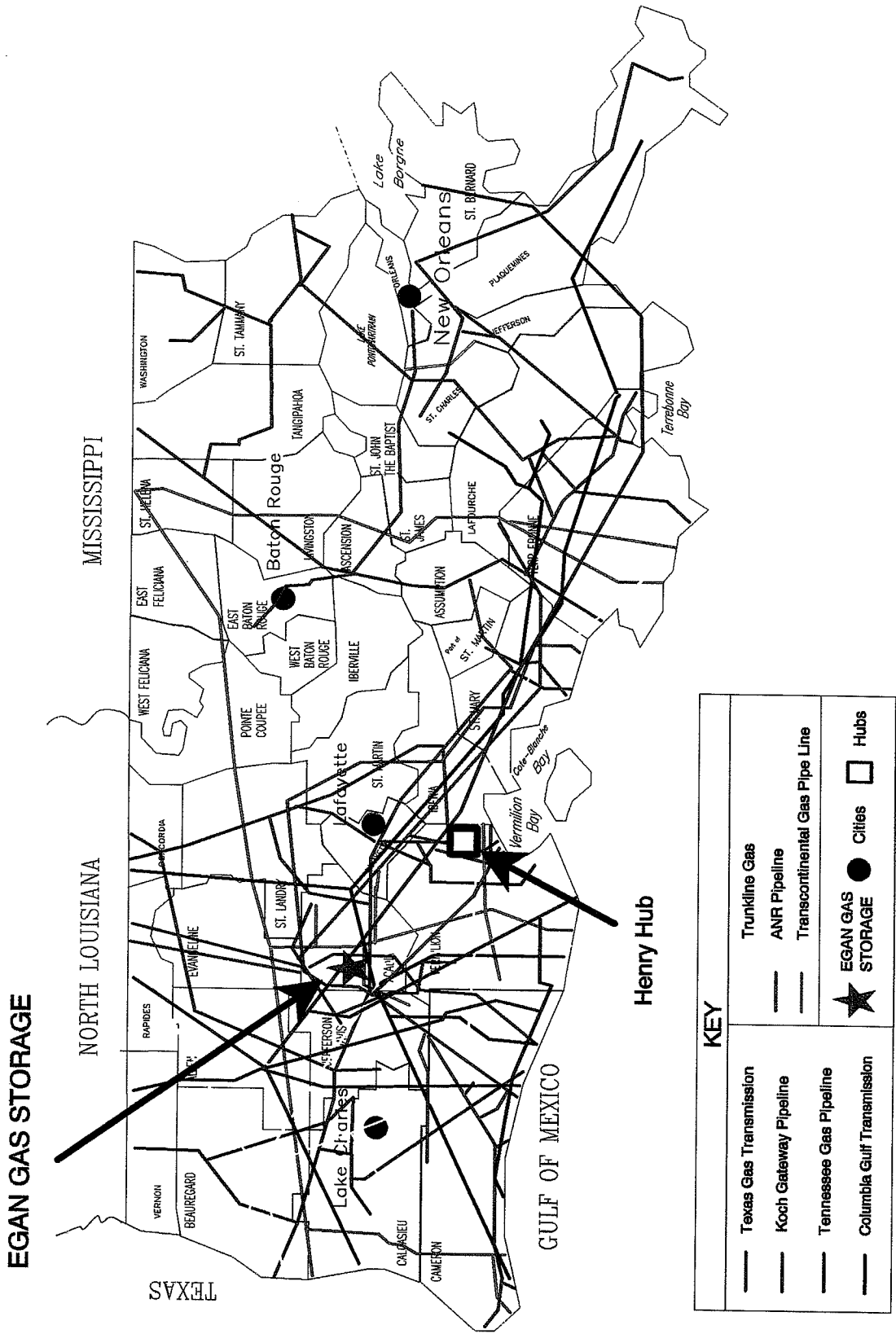
BLACKHAWK STORAGE FIELD (IN)

KEY	
	Texas Gas
	Texas Eastern
	Tennessee Gas
	Natural Gas Pipeline
	ANR Pipeline
	Panhandle Eastern
	Trunkline Gas
	Midwestern Gas
	Lebanon Lateral (Texas Eastern/ANR)
	BLACKHAWK STORAGE
	Hubs
	Cities



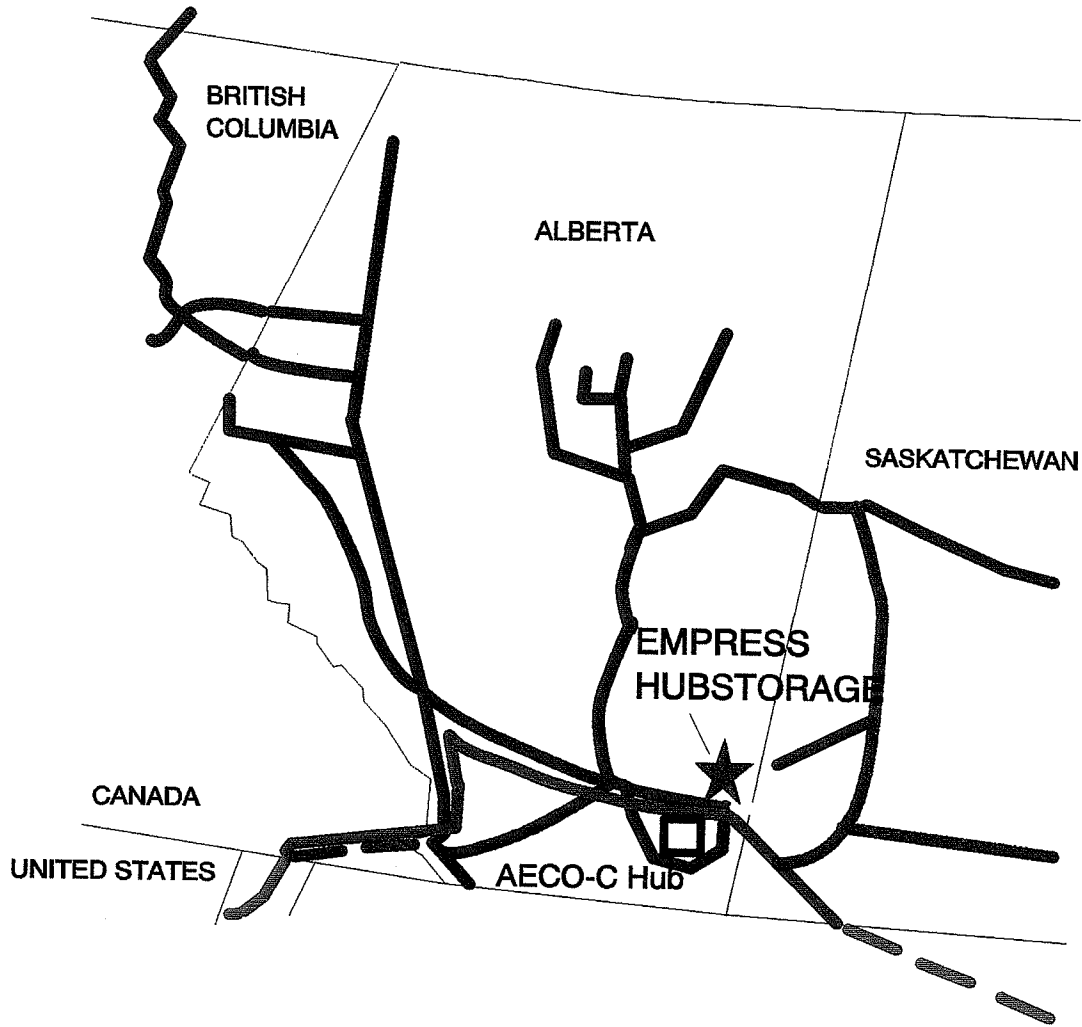
BLACKHAWK STORAGE











EGAN GAS STORAGE (LA)



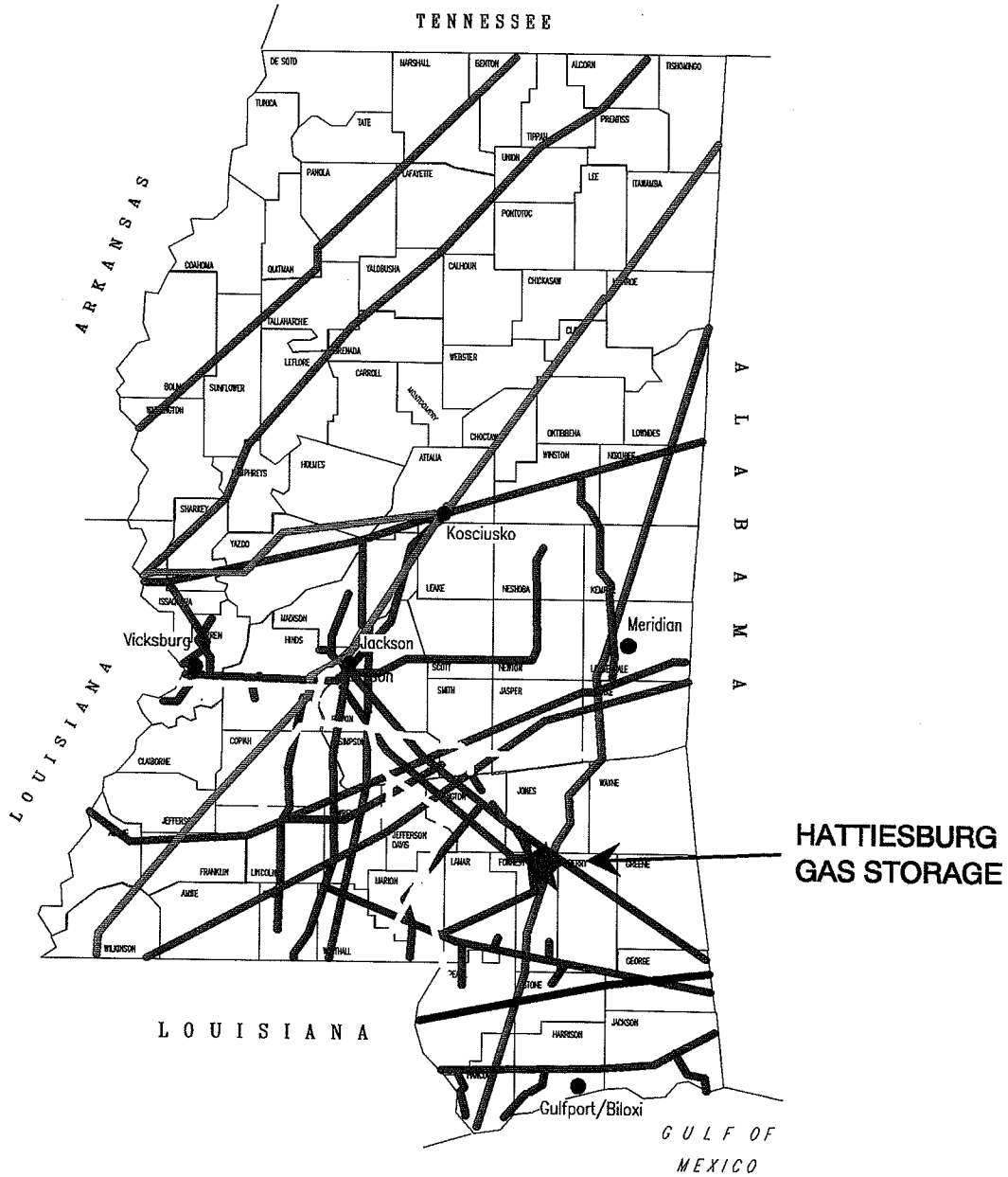
KEY	
— (Thick Solid)	Texas Gas Transmission
— (Thin Solid)	Koch Gateway Pipeline
— (Thin Dashed)	Tennessee Gas Pipeline
— (Thick Dashed)	Columbia Gulf Transmission
— (Thick Dashed)	Trunkline Gas
— (Thin Solid)	ANR Pipeline
— (Thin Dashed)	Transcontinental Gas Pipe Line
★	EGAN GAS STORAGE
●	Cities
□	Hubs











EMPRESS HUBSTORAGE (ALBERTA)



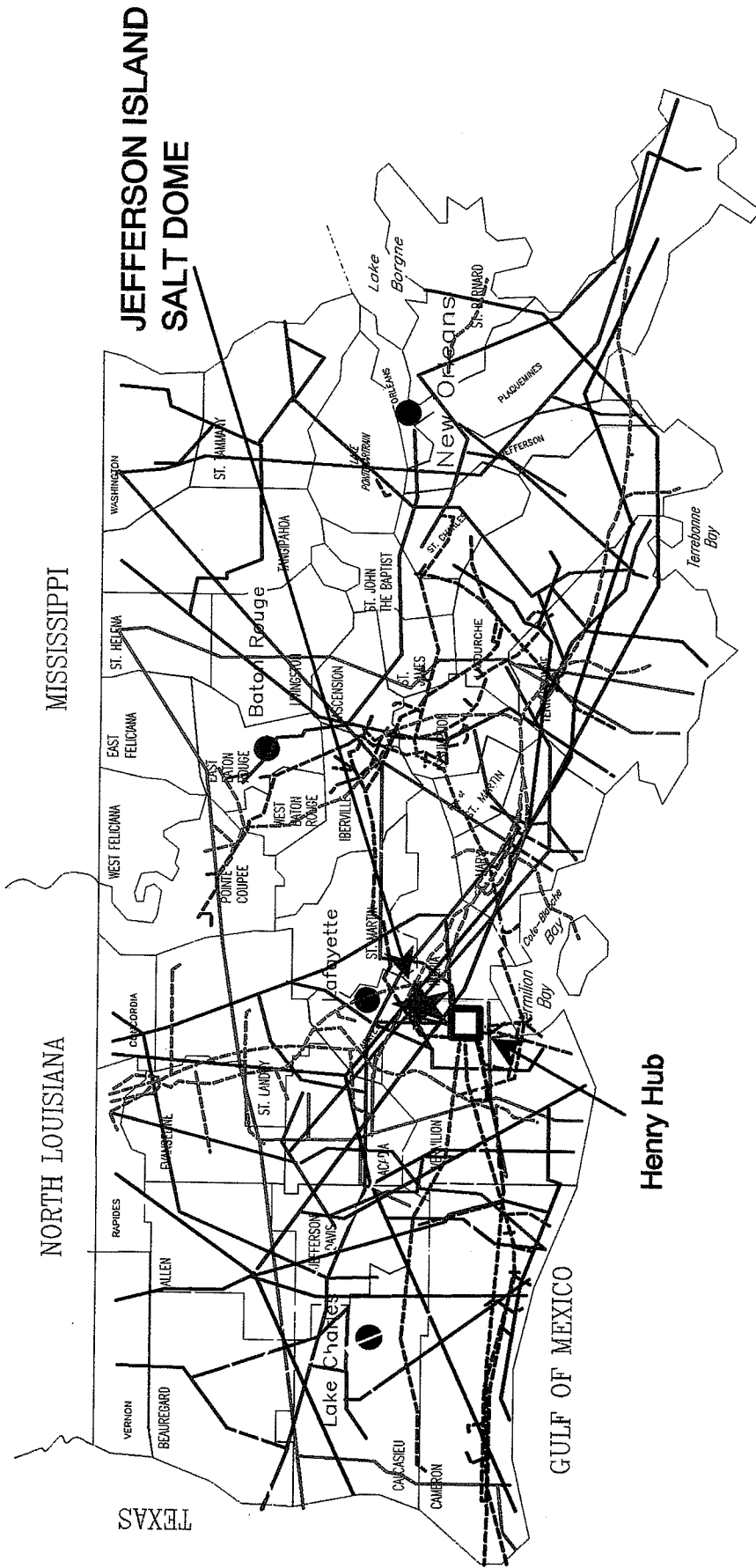
KEY		
 NOVA Corporation	 Alberta Natural Gas	 EMPRESS HUBSTORAGE
 Foothills Pipelines	 Northern Border	
 Transgas Limited	 TransCanada PipeLines	 AECO-C Hub (Includes AEC storage at Suffield, AB)
 Pacific Gas Transmission	 Westcoast Energy	

HATTIESBURG GAS STORAGE (MS)



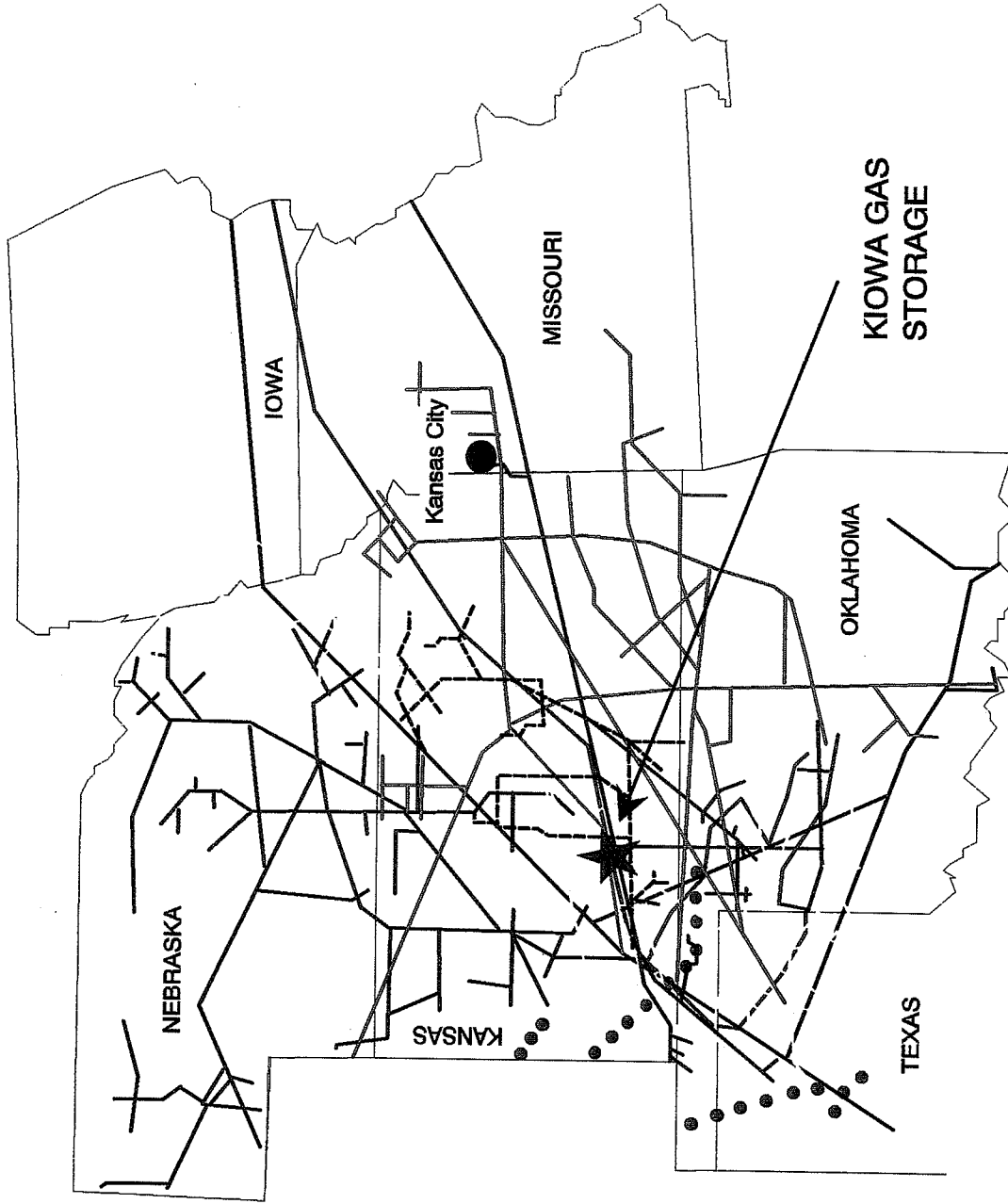
KEY		
	Tennessee Gas Pipeline	 HATTIESBURG GAS STORAGE
	Southern Natural Gas	 Cities
	Transcontinental Gas	
	Hattiesburg-Transco Interconnect Extension	
	Koch Gateway Pipeline	
	Mississippi Fuels (Associated)	
	Texas Eastern Transmission	
	Florida Gas Transmission	

JEFFERSON ISLAND GAS STORAGE (LA)



KEY			
—	Texas Gas Transmission	—	Trunkline Gas
—	Koch Gateway Pipeline	—	Acadian Gas Pipeline
—	Tennessee Gas Pipeline	—	Sabine Pipe Line
—	Columbia Gulf Transmission	—	Louisiana Resources
—		—	Sea Robin Pipeline
—		—	Dow Intrastate
—		—	Louisiana Intrastate
—		—	Natural Gas Pipeline
★		●	Cities
□		□	Hubs

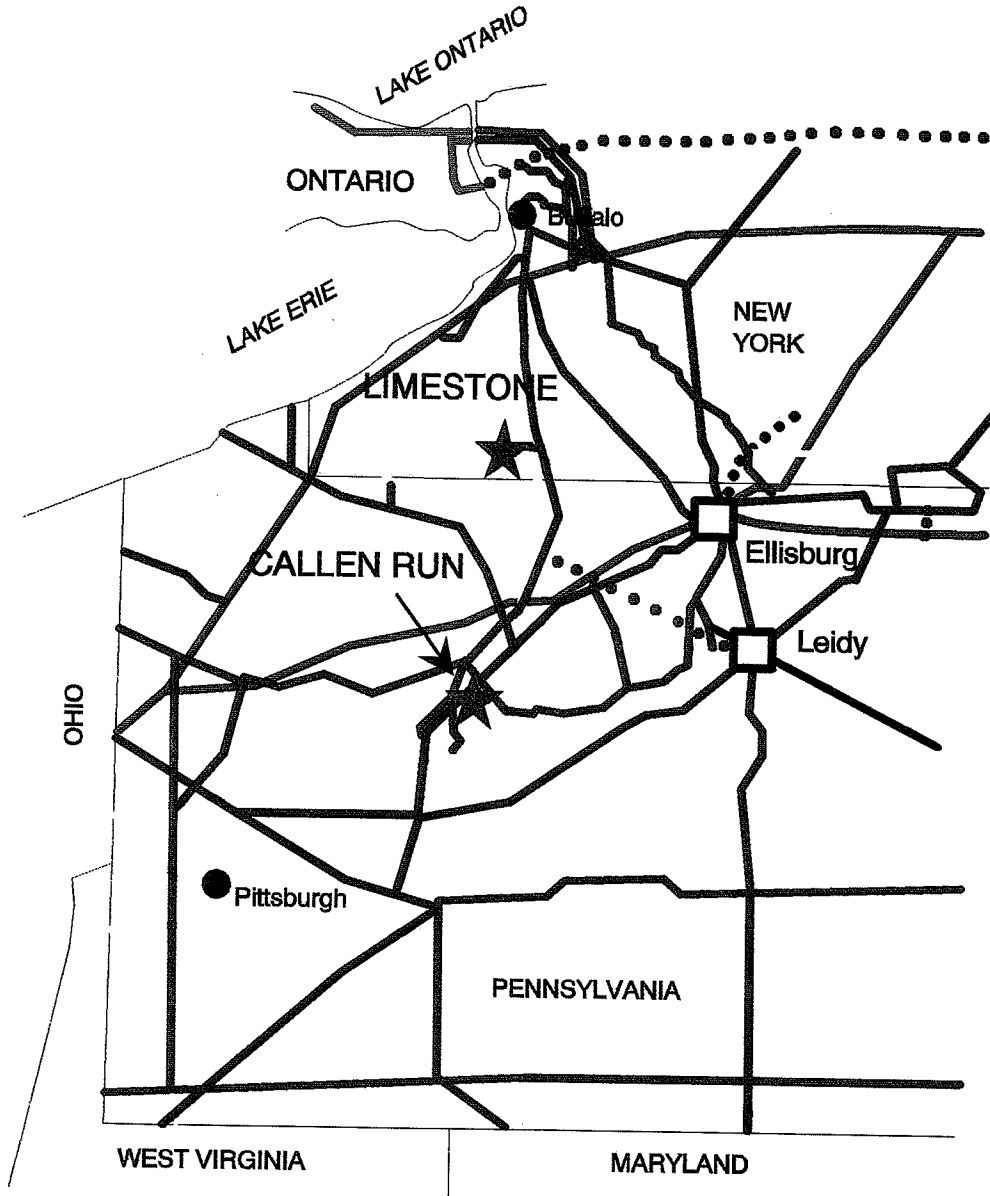
KIOWA GAS STORAGE (KS)



KEY	
—	ANR Pipeline
—	KN Interstate
—	Williams Natural Gas
—	Northern Natural
—	Panhandle Eastern
—	Natural Gas Pipeline
•••	Colorado Interstate
—	Western Resources/ Mid-Continent Hub
★	KIOWA GAS STORAGE
●	Cities

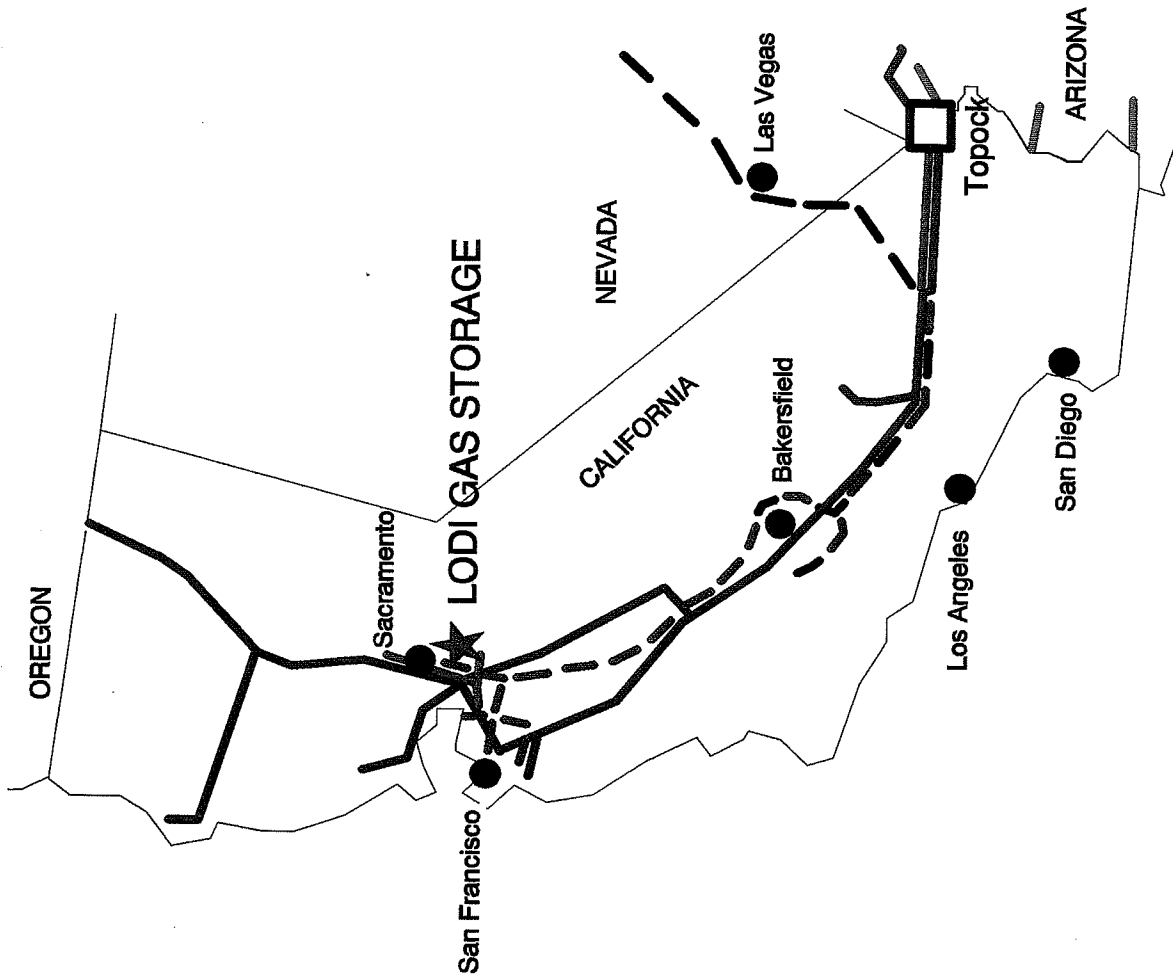
LAUREL FIELDS STORAGE PROJECT (NY and PA)

(LIMESTONE AND CALLEN RUN STORAGE FIELDS)



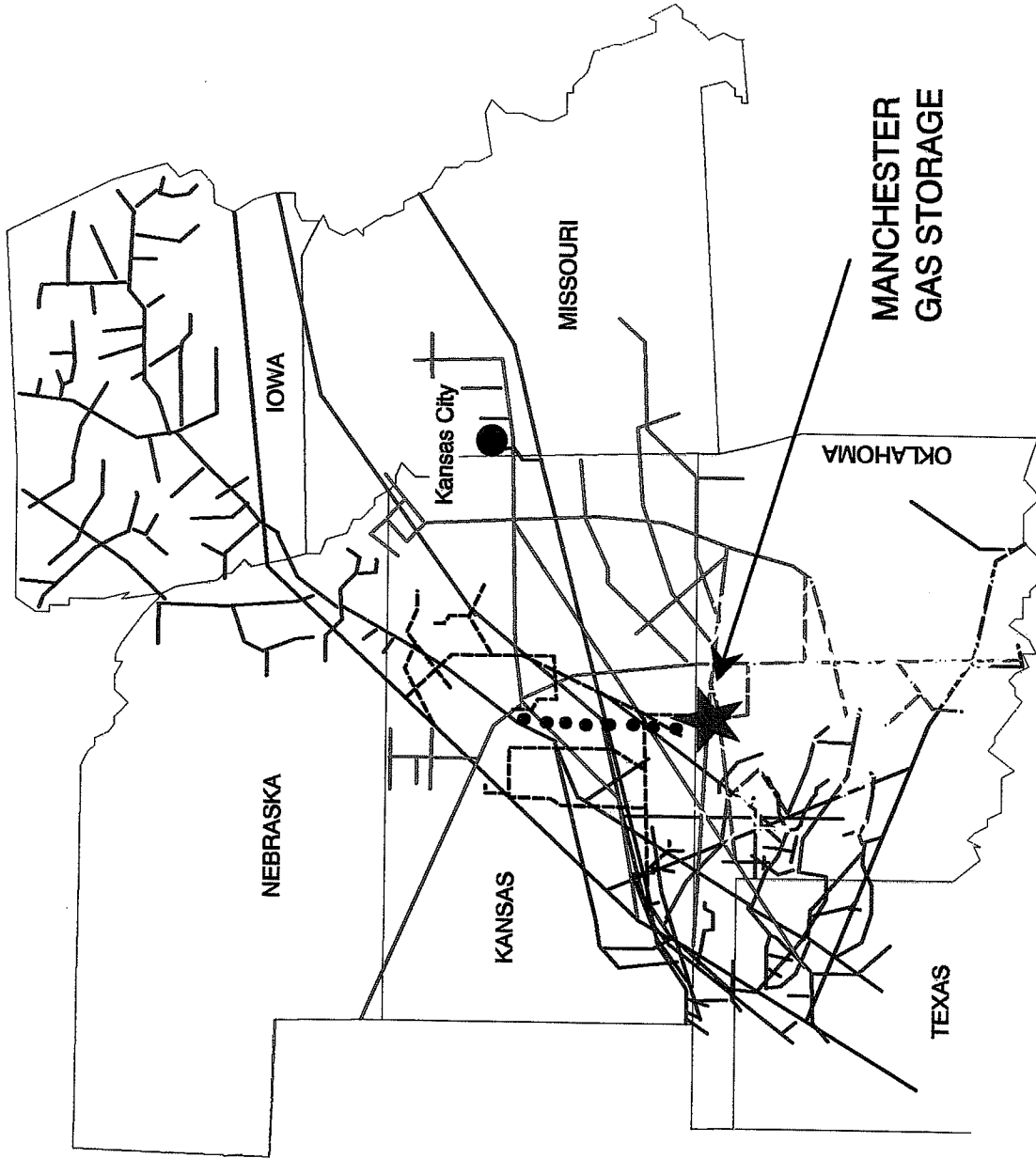
KEY			
National Fuel Gas	Columbia Gas	TransCanada Pipelines	Hubs
NFG (proposed)	Texas Eastern	Penn-York Energy	Cities
Tennessee Gas	Transcontinental Gas	North Penn Gas	
CNG Transmission	Empire State	LAUREL FIELDS STORAGE	

LODI GAS STORAGE PROJECT (CA)



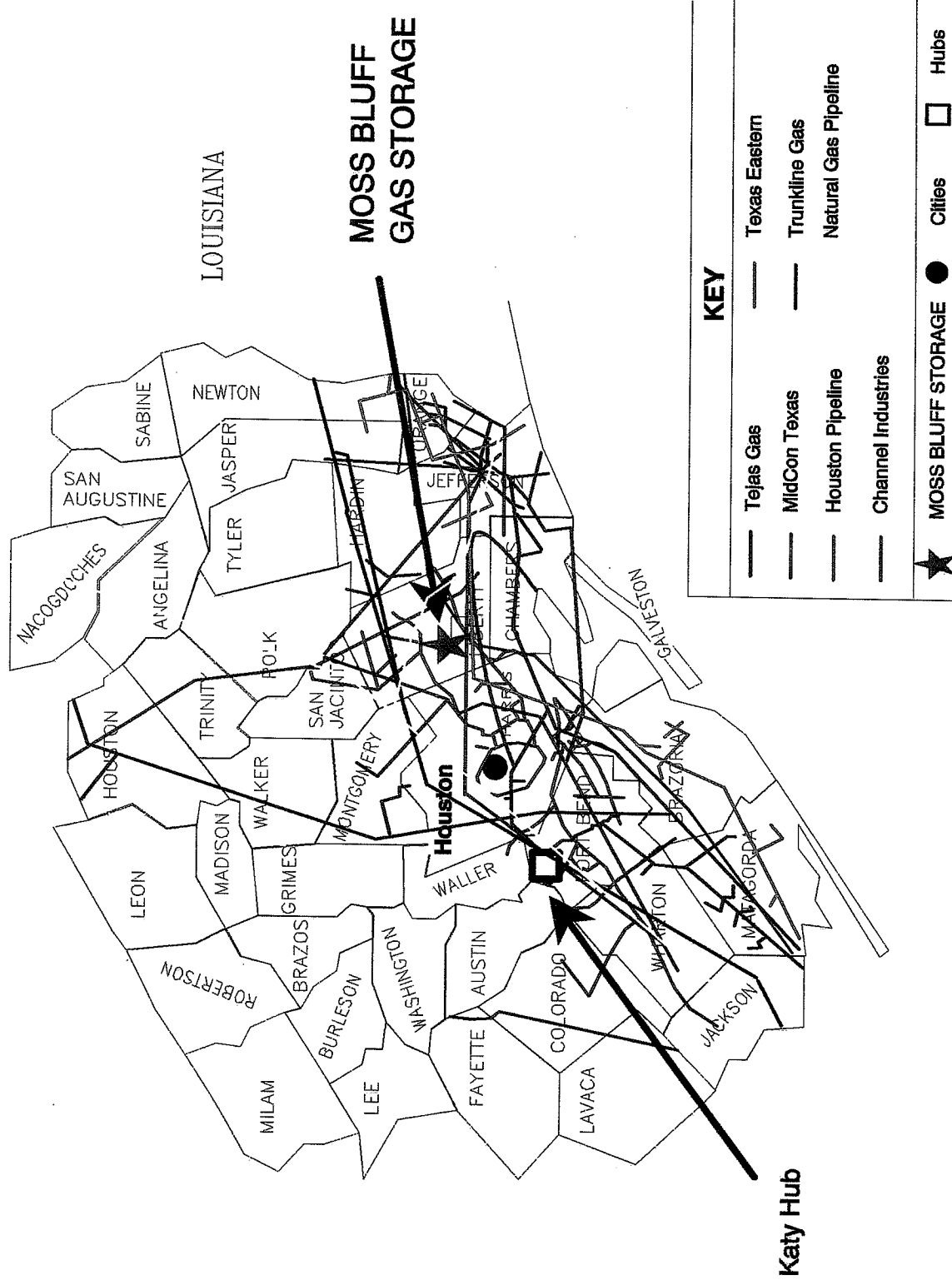
KEY	
	El Paso Natural Gas
	Kern River Gas Transmission
	Mojave Pipeline (proposed)
	Kern River/Mojave Common Facilities
	Pacific Gas & Electric
	Pacific Gas Transmission
	Transwestern Pipeline
	Dow-Shell Pipeline
	LODI GAS STORAGE
	Hubs
	Cities

MANCHESTER GAS STORAGE (OK)



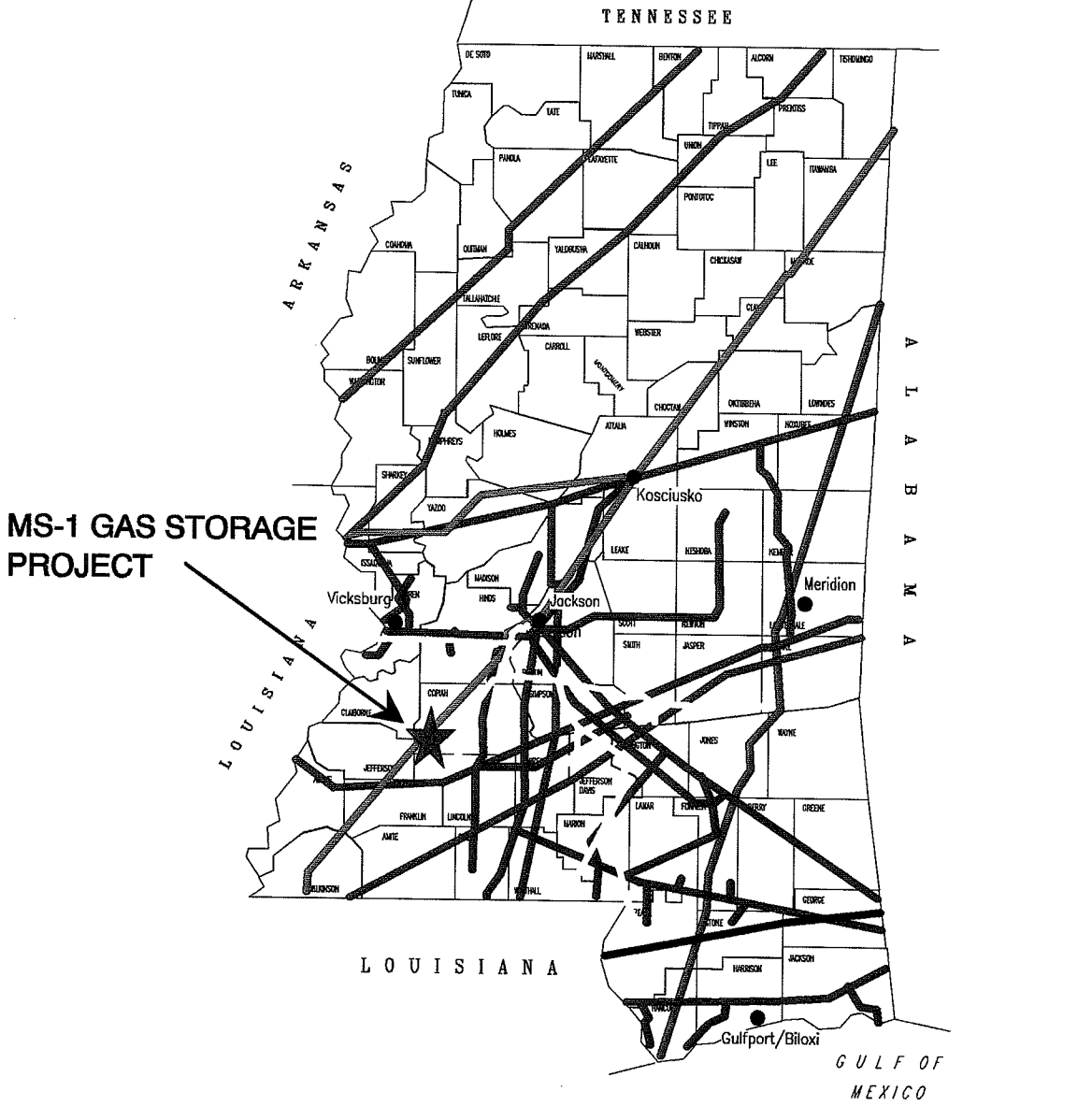
KEY	
—	ANR Pipeline
—	Natural Gas Pipeline
—	Williams Natural Gas
—	Northern Natural
—	Panhandle Eastern
—	Oklahoma Natural Gas
•••	Peoples Natural Gas
----	Western Resources/ Mid-Continent Hub
★	MANCHESTER GAS STORAGE
●	Cities










MOSS BLUFF GAS STORAGE (TX)



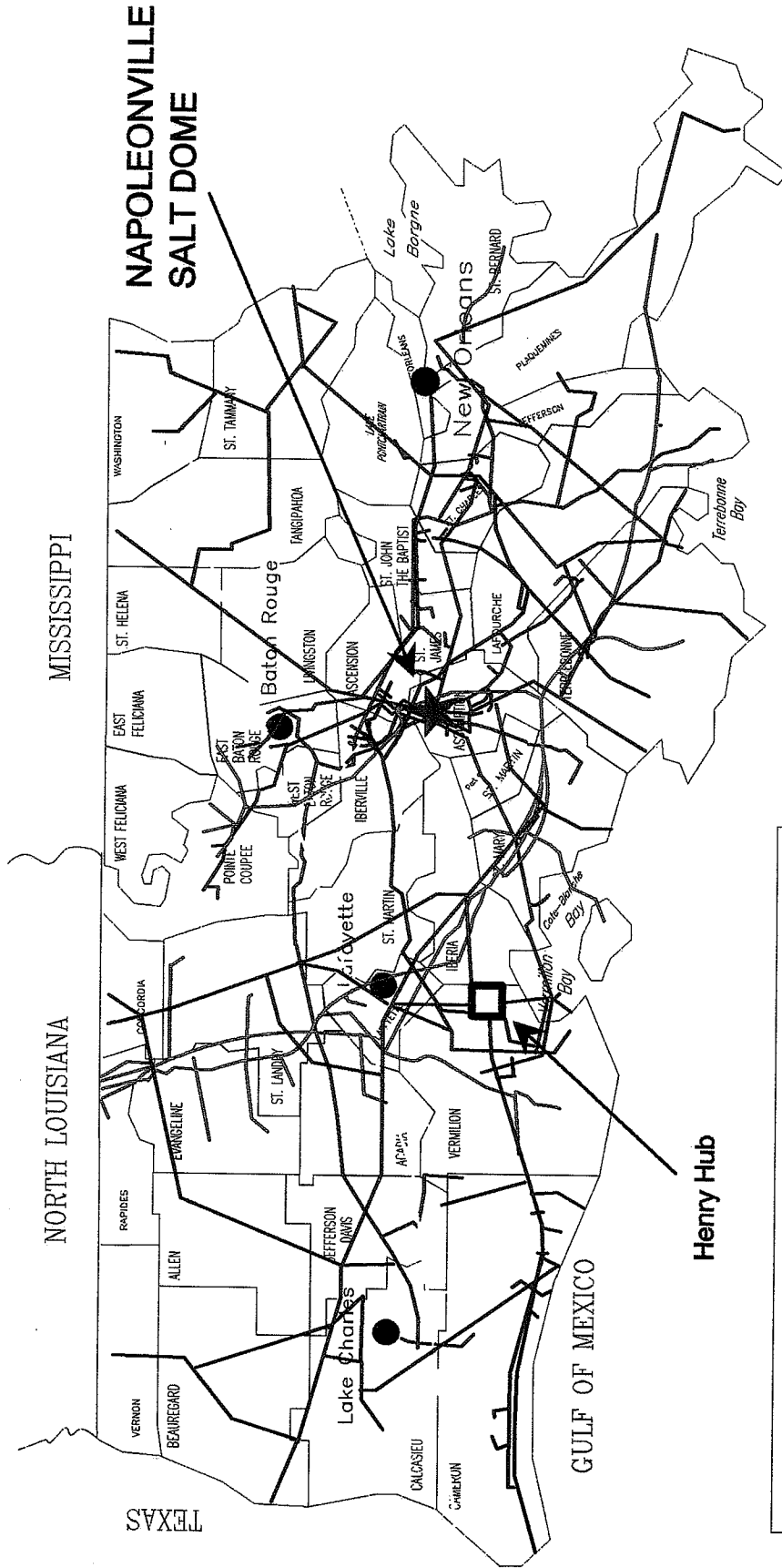
KEY	
—	Tejas Gas
—	MidCon Texas
—	Houston Pipeline
—	Channel Industries
—	Texas Eastern
—	Trunkline Gas
—	Natural Gas Pipeline
★	MOSS BLUFF STORAGE
●	Cities
□	Hubs

MS-1 GAS STORAGE PROJECT (MS)



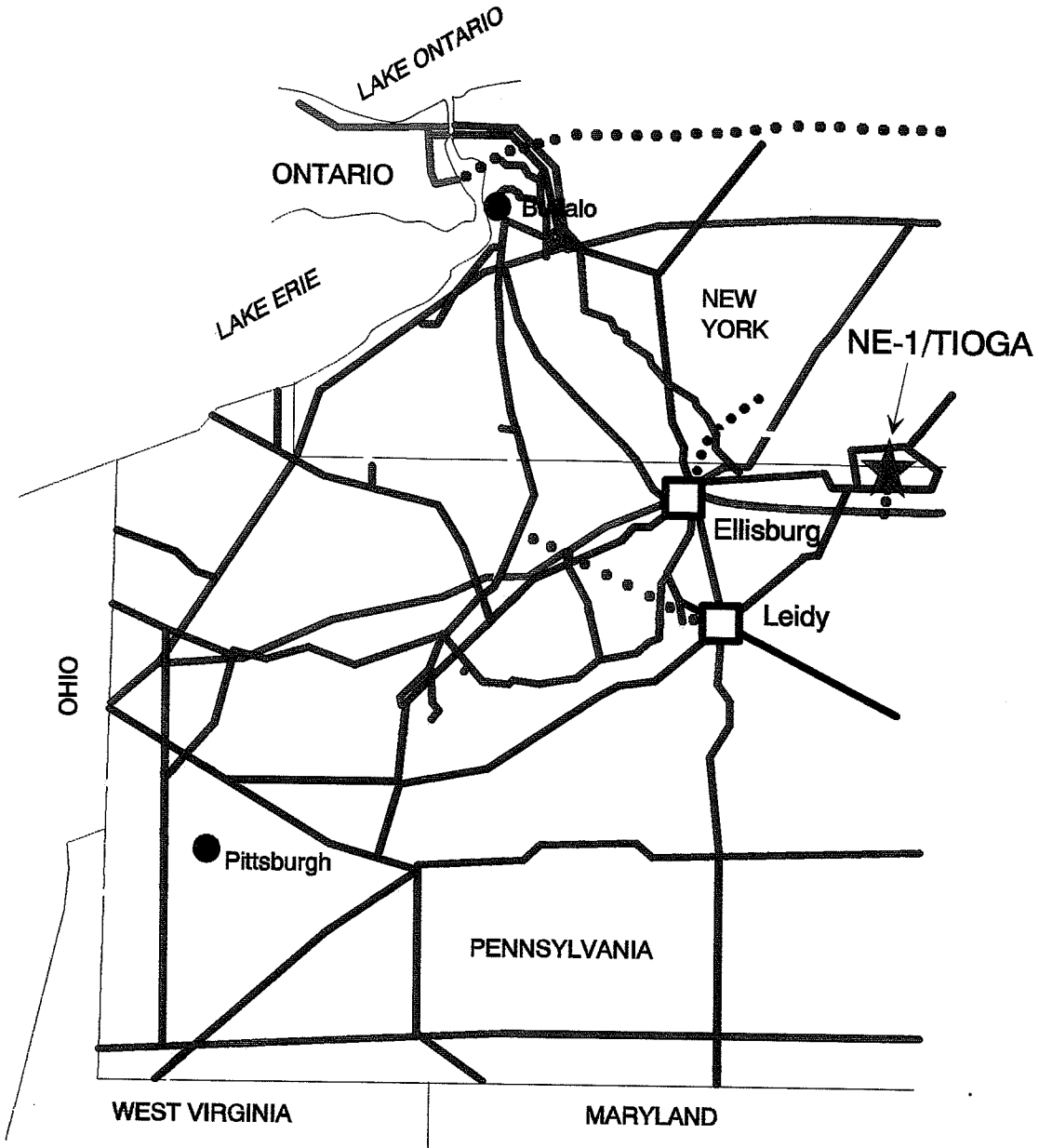
KEY					
	Tennessee Gas Pipeline		Koch Gateway Pipeline		MS-1 GAS STORAGE PROJECT
	Southern Natural Gas		Mississippi Fuels (Associated)		Cities
	Transcontinental Gas		Texas Eastern Transmission		
	Florida Gas Transmission				

NAPOLEONVILLE SALT DOME (LA)



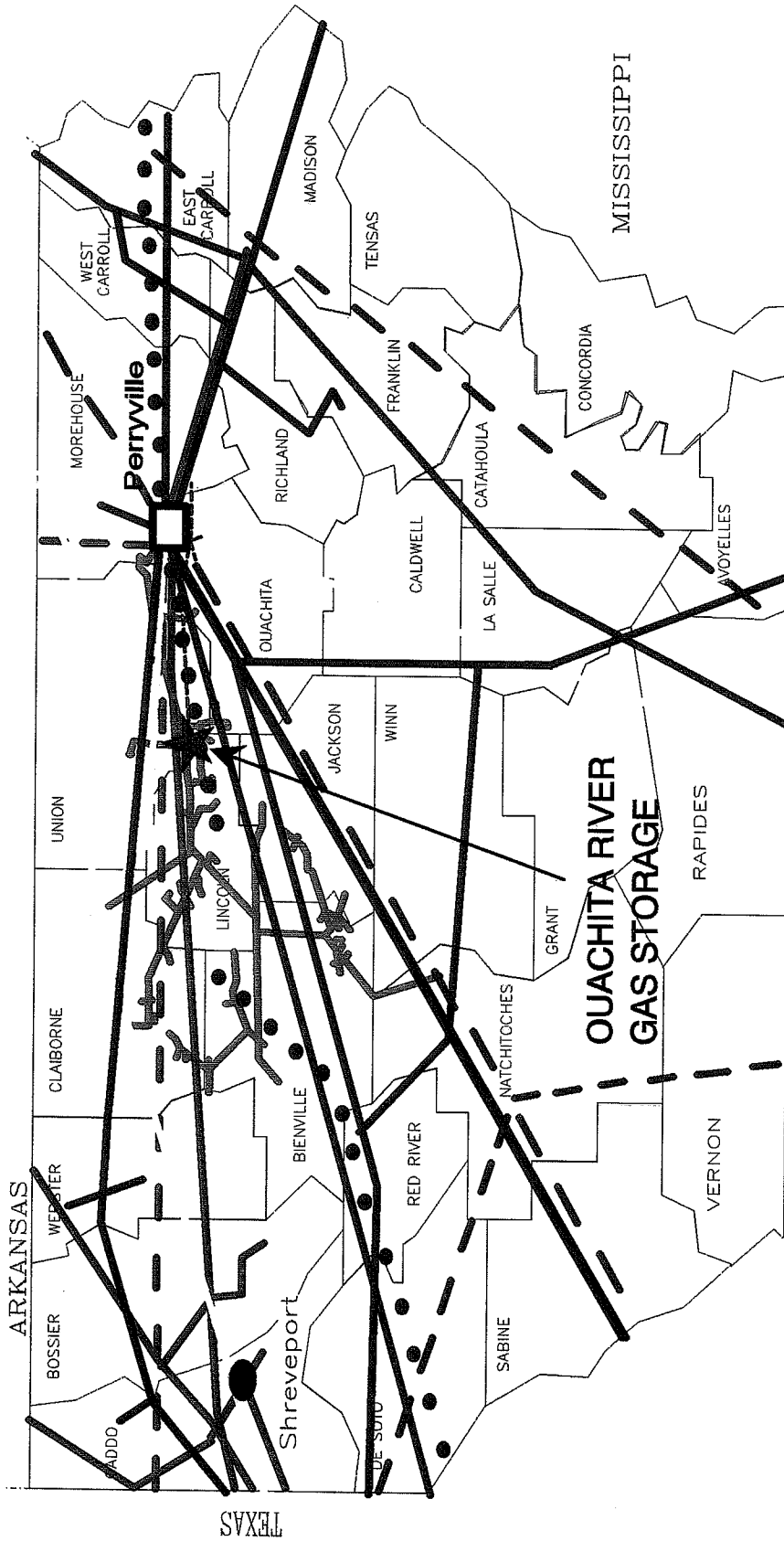
KEY	
	Acadian Gas Pipeline System
	Koch Gateway Pipeline
	Bridgeline Gas Distribution
	Louisiana Intrastate Gas
	Florida Gas Transmission
	Louisiana Resources
	NAPOLEONVILLE SALT DOME
	Cities
	Hubs

NE-1/TIOGA GAS STORAGE (PA)



KEY			
National Fuel Gas	Columbia Gas	TransCanada Pipelines	Hubs
NFG (proposed)	Texas Eastern	Penn-York Energy	Cities
Tennessee Gas	Transcontinental Gas	North Penn Gas	
CNG Transmission	Empire State	NE-1/TIOGA GAS STORAGE	

OUACHITA RIVER GAS STORAGE (LA)

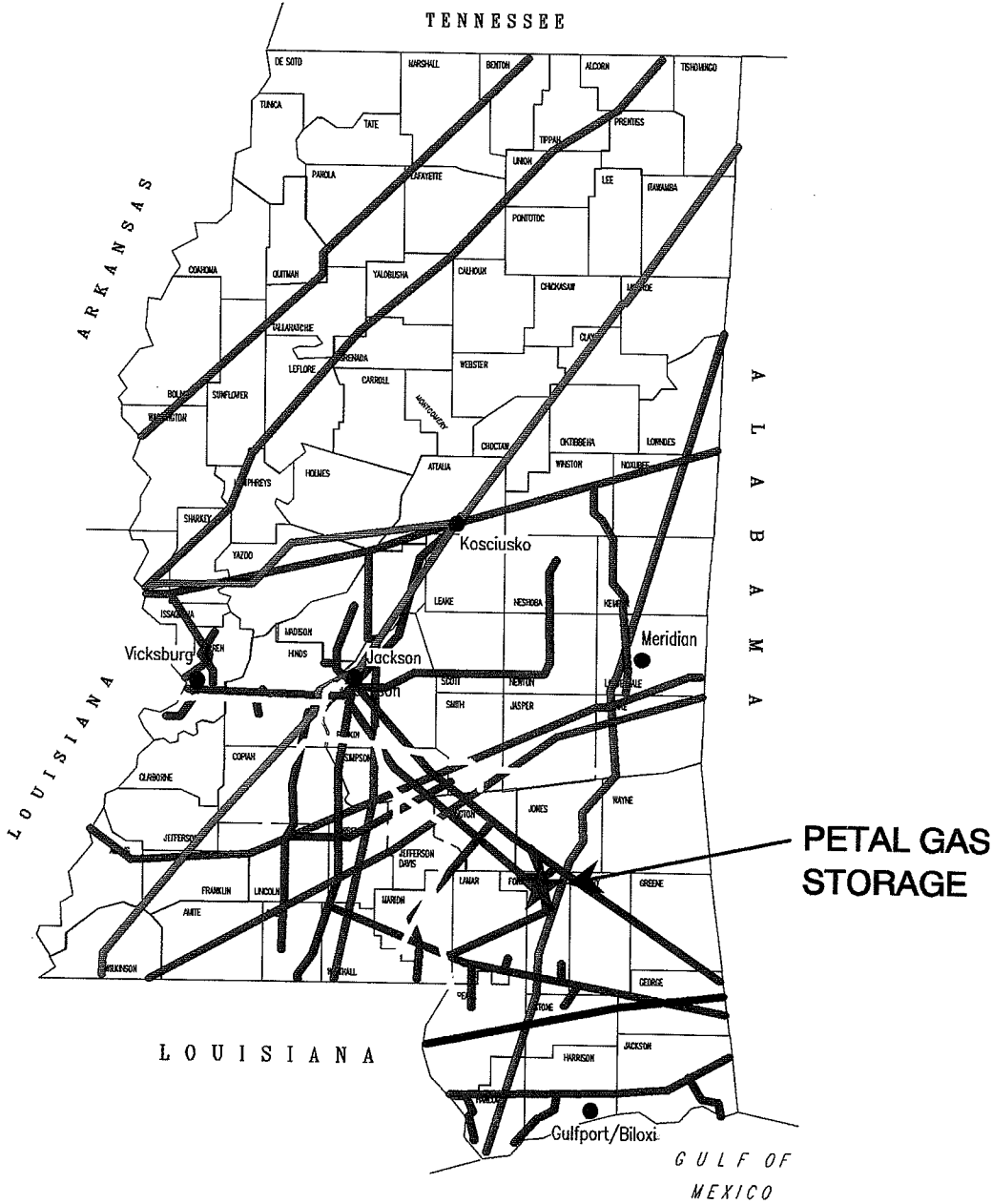











SOUTH LOUISIANA

KEY

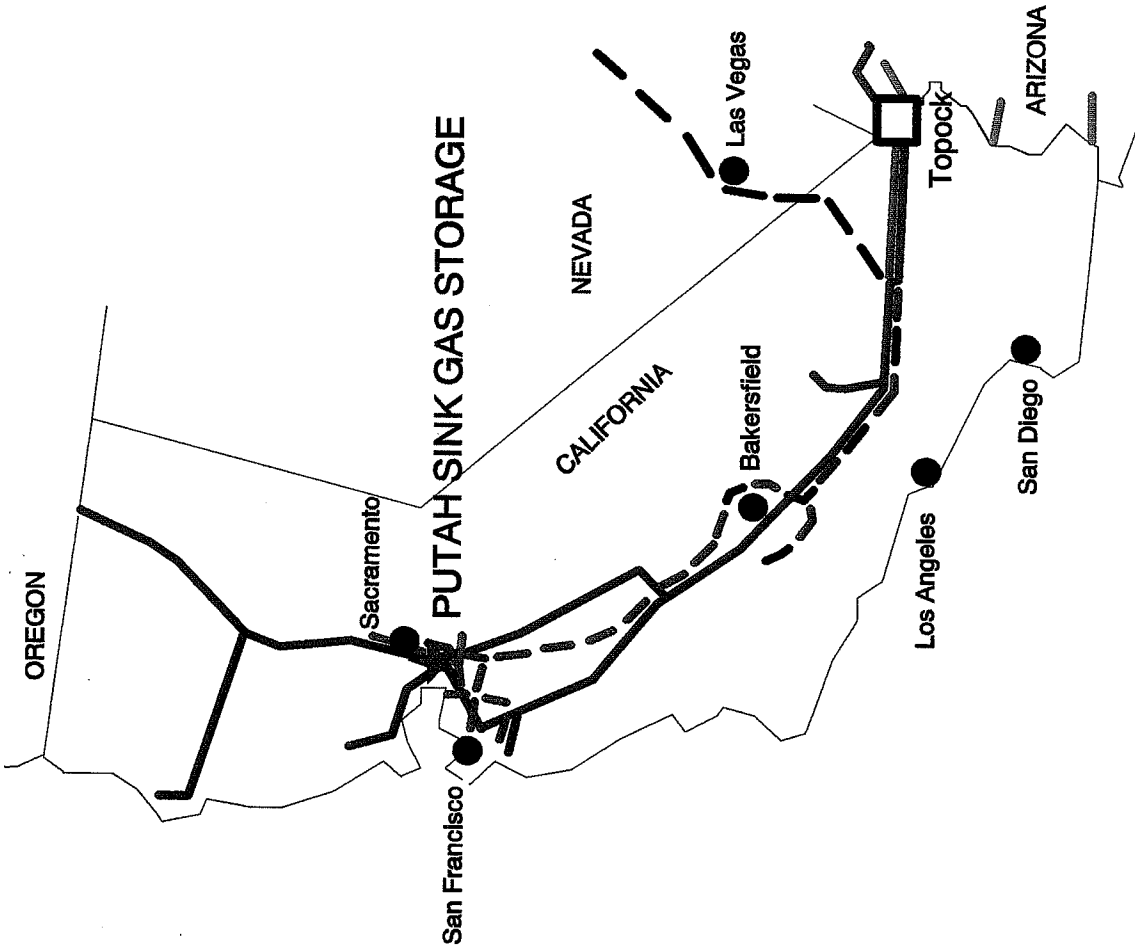
	ANR Pipeline		Texas Gas		Mississippi River Trans.		Tennessee Gas
	Koch Gateway		Southern Natural		Texas Eastern		Ouachita Storage
	NorAm Gas		Transok		Pipeline (proposed)		
	OUACHITA RIVER GAS STORAGE		Hubs		Cities		












PETAL GAS STORAGE (MS)



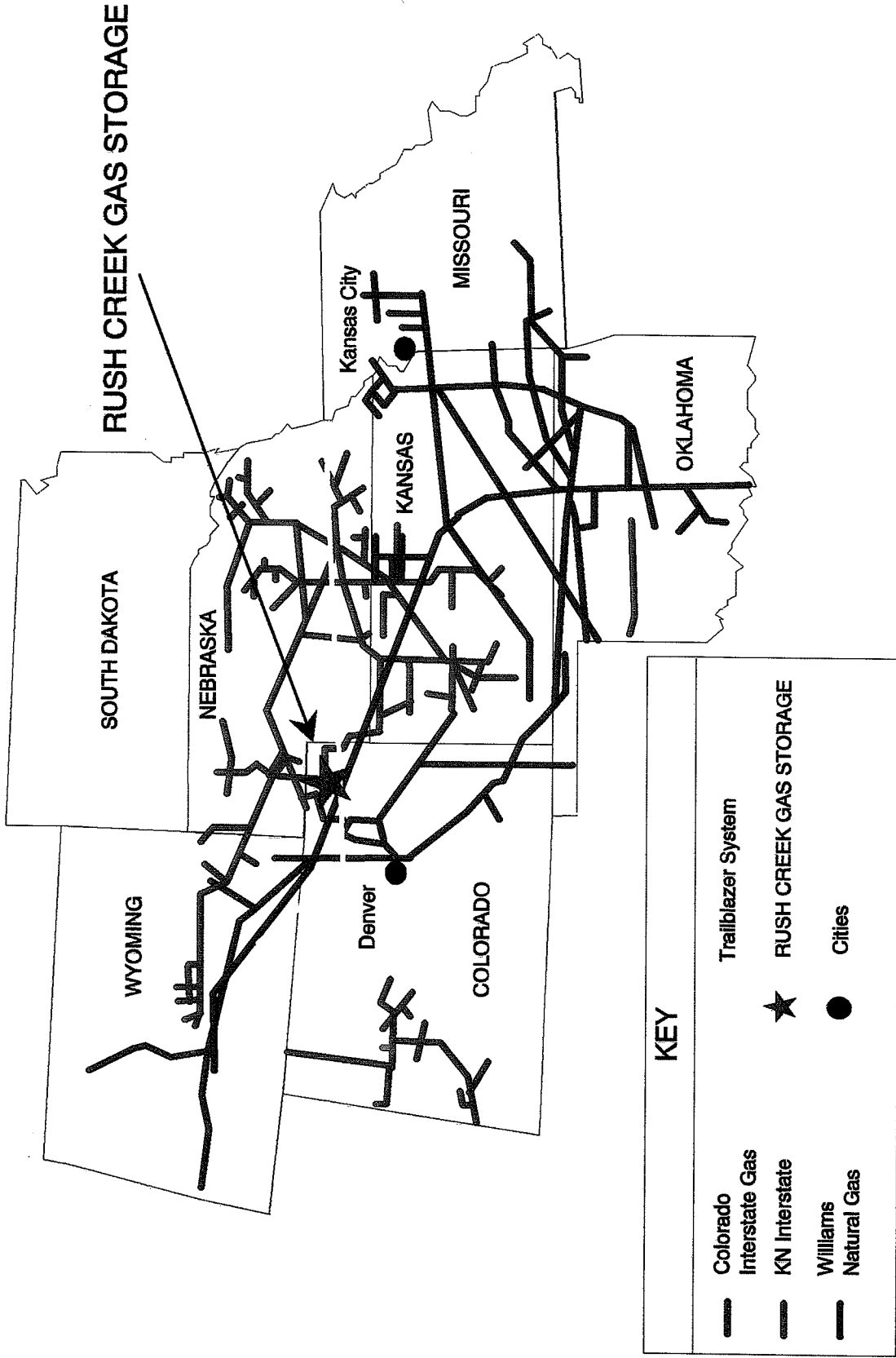
KEY					
	Tennessee Gas Pipeline		Koch Gateway Pipeline		PETAL GAS STORAGE
	Southern Natural Gas		Mississippi Fuels (Associated)		
	Transcontinental Gas		Texas Eastern Transmission		Cities
	Florida Gas Transmission				







PUTAH SINK GAS STORAGE PROJECT (CA)



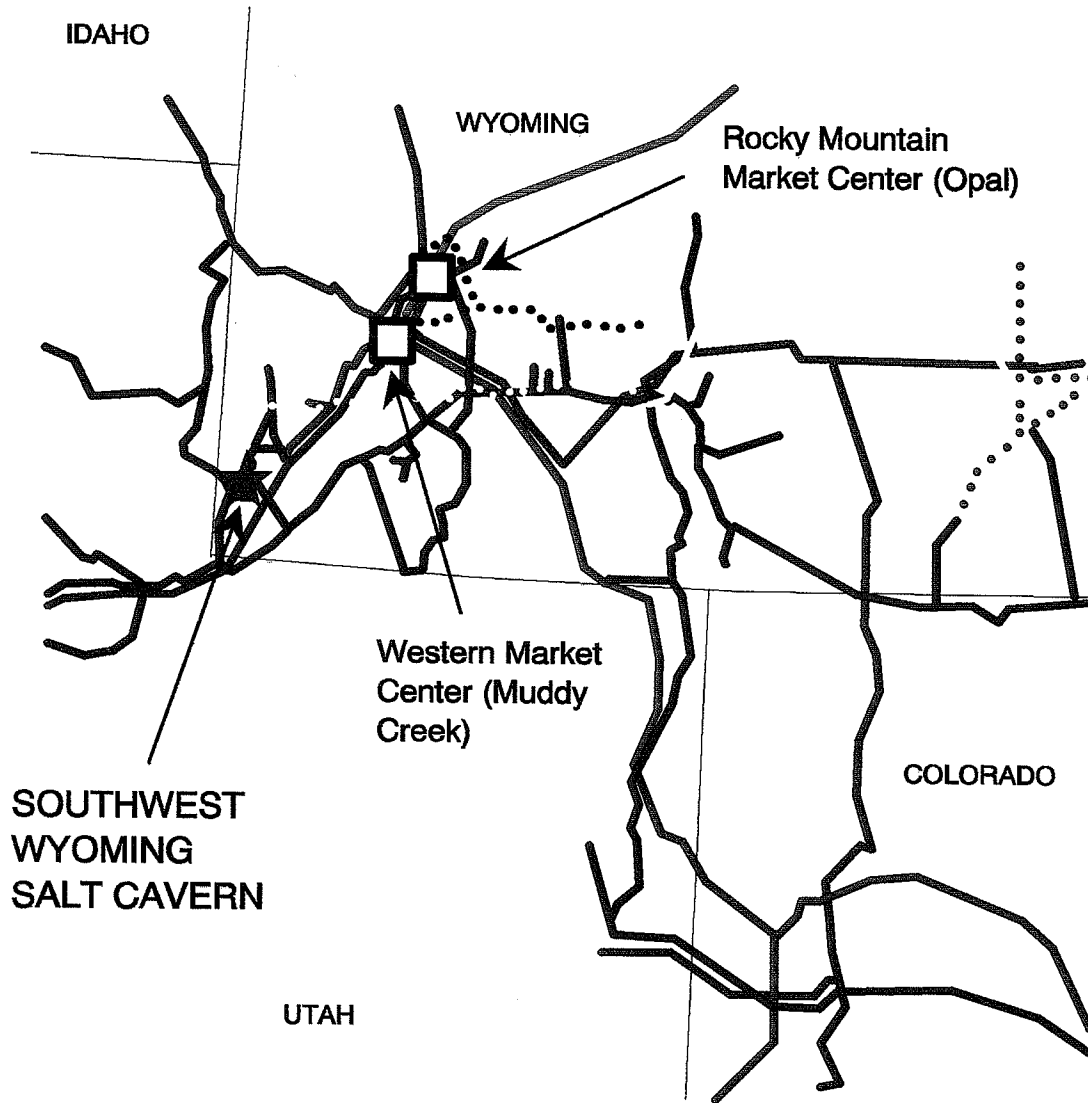
KEY	
	El Paso Natural Gas
	Kern River Gas Transmission
	Mojave Pipeline (proposed)
	Kern River/Mojave Common Facilities
	Pacific Gas & Electric
	Pacific Gas Transmission
	Transwestern Pipeline
	Dow-Shell Pipeline
	PUTAH SINK GAS STORAGE
	Hubs
	Cities




















RUSH CREEK GAS STORAGE (CO)



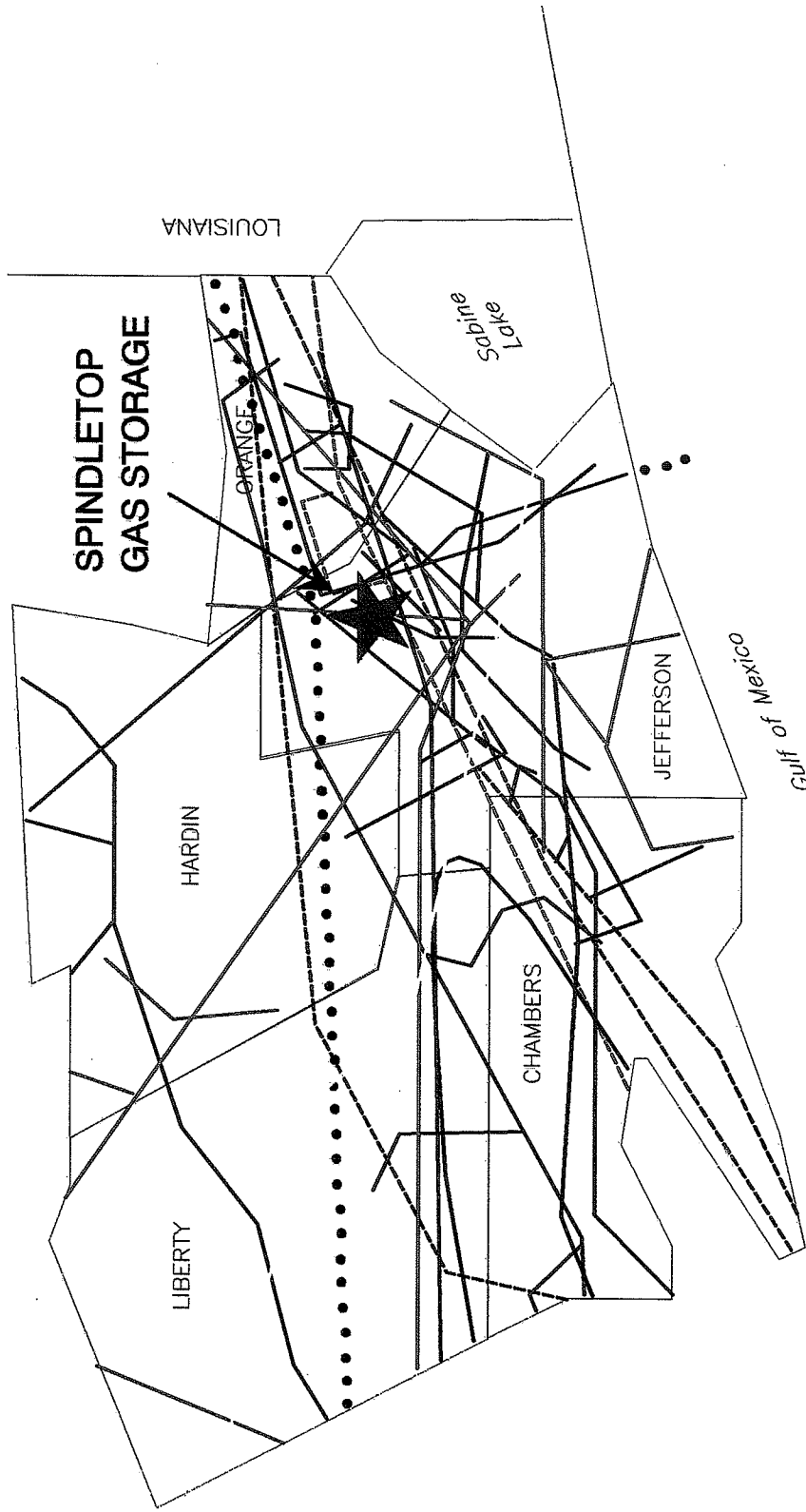
KEY	
	Colorado Interstate Gas
	KN Interstate
	Williams Natural Gas
	Trailblazer System
	RUSH CREEK GAS STORAGE
	Cities

SOUTHWEST WYOMING STORAGE PROJECT



KEY		
	Northwest Pipeline	
	Colorado Interstate	
	Questar Pipeline	
	Altamont (proposed)	
	Kern River Gas	
	Overland Trail	
	Overthrust Pipeline	
	Wyoming Interstate	
		
		
		
		Williams Natural Gas
		SW WYOMING STORAGE
		Hubs

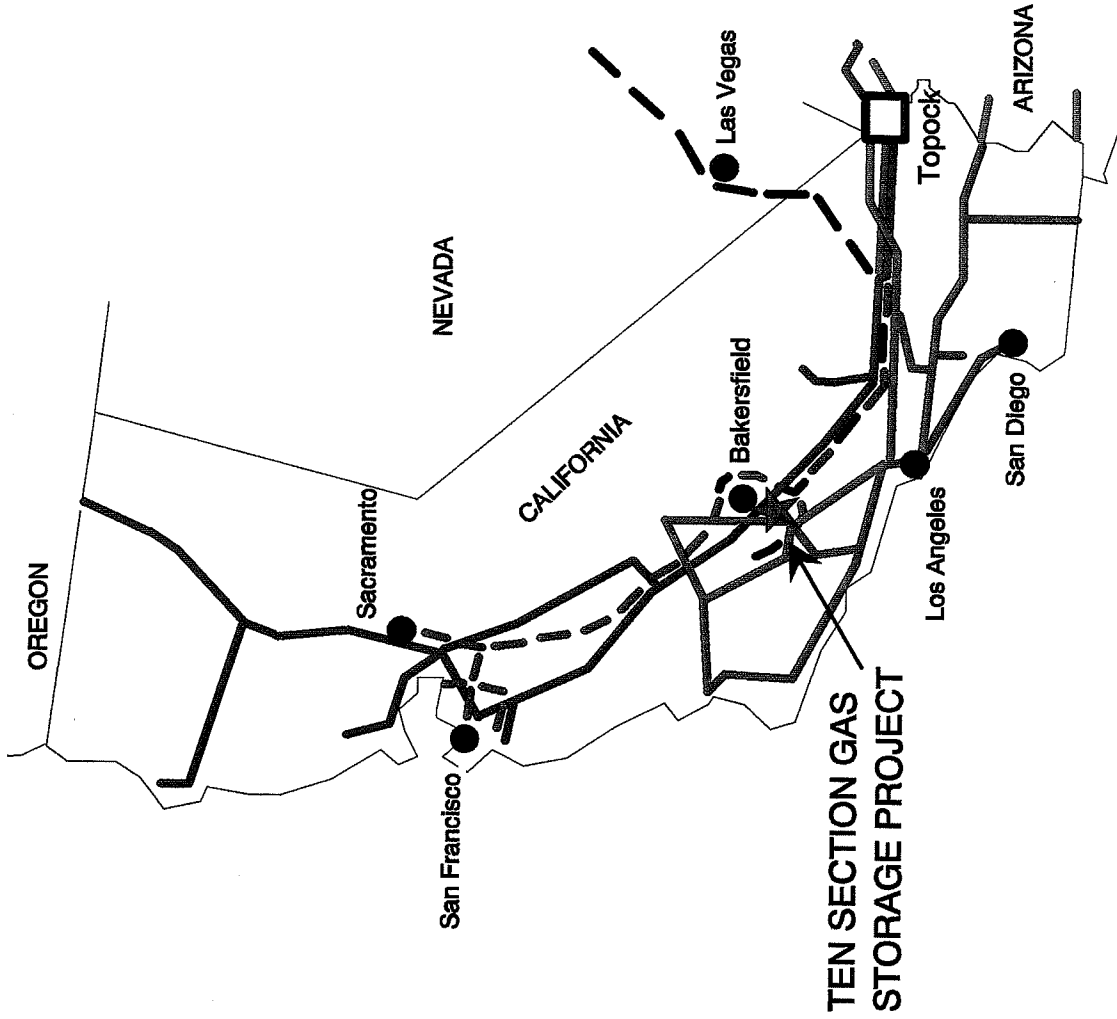
SPINDLETOP GAS STORAGE (TX)



KEY

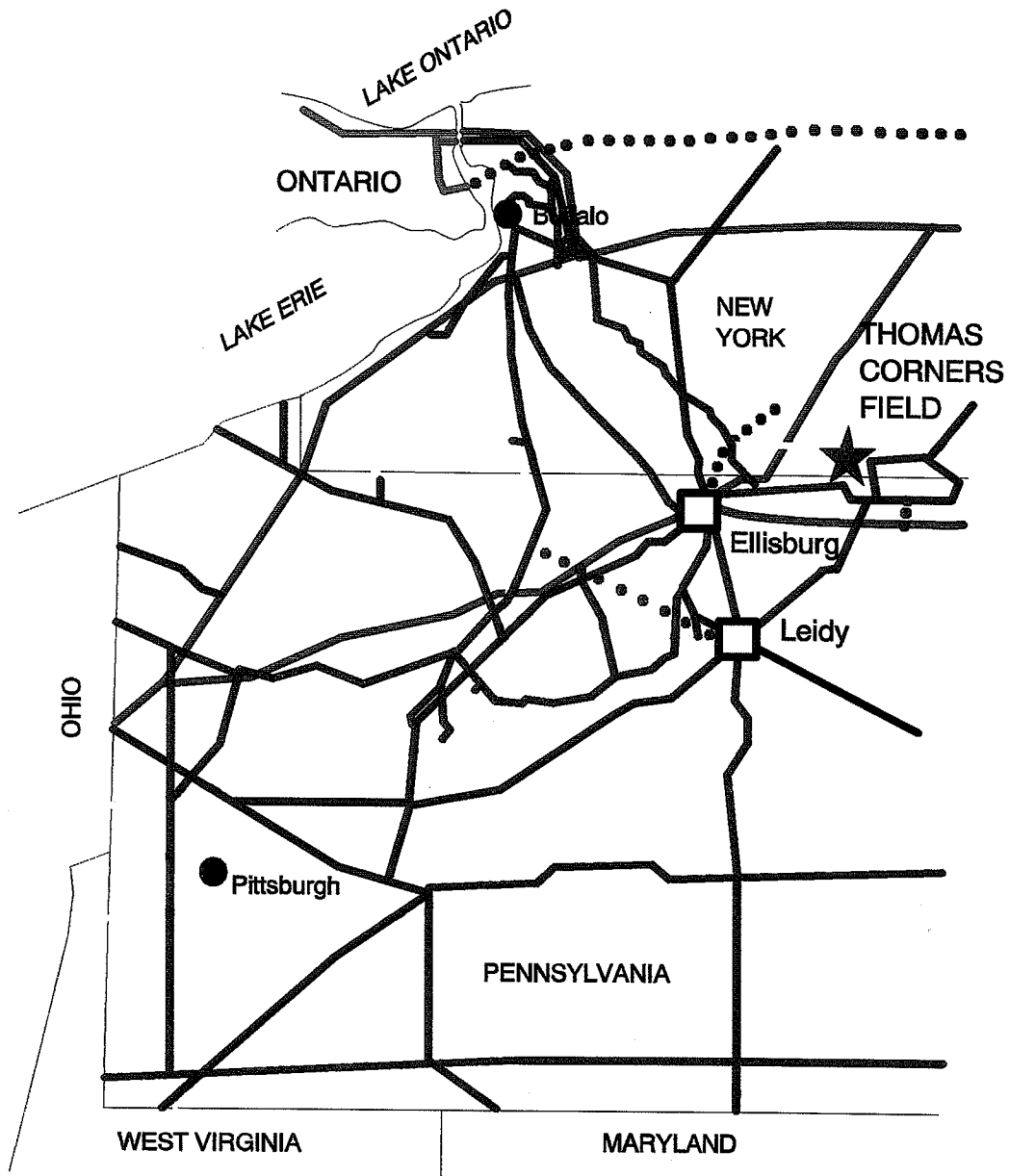
— Centana Intrastate	— Natural Gas Pipeline	— Sabine Pipe Line	★ SPINDLETOP GAS STORAGE
— MidCon Texas	— Texas Eastern	— Amoco Gas	
— Houston Pipe Line	— Florida Gas	— Channel Industries	
— Tejas Gas	••• Sonat Searim	••• Lone Star Gas	

TEN SECTION GAS STORAGE (CA)



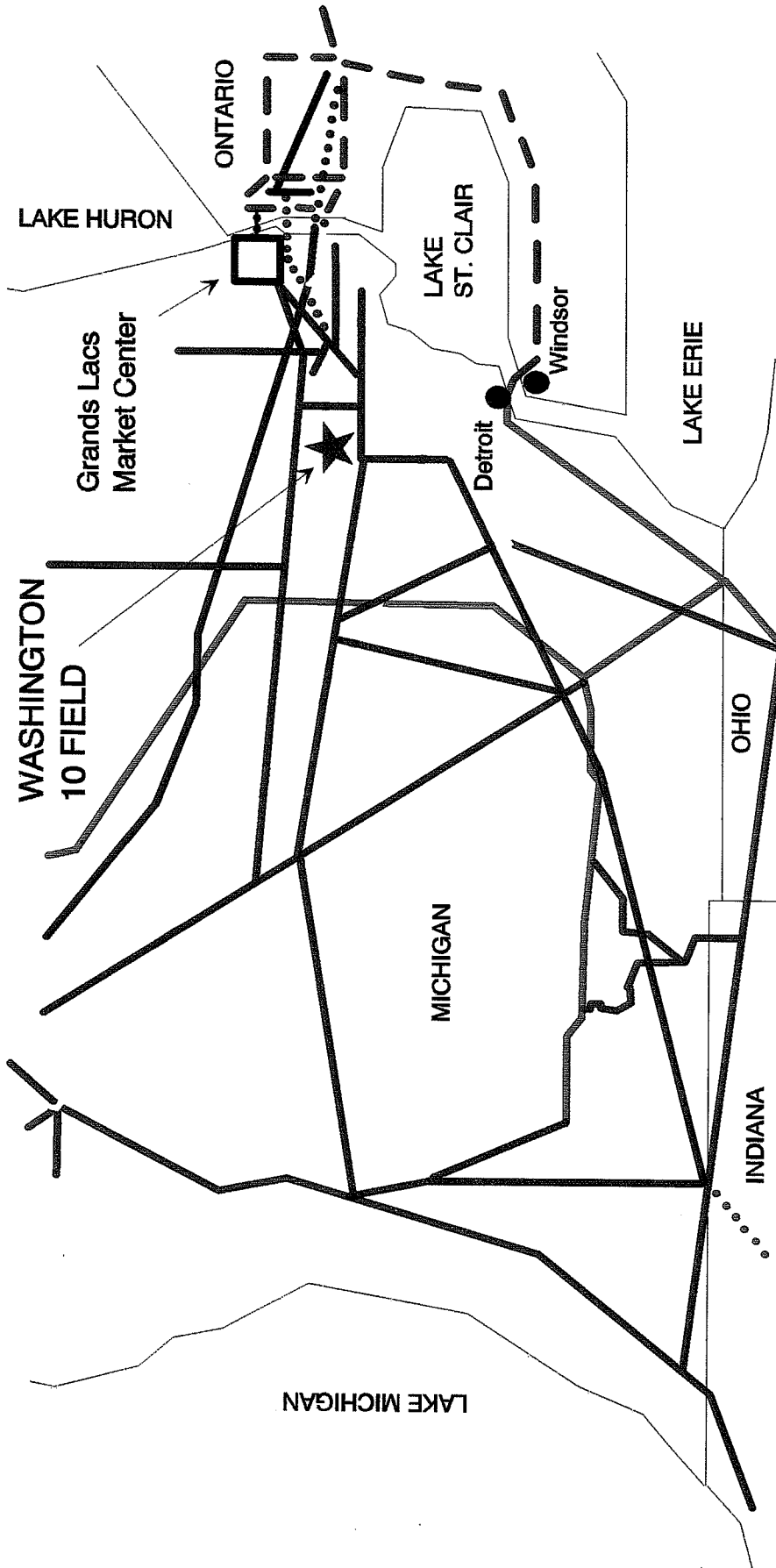
KEY	
	El Paso Natural Gas
	Kern River Gas Transmission
	Mojave Pipeline (proposed)
	Kern River/Mojave Common Facilities
	Pacific Gas & Electric
	Pacific Gas Transmission
	Transwestern Pipeline
	Southern California Gas
	TEN SECTION GAS STORAGE
	Hubs
	Cities

THOMAS CORNERS FIELD STORAGE PROJECT (NY)



KEY			
National Fuel Gas	Columbia Gas	TransCanada PipeLines	Hubs
NFG (proposed)	Texas Eastern	Penn-York Energy	Cities
Tennessee Gas	Transcontinental Gas	North Penn Gas	
CNG Transmission	Empire State	THOMAS CORNERS FIELD	

WASHINGTON 10 STORAGE PROJECT (MI)



KEY

—	ANR Pipeline	.....	TransCanada PipeLines	.....	ANR Link (proposed)
—	Consumers Power (U.S.)	—	Union Gas	—	Bluewater Pipeline (proposed)
—	Great Lakes Gas Transmission	.....	St. Clair Pipelines	—	Southeastern Michigan Gas
—	Michigan Consolidated Gas	.....	Trunkline Gas	★	WASHINGTON 10 STORAGE PROJECT
—	Parhandle Eastern Pipe Line	—	Tecumseh (Consumers Gas)	□	Hubs
				●	Cities

APPENDIX B-1

MARKET HUB DESCRIPTIONS

APPENDIX B-1
MARKET HUB DESCRIPTIONS
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AECO C HUB (Storage)

Owner: Alberta Energy Company Ltd. (AEC)

Administrator: AEC

Location: Near Suffield, in southeastern Alberta, adjacent to NOVA's main transmission system, and accessible to the systems of TransCanada PipeLines, Foothills/Northern Border Pipeline and Alberta Natural Gas/Pacific Gas Transmission (see map in Appendix B-2).

Services/Benefits:

AEC will provide firm storage, transportation exchange, parking, direct connection/inventory balancing, loaned gas, AECO-LINK customer access system, title exchange and information services.

Storage services, including parking, are provided to customers in the following order of service levels: (1) firm storage customers, (2) platinum, (3) gold, (4) silver, (5) bronze plus, (6) bronze, and (7) firm storage customers in excess of contract. The platinum, gold, silver and bronze levels of parking have a limited enrollment, ensuring higher reliability and increased value for these higher priority services.

Parking Service (1) allows parking of gas on a firm or interruptible basis at the hub for periods of one day or longer; (2) increases a customer's options for gas acquisition, disposition and transportation; and (3) provides a mechanism for inventory balancing.

Loaned Gas service allows a customer to borrow gas from the AECO C Hub in the form of a negative inventory or a draft against its parking account. Loaned gas (1) allows a customer to access natural gas on a short-term basis to meet market requirements; (2) allows a customer to bridge shortfalls between supply and market positions; (3) provides coverage in case of plant outages and upstream supply problems; (4) provides a form of interruptible backstopping for title exchange customers or as overdraft protection for parking customers; and (5) offers a mechanism for inventory balancing. The customer is obligated to return the gas at a later date, and a fee is charged for the service. A limit exists on the amount of gas loaned to each customer. A loan inventory charge is applied for certain months.

Title Exchange consists of the AECO C Hub taking delivery and title of gas on behalf of a customer from any third-party account and them immediately transferring title back to the same customer while redelivering the gas back to other third-party accounts. Title Exchange service (1) provides an independent alternative to pipeline inventory transfers; (2) creates a supply pooling point for gas purchases; customers can purchase gas delivered to AECO C Hub from a wide range of suppliers; (3) creates a common gas delivery point for gas

AECO C HUB (continued)

sales; customers can sell gas delivered to AECO C Hub to a wide range of buyers; (4) creates a common market point for customers to broker a range of supplies to a variety of markets; (5) maintains confidentiality between a customer's supply and markets; (6) eliminates the need for a customer to take assignment of firm field receipt service from a seller, i.e., this prevents month-end field allocation variances; and (7) allows a customer to improve its gas control, with less reliance on others.

Transportation Exchange service allows a customer to purchase or deliver gas at the AECO C Hub and take immediate redelivery at any intra-Alberta delivery point or inter-Alberta firm delivery location. This service (1) allows shippers with firm delivery transportation to mitigate the cost of unutilized service; (2) allows a customer access to firm delivery transportation service held by others; and (3) provides cost savings for customers because often the fee represents a lower cost alternative to a customer moving gas directly under an interruptible delivery tariff.

Direct Connection service links major industrial users, utilities and distribution systems located outside of Alberta with all the producers, aggregators and marketers operating at the AECO C Hub.

Inventory Balancing is an optional service offered to Direct Connection customers, allowing them to balance deliveries at the AECO C Hub with deliveries at a border point within set daily tolerances based on the amount of service contracted for the month. Services (1) allow industrial users, utilities and distributors on downstream pipelines access to the AECO C Hub in order to purchase and/or trade natural gas, (2) provide a larger supply portfolio than is available at Alberta border points; (3) provide downstream pipeline shippers with access to all storage and hub services available at the AECO C Hub; and (4) meet each customer's unique needs through customer-tailored contracts.

AECO-LINK is the electronic connection between the AECO C Hub and its customers. This service (1) provides fully supported software; the customer is required to provide a phone line and, at his option, a printer; full documentation and training programs are available; (2) provides hardware and installation in a customer's office, if required; (3) provides network support if AECO-LINK is attached to a network; features are available to connect AECO-LINK to a gas management system or spread-sheet, minimizing double entry of nominations; (4) allows all nominations to be entered directly into the system, eliminating discrepancies and errors; (5) provides account position reports including all current nominations placed against a customer's account by other customers at the AECO C Hub; (6) allows rapid information distribution between the AECO C Hub and its customers; and (7) provides E-mail and bulletin boards for customer communication.

The AECO C Hub Spot Price Index, as published by Price Waterhouse, is a daily spot price indicator for natural gas within Alberta. All customers at the AECO C Hub can participate

AECO C HUB (continued)

in this index. This index offers the following features: (1) accuracy -- based upon actual transactions; (2) credibility -- administered by Price Waterhouse, an independent firm of chartered accountants; (3) consistency -- tracks spot transactions at the AECO C Hub, representing an intra-Alberta market price since November 1, 1993; and (4) timeliness -- allows daily customer access to spot prices through either news services, AECO-LINK, or Price Waterhouse fax.

Status:

Services have grown rapidly since 1988. During 1995, storage capacity will be increased to 80 Bcf with a withdrawal rate of 1.6 Bcf per day.

Rates:

AECO C Hub offers five levels of service, with different fees, priorities and availability:

SERVICE LEVELS			
	Minimum Monthly Charge (US\$) a/	Priority b/	Service Available c/
Platinum	7,200	2	25%:16
Gold	5,400	3	25%:16
Silver	3,600	4	25%:16
Bronze Plus	1,080	5	NA
Bronze	180	6	NA

- a/ Minimum monthly charge includes parking, loaned gas and title exchange fees.
- b/ Priority 1 - firm service.
- c/ Percentage indicates the maximum percentage of the facility that all contracts in the service level may represent; number indicates number of contracts allowed at present facility size in each service level.

FIRM STORAGE						
Service Type	Injection Service Days	Withdrawal Service Days	Max. # Cycles Per Year	5-Yr Term Demand Fee a/ (\$/MMBtu/Mo.)	10-Yr Term Demand Fee a/ (\$/MMBtu/Mo.)	15-Yr Term Demand Fee a/ (\$/MMBtu/Mo.)
Injection Rate = 100% of Withdrawal Rate	70	70	2.6	0.0309	0.0237	0.0206
	105	105	1.7	0.0229	0.0175	0.0153
	140	140	1.3	0.0190	0.0146	0.0127
Injection Rate = 70% of Withdrawal Rate	14	10	15.2	0.1276	0.0978	0.0850
	29	20	7.4	0.0695	0.0533	0.0463
	50	35	4.3	0.0455	0.0349	0.0303
	100	70	2.1	0.0252	0.0193	0.0168
	150	105	1.4	0.0188	0.0144	0.0125
	200	140	1.1	0.0155	0.0118	0.0103
Injection Rate = 50 % of Withdrawal Rate	6	3	40.6	0.3349	0.2567	0.2232
	10	5	24.3	0.2016	0.1546	0.1344
	20	10	12.2	0.1118	0.1857	0.0746
	40	20	6.1	0.0610	0.0468	0.0406
	70	35	3.5	0.0399	0.0306	0.0267
	140	70	1.7	0.0222	0.0170	0.0147

a/ Demand fees and commodity fees are escalated each year. Commodity fee effective April 1, 1995 is \$0.04/MMBtu and is payable on all injection nominations.

AECO C HUB (continued)

PARKING							
Service Level	Each Nom.a/ Allocation (TJ/Day)	Max. Inventory (TJ) (at AECO Discretion)	Injection Commodity Chg. (\$/MMBtu)	Injection/ Withdrawal Storage Charge	Daily Inventory Charge	Daily Inventory Exemption	Guaranteed Reliability b/
Platinum	25	500	0.04	None	Yes	25TJ	50%
Gold	25	500	0.04	None	Yes	25TJ	40%
Silver	25	500	0.04	None	Yes	25TJ	30%
Bronze Plus	25	500	0.04	None	Yes	No	No
Bronze	25	500	0.04	\$.04-.11	Yes	No	No

- a/ Each nomination allocation indicates the amount of gas allocated to each customer before accepting nominations at a lower level.
- b/ The reliability guarantee is a minimum monthly service level available based on minimum of 10 nomination requests per month. If service is not provided at percent shown, then the minimum monthly charge obligation is waived.

DAILY INVENTORY CHARGE (\$/MMBTU)			
Parked Gas		Loaned Gas	
Month	+ Inventory	Month	- Inventory
Aug	0.0013	Jan	0.0013
Sep	0.0025	Feb	0.0025
Oct	0.0038	Mar	0.0038

LOANED GAS a/				
Service Level	Loan Charge (\$/MMBtu/Day)	Each Nom. Allocation (TJ/Day)	Max. Loan Volume (TJ)	Injection Commodity Charge (\$/MMBtu)
Platinum	0.002	25	100	0.04
Gold	0.002	25	100	0.04
Silver	0.002	25	100	0.04
Bronze	0.002	25	100	0.04
Plus	0.002	25	100	0.04
Bronze				

- a/ Loaned Gas is an interruptible service; this applies to both the granting of a loan and the repayment of a loan. Loaned gas is subject to all parking charges and is subject to daily inventory charges

CALIFORNIA ENERGY HUB (System)

Owner: Southern California Gas Co.

Administrator: Enerchange (formerly Hub Services, Inc.)
(affiliated with NGC, NICOR, Pacific Enterprises, and National Fuel)

Location: Southern California Gas system, with connections to:
Pacific Gas and Electric¹
Pacific Gas Transmission
Kern River Gas Transmission¹
Transwestern Pipeline (750 MMcfd)
El Paso Natural Gas (1,950 MMcfd)
Mojave Pipeline
Southwest Gas
San Diego Gas & Electric.

Services/Benefits:

(1) parking -- delivery of gas into the hub one day and delivery out of the hub one or more days later.

(2) loaning -- removal of gas from the hub one day and returning gas to the hub one or more days later.

(3) wheeling -- simultaneous receipt of gas into the hub and delivery of gas out of the hub through different receipt and delivery locations.²

Gas entering the hub at one location and exiting at a later time and at another location will be considered both a parking and wheeling transaction.

SoCal will determine whether capacity is available to offer hub services, may bring transactions to the hub, and will approve all hub transactions.

Enerchange may also bring transactions to the hub, will conduct all credit checks, guarantee hub transactions, and perform all billing and reporting.

Cal Hub will allow customers to place nominations directly through GasSelect, SoCal's "state-of-the-art" nomination and communication service.

¹ Up to 800 MMcfd from either Kern River or PG&E.

² On January 1, 1995, the FERC ruled that two LDCs -- Northern Illinois Gas and Southern California Gas Co. -- must limit hub services to receipt and delivery points on their respective systems and remove references to offsystem points, in order to comply with the FERC capacity release rules and "shipper must have title" rule pertaining to FERC Order No. 636.

CALIFORNIA ENERGY HUB (continued)

Future services of the hub will include title transfer, allowing gas to be purchased and sold through the hub.

All services offered on the hub will be on an interruptible basis.

Status:

Began operations in July 1994. Offers customers both interstate and intrastate services.

Rates:

The rates for parking and loaning include charges for wheeling.

The following maximum one-part volumetric rates apply to hub services:

Parking	\$.6922 per Dth
Loaning	\$.6922 per Dth
Wheeling	\$.7414 per Dth

In addition, SoCal will charge a minimum fee of \$50 per transaction.

CHICAGO HUB (System)

Owner: Northern Illinois Gas

Administrator: Enerchange (formerly Hub Services, Inc.)
(Affiliated with NGC, NICOR, Pacific Enterprises, and National Fuel)

Location: Northern Illinois Gas system, with connections to:
Natural Gas Pipeline (2,000 MMcfd)
Midwestern Gas Transmission (450 MMcfd)
Northern Natural (235 MMcfd)
ANR Pipeline (450 MMcfd)
Through Northern Illinois' system, this hub intends to link major areas of supply (Mid-Continent, Gulf Coast and Canada) and demand (North Central).

Services/Benefits:

Northern Illinois Gas owns and operates a number of underground storage facilities (aquifers) with storage capacity of 165 Bcf and withdrawal capacity of 2.6 Bcfd.

All services offered at the Chicago hub are offered on an interruptible basis and involve only interstate commerce. These services include:

- ◆ **Straight wheeling -- transporting gas from an interstate pipeline through Northern Illinois Gas' system to another interstate pipeline connected to the company.**
- ◆ **Parking -- short-term transactions in which shippers transport gas into Northern Illinois Gas' system, where it is held for later delivery into an interstate pipeline.**
- ◆ **Loaning -- the shipper takes title to gas on the hub for delivery to the market of an interstate pipeline, and repays the gas in-kind at an agreed-upon schedule and delivery point.**

Since all Chicago hub services are interruptible, Northern Illinois reserves the right not to begin any service or to discontinue service whenever firm service would be impaired.

All transportation and stored gas received by the Chicago hub is accounted for on a daily basis. The gas must be scheduled for the eventual redelivery to a designated delivery point or displacement delivery point on Northern Illinois' system.¹

¹ On January 1, 1995, the FERC ruled that two LDCs -- Northern Illinois Gas and Southern California Gas Co. -- must limit hub services to receipt and delivery points on their respective systems and remove references to offsystem points, in order to comply with the FERC capacity release rules and "shipper must have title" rule pertaining to FERC Order No. 636.

CHICAGO HUB (continued)

Enerchange performs all credit checks, billing, and revenue collection functions for those utilizing the hub.

Operational benefits:

- ◆ assists in managing transportation imbalances by balancing the shipper's long and short positions between interstate pipelines and/or city gate markets;
- ◆ assists in intraday swings by providing shippers the time to wheel, displace, park or loan gas within the current day to fulfill contractual needs;
- ◆ facilitates pooling by allowing the producer or marketer to meet its contractual obligation at a connected pipeline pooling point;
- ◆ assists shippers when operational flow orders are issued by allowing shippers that are unable to transport supply to a market to use a variety of services to keep their markets whole;
- ◆ assists in predetermined allocations (PDAs) by helping to reduce the impact of shortages or overages to a shipper at a receipt or delivery point; and
- ◆ benefits users by lowering transaction costs through reduced "search" costs, making pricing information more relevant, allowing for faster market response, increasing the benefit of specialization, and perhaps most importantly, simplifying multiple pipeline exchanges for downstream shippers.

Status:

One of the first, if not the first, market area hubs owned by an LDC that involved interstate commerce. Began operation in June 1993.

Rates:

The rates for services offered by the Chicago hub are negotiated, subject to maximum rates. Each service transaction is subject to a minimum daily charge of \$50. The maximum transportation rate is \$.0721 per MMBtu and the maximum storage rate is \$.0604 per MMBtu each day that gas is left in storage by any shipper. Northern Illinois reserves the right to discount any maximum rate on a non-discriminatory basis.

Northern Illinois will share the revenues generated from the Chicago hub with its firm ratepayers.

CNG/SABINE CENTER (System)

Owners: CNG Transmission, Inc. and Sabine Hub Services (a subsidiary of Texaco).

Administrator: Sabine Hub Services

Location: Market center is on CNG Transmission's full system, and is sometimes referred to as a "floating" hub. CNG's transmission system covers 7,400 miles over a six-state area and interconnects with the following pipelines:

- Texas Gas Transmission (650 MMcfd)
- ANR Pipeline (650 MMcfd)
- Tennessee Gas Pipeline (625 MMcfd)
- Texas Eastern Transmission (580 MMcfd)
- Appalachian production points (290 MMcfd)
- Iroquois Gas Transmission (280 MMcfd)
- Niagara Import Project (100 MMcfd)
- National Fuel Gas Supply (100 MMcfd)
- Transcontinental Gas Pipe Line (100 MMcfd)

Services/Benefits:

CNG Transmission's system has a peak day delivery capacity of 6.2 Bcf per day and working gas storage capacity of 259 Bcf, primarily in Pennsylvania and West Virginia.¹ In addition, one of the major advantages of this market center is the diverse supply potential.

Four services are offered:

Intra-Hub Transfers (IHT) is a non-jurisdictional accounting service that tracks the chain of title to a package of natural gas at a single point. This service does not offer transportation. The service provides customers with written confirmation of their title transfer activity on a daily basis. Utilization of this service provides customers with the ability to protect the identity of their markets and supply sources from disclosure to others in the chain of title, and helps to minimize the hidden costs of doing business. The fee is \$.002 per MMBtu for each title transfer.

Park-Folio accesses a portfolio of providers to custom fit "parking" to a customer's needs. Park-Folio also nominates on the customer's behalf, thereby reducing the customer's administrative burden. CNG/Sabine Center provides a premium parking service at market-based rates.

¹ The 259 Bcf excludes CNG's share of jointly owned storage.

CNG/SABINE CENTER (continued)

Wheeling Service makes acquiring short-term transportation "hassle free," and eliminates the customer's need to add fuel to transportation volumes. For a flat market-based rate, CNG/Sabine Center nominates and confirms transportation on the customer's behalf and "wheels" the customer's gas from point to point at the "SuperHub," saving additional time and money. Wheeling can be arranged as either interruptible or firm service.

Market Activity Reporting Service (MARS) is an accounting service for customers who buy and sell packages of gas where the delivery is deferred to another month. The system is designed to verify the traders' deals and transmit executable deal confirmations. On a daily basis, individual customers receive a written report that outlines trading activity. This information helps the customer to react to price fluctuations and makes contract administration more cost effective and less time consuming.

These services, as well as others under development, are designed to improve markets by minimizing transaction costs, increasing reliability and giving buyers and sellers more options for trading.

According to the sponsor, additional hub services will be offered if there is sufficient customer interest -- "we want to offer whatever the market needs." There are a number of proposed services under consideration, including inter-hub transfers, i.e., allowing shippers to move gas from hub to hub. Initially, the service would be between the Henry Hub and the CNG/Sabine Center, but other hubs can be added.

Status:

Operational

Rates:

The monthly accounting fee depends upon the size of the trading account: \$2,000 for 0-25 entries per month; \$5,000 for 26-50 entries per month; and \$7,500 for over 50 entries per month.

The parking and wheeling fees that CNG/Sabine Center offers are negotiated, market-based rates. However, CNG Transmission does file parking and wheeling fees in its FERC tariff.

- ◆ Parking: \$0.0082 per Mcf per day
- ◆ Wheeling: \$0.1513 per Mcf (April-October)
\$0.1989 per Mcf (November-March)¹

For parking and wheeling services, the FERC has approved CNG Transmission's proposed credit of 80 percent of the revenues received from interruptible market services to its firm customers.

¹ Fuel retention is 2.25 percent for parking and 2.28 percent for wheeling.

ELLISBURG-LEIDY HUB (Storage)

Owners: Affiliates of National Fuel Gas Supply and Natural Gas Clearinghouse

Administrator: Enerchange (formerly Hub Services, Inc.)
(Affiliated with NGC, NICOR, Pacific Enterprises, and National Fuel)

Location: Ellisburg-Leidy, Pennsylvania (see map in Appendix B-2).

Services/Benefits:

Offers imbalance resolution, wheeling, and parking on an interruptible basis with 90 percent of the operating revenues credited back to National Fuel Gas Supply's firm transportation customers.

Offers four services with specific advantages to the user:

Parking is short-term interruptible storage. Flexible injection and withdrawal schedules, along with inter- and intra-month agreements offered by the hub, allow customers to take advantage of different market and transportation opportunities. Customers can avoid pipeline cash-out penalties and take advantage of lower gas prices through lower weekend prices and/or inter-month price variations, for example. Customers may also take advantage of transportation differentials as they occur.

Wheeling provides transportation access to six major interstate pipelines serving the Northeast and Canada:

- ◆ National Fuel Gas Supply (154 MMcfd)
- ◆ Transcontinental Gas Pipe Line (400 MMcfd at Leidy, 140 MMcfd at Wharton Storage)
- ◆ Tennessee Gas Pipeline (154 MMcfd)
- ◆ CNG Transmission (103 MMcfd at Ellisburg, 400 MMcfd at Leidy)
- ◆ Texas Eastern Transmission (400 MMcfd)
- ◆ Columbia Gas Transmission (36 MMcfd)

Gas moving through the Ellisburg-Leidy hub can be routed to markets and storage facilities not physically attached to the hub. Hub customers can use this service to take advantage of price arbitrage opportunities represented by markets on pipelines connected to or adjacent to the hub facilities. Wheeling offers access to numerous pipelines and supply areas and therefore a broader supply portfolio, assistance in avoiding pipeline bottlenecks and capacity constraints, and reduction of transportation and gas procurement costs by allowing more efficient use of released transportation capacity. The hub "makes it possible to complete missing links in transportation paths by providing access to market area interconnections."

ELLISBURG-LEIDY HUB (continued)

Balancing offers a short-term interruptible gas loan. Benefits include the avoidance of pipeline cash-out and scheduling penalties and end-of-month price "spikes."

Title transfer service matches buyers and sellers on a best-efforts or firm basis, offering price swaps, ceilings/floors and other financial hedges for suppliers and markets. Title transfer provides a common marketplace for hub customers to contact a variety of trading partners. The service also allows customers to maintain confidentiality between suppliers and markets, and provides credit and performance guarantees for trading partners. The Ellisburg-Leidy hub can serve as a receipt and/or delivery point for multiple month and long-term gas sales on interconnecting pipelines.

Status:

Partnership formed in 1992 and hub operations began in late 1993.

Rates:

In 1994, the Commission approved, subject to refund, National Fuel's proposed rates and services:

- ◆ **Wheeling (W-1):** \$.0502 per Dth (plus applicable surcharges).¹
- ◆ **Parking Service:** \$.0079 per Dth when there is a single receipt and delivery point (Rate Schedule P-2) or \$.0867 per Dth for the first day and \$.0079 per Dth for subsequent days when there are different receipt and delivery points (Rate Schedule P-1).
- ◆ **Imbalance resolution:** \$.0032 per Dth when there is a single receipt and delivery point (IR-2), or \$.0928 per Dth for the first day and \$.0032 per Dth for subsequent days when there are different receipt and delivery points (IR-1).

¹ In addition, a lower "fly-by" rate of \$.01 per Dth is available for equal volumes tendered and received on the same day.

GRANDS LACS MARKET CENTER (Storage)

Owners: CMS Gas Transmission and Storage Co. (subsidiary of CMS Energy), Tejas Power Corp.¹, St. Clair Pipelines (subsidiary of Westcoast Energy and affiliate of Union Gas Ltd.), and a subsidiary of Enron Gas Services Corp.

Administrator: CMS Gas Transmission and Storage

Location: Near Marysville in southeastern Michigan (see map in Appendix B-2).

Services/Benefits:

Grands Lacs considers itself strategically located within the North American pipeline grid and claims to have superior geology because of vast deposits of bedded salt in the area that are conducive to the further development of high-deliverability storage. Initially, Grands Lacs will have 3 Bcf of working gas capacity and 150 MMcf per day of initial deliverability.

Through interconnections with Consumers Power and Union Gas, Grands Lacs will be accessible to pipelines in the U.S. and Canada, as well as Michigan's LDCs. The estimated \$5.3 million Bluewater project will traverse the St. Clair River and terminate near Sarnia, Ontario, providing up to 100 MMcfd of bi-direction flow to U.S. and Canadian markets. Bluewater, which has a target in-service date of November 1, 1995, will be in direct competition with the ANR Link project being jointly developed by ANR Pipeline and Consumers Gas of Toronto.

Cited benefits to customers include the following:

- ◆ reduced risk of supply interruption
- ◆ increased liquidity for buyers and sellers
- ◆ increased convenience since transactions may be performed from an office personal computer

¹ In late 1994, Tejas Power announced formation of Market Hub Partners L.P. -- a partnership among Tejas Power, NIPSCO Industries, New Jersey Resources, Miami Valley Leasing (affiliate of Dayton Power & Light) and Public Service Electric and Gas to develop storage and market hubs. Market Hub Partners will participate in development of five projects in which Tejas Power or its subsidiaries have been involved over the past few years -- Moss Bluff (Texas), LA-I and LA-II/Egan (Louisiana), MS-1 (Mississippi), Grands Lacs (Michigan) and NE-I/Tioga (Pennsylvania). In total, these projects will offer 6 Bcf per day of deliverability and 46 Bcf of high deliverability storage. Market Hub Partners will not sell or provide pipeline transportation or make purchases or sales of natural gas, but will market high deliverability storage, cash market trading, real time title tracking and other hub services to producers, marketers, LDCs and consumers.

GRANDS LACS MARKET CENTER (continued)

Prospective services include the following:

- ◆ **Gas Storage**
 - **Parking services**
 - **Peaking**
 - **Gas balancing**
 - **Seasonal storage**

- ◆ **Wheeling**
 - **Pipe-to-pipe transfer**
 - **Nomination coordination**
 - **Title tracking**

- ◆ **Risk Management**
 - **Credit clearing**
 - **Hedging**
 - **Delivery insurance**

Plans for the use of advanced electronic gas handling and trading technology to access other emerging market centers and trading systems throughout North America are being developed.

Status:

The market center at Grands Lacs is scheduled to be in service in mid-1995, and the initial storage facility should be developed by 1997.

Rates:

Grands Lacs has filed for market-based rates with the Michigan Public Service Commission.

GULF COAST STAR CENTER (System)

Owner: Texaco, Inc.

Administrator: Texaco, Inc.

Location: The Gulf Coast Star Center consists of Texaco's Bridgeline pipeline and distribution system that spans the state of Louisiana, several large gas processing facilities including the Henry Hub gas plant, and Texaco's gas storage and marketing operations along the Gulf Coast. ¹

Bridgeline's system interconnects with many major pipelines, including:

- Columbia Gulf Transmission
- Transcontinental Gas Pipe Line
- Koch Gateway Pipeline
- Tennessee Gas Pipeline
- Sabine Pipe Line
- Trunkline Gas
- Texas Eastern Transmission
- ANR Pipeline
- Texas Gas Transmission

Services/Benefits:

Texaco has established this center to provide "seamless" service to customers from the Gulf Coast to midwest, southeast and northeast markets. Star Center enables Texaco's customers, through a single contract, to secure multiple services such as long-term sales commitments, delivery rate flexibility, multiple pipeline options, transportation, storage and price risk management.

Four principal customer service areas involve:

Plant and Pipeline Operations -- The Star Center will make full use of the Louisiana natural gas facilities of Texaco companies. The physical assets include 1,800 miles of natural gas pipeline; 1.8 Bcf per day of Texaco's natural gas supply; 1.2 Bcf per day of gas processing capacity; 60 Bcf per day of natural gas liquids (NGL) fractionator capacity; 6.8 Bcf of high deliverability gas storage capacity; and over 50 interconnects with other pipelines.

¹ Texaco also owns Sabine Pipe Line Co., an open access interstate pipeline that transports gas in Louisiana, Texas and the Outer Continental Shelf. Sabine's main line begins at Henry Hub near Erath, Louisiana and extends 133 miles to Port Arthur, Texas. Sabine's Henry Hub is a major interchange center that offers shippers supply and market opportunities through twelve interconnecting pipelines and one gathering company. The Henry Hub is the physical delivery point for standard deliveries under the NYMEX natural gas futures contracts.

GULF COAST STAR CENTER (continued)

Customers will have access to four gas processing plants (Floodway, Henry, Paradis and Sea Robin) and their related gathering systems. The result is be an integrated approach to serving customers, providing "the full range of services they require, all within one Texaco organization."

StarSource Customer Service -- The StarSource Account Management team provides a single-point contact for all natural gas customers, including gas producers, suppliers, processors, LDCs and end users. When this service was introduced in 1994, the focus was on long-term sales customers. Texaco will now offer its complete array of marketing services to customers throughout the gas delivery chain.

Commercial Development -- This service has focused on sales customers, but will be expanded to include third party purchase and processing customers as well. It also will be responsible for new asset development and acquisitions to provide improved customer services.

Trading and Transportation -- In addition to spot gas trading, risk management, storage, parking, advancing and transportation, this group has been expanded to include gas control. The intent is to improve gas flow management by using one centralized group for each movement from the wellhead to the burner tip.

Status:

The StarCenter concept was introduced in January, 1994. In December, 1994, Bridgeline completed the expansion of gas compression equipment at its Sorrento, Louisiana storage facility.

Rates:

Bridgeline's blanket certificate permits a maximum charge of \$.3106 per MMBtu for firm and interruptible transportation.

For firm storage service, Bridgeline can charge a maximum of \$1.1322 per MMBtu per month for deliverability, \$.125 per MMBtu for capacity, \$.0146 per MMBtu for injection and withdrawal and 1.8 percent for fuel. The maximum rate for interruptible storage is \$.2188 per MMBtu on an average monthly balance and an injection and withdrawal rate of \$.0146 per MMBtu and 1.8 percent fuel. Bridgeline states, however, that actual rates are negotiable.

KATY HUB AND GAS STORAGE (Storage)

Owner: Western Gas Resources, Inc.
Administrator: Western Gas Resources Storage, Inc.

Location: Located 20 miles from Houston, Texas, the facility consists of a pipeline header system connected to 13 major pipelines and a partially depleted natural gas reservoir. The Katy Hub is designed to facilitate receipt or delivery from each of the 13 interconnections, which include the following capacities:

Amoco Gas	150 MMcfd
Dow-Tenngasco	150 MMcfd
Exxon's Katy plant	230 MMcfd
Houston Pipeline	150 MMcfd
Koch Gateway Pipeline	150 MMcfd
Lone Star Gas	230 MMcfd
Midcon Texas Pipeline	230 MMcfd
Natural Gas Pipeline	230 MMcfd
Oasis Pipeline	230 MMcfd
Tejas Gas	150 MMcfd
Tennessee Gas Pipeline	150 MMcfd
Transcontinental Gas Pipe Line	150 MMcfd
Trunkline Gas	150 MMcfd

Services/Benefits:

Include wheeling and balancing, and because of its storage assets, parking and readily available supply.

Shippers and storage customers have the ability to wheel gas wherever they need it via bi-directional service with the interconnecting pipelines, as well as transportation from low pressure to high pressure pipelines.

According to Katy, what makes this hub different than other hubs is its design. Western constructed its header by building two pipelines to and from the storage system. One is a high pressure line and the other is a low pressure line. The facility was designed as a system so that displacement would not be used. While most hubs offer wheeling, or the movement of gas from one pipeline to another, the vast majority do it by displacement or paper trades. Western wanted the ability to move actual volumes from pipeline to pipeline.

KATY HUB AND GAS STORAGE (continued)

Utilizes a state-of-the-art computerized gas control system and gas accounting system to provide customers with both real time gas flow information and timely, accurate bills. The technology includes telemetering, automatic control systems, and information systems.

Incorporates 13 receipt/delivery interconnects, header deliverability of 800 MMcf per day, working gas capacity of 20 Bcf, gas withdrawal capability of 400 MMcf per day and gas injection capability of 400 MMcf per day.

As a dual-pressured header, the Katy Hub was designed to provide large physical volume transfer, parking and storage services. Western constructed its header by building two pipelines to and from the storage system.

Western signed a letter of intent with NYMEX and Enersoft to provide electronic trading at the Katy facility using the Channel 4 system.

Western expects gas flows from west to east across Texas to continue. A purchase agreement has been signed with Oasis Pipeline Co. for certain west Texas gathering and processing assets. These gathering systems will be used to deliver gas into Oasis, which operates a 36-inch intrastate pipeline running to the Katy Hub from Waha Hub in west Texas.

Status:

Operational since summer 1993; ultimate working capacity of 22 to 24 Bcf, and 415 MMcf per day of deliverability could be online as early as 1995/96.

Rates:

Petitioned the FERC for approval to use rates on file with the Texas Railroad Commission for firm storage and related transportation of intrastate gas. Although FERC granted Western permission to use rates not greater than those approved by the Texas Railroad Commission, Western must file cost-based rates.

Negotiated rates, subject to maximum filed rates, for short-term storage or hub services vary for a number of reasons, including the length of term of service, the number of services used, the time of year and demand.

PACIFIC GAS TRANSMISSION HUB (System)

Owner: Pacific Gas Transmission (PGT)

Administrator: Pacific Gas Transmission

Location: Kingsgate, British Columbia (on the British Columbia-Idaho border) to Stanfield, Oregon (interconnection with Northwest Pipeline) to its terminus at Malin, Oregon (on the Oregon/California border), the interconnection point with Pacific Gas & Electric, PGT's parent.

Services/Benefits:

Provides hub services at all major receipt and delivery points on PGT.

Offers parking and lending services, allowing customers to respond to short-term market fluctuations by using available space on the system as storage capacity.

Parking allows customers to "store" gas for a period of one day up to one month. Storage withdrawals must be made from the same point where the gas was parked. PGT will open an account for those requesting this service, and volumes "parked" will be credited to the account. Later, the shipper can elect to nominate a withdrawal up to the amount collected in the account, and that quantity will then be debited.

Lending (also referred to as "authorized imbalance") is a service that allows customers to borrow gas for a short time to respond to market conditions, replacing the gas at the same point at a later date. The account of gas borrowers will be debited for the amount of gas "loaned." At the time this advance is confirmed, the customer will agree to a schedule for the return of the loaned gas.

Status:

Operational

Rates:

PGT is an interstate pipeline with the following maximum FERC-approved rates:

Short-term parking (PS-1) - \$.08909/Dth for first day, \$.0066821/Dth for subsequent days.

Authorized imbalancing (lending) - \$.106301/Dth for first day, \$.007973/Dth for subsequent days.

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PERRYVILLE HUB (Pipeline Interconnection)

Owner: NorAm Gas Transmission, a subsidiary of NorAm Energy Corp.

Administrator: NorAm Hub Services, Inc.

Location: Near Perryville in northern Louisiana (see map in Appendix B-2).

At present, the hub capacity is about 1.5 Bcf per day with interconnections with the following pipelines:

- Tennessee Gas Pipeline
- Columbia Gulf Transmission
- Southern Natural Gas
- Texas Eastern Transmission
- ANR Pipeline
- Texas Gas Transmission
- Koch Gateway Pipeline
- Trunkline Gas
- Mississippi River Transmission
- El Paso Natural Gas
- Transwestern Pipeline

Services/Benefits:

Provides growing natural gas markets in the Northeast and Midwest with greater access to the extensive gas reserves in the Anadarko, Arkoma, East Texas/Northern Louisiana, Permian, San Juan and Hugoton basins of the Mid-Continent.

Development is designed to enhance asset values for certain NorAm facilities, particularly greater utilization of the 1 Bcf capacity potential of Line AC out of the Arkoma Basin to serve eastern U.S. markets.

In late 1994, NorAm completed a connection with El Paso Natural Gas in west Texas that provides Anadarko, Permian and San Juan basin supplies access to the northeast and midwest markets via west-to-east crosshaul to Perryville. In addition NorAm announced two potential expansion projects that could add 150 MMcf per day of capacity from these basins to Perryville.

To further encourage west-to-east gas movement, NorAm is attempting to arrange a single rate for delivery to Perryville, and has talked to Enron to negotiate an "EnRate" joint transportation rate with Enron's subsidiaries, Transwestern and Northern Natural. NorAm also plans to arrange a similar one-stop shipping rate on El Paso.

PERRYVILLE HUB (continued)

NorAm has contracted with Channel 4, a joint venture between EnerSoft Corp. and the New York Mercantile Exchange, for an electronic trading system at the hub.

Two NorAm storage facilities are in operation near Perryville (Unionville and Ruston) and are fully subscribed by firm shippers, although some interruptible storage may be available at these facilities. Additional firm capacity is expected to be developed.

Status:

Opened on August 1, 1994. Most services to date have been customized although Perryville hopes to market its more traditional hub services such as parking, wheeling, title transfer and imbalance management.

Rates:

Not available

UNION GAS SERVICE HUB (Storage)

Owner: Union Gas (Subsidiary of Westcoast Energy)

Administrator: Union Gas

Location: Southwestern Ontario distribution company with interconnects at various points on the Michigan/Ontario border (e.g., St. Clair) that offer bi-directional flow capability in and out of Union Storage (at Dawn) and transportation to eastern U.S. and Canada pipelines (see map in Appendix B-2).

Services/Benefits:

Interruptible Transportation (Wheeling)

Interruptible transport service between any two points on Union's system.

Receipt & Delivery Points

- ◆ From TransCanada at Parkway, Kirkwall via Tennessee Spur, and Dawn via Great Lakes
- ◆ From Panhandle Eastern at Ojibway
- ◆ From MichCon at St. Clair via ANR

Balancing

This service allows a customer to park gas or borrow gas from Union, for a limited time at any of Union's direct interconnects with other pipelines at Parkway, Kirkwall, Dawn, Ojibway and St. Clair. Parked gas must be delivered to, and taken away from, the same point. Loaned volumes must be borrowed from, and returned to, the same point. Customers may complement this service with wheeling and exchanges.

Redirects/Name Changes (Title Transfer)

This administrative service allows customers to change the name and/or contract under which gas is flowing on connecting pipelines at Parkway, Kirkwall, Dawn, Ojibway, and St. Clair. Except for the delivering party, a customer must have a hub contract to utilize this service.

Interruptible Exchanges

Interruptible exchange service is for volumes received at any point on the Union system for delivery to any primary or secondary delivery point on Union's transport contracts.

Delivery Points

- ◆ TransCanada (Chippewa, Niagara, Waddington, EDA Empress, Emerson, etc.)
- ◆ Panhandle Eastern (Lebanon, Maumee, etc.)
- ◆ ANR (Lebanon, Willow Run, etc.)
- ◆ MichCon (Belle River Mills, Willow Run, etc.)
- ◆ Great Lakes (Carlton, Crystal Falls, Farwell, etc.)

Receipt Points: Parkway, Kirkwall, Dawn, Ojibway, and St. Clair

UNION GAS SERVICE HUB (continued)

Enhanced Hub Services

Through gas balancing or facilities planning, Enhanced Hub Services are short term in nature, may be limited, require separate contracts, and will be offered under negotiated rates.

Peak Storage	Space is available for summer injections and winter withdrawals. Cycling rights are available at negotiated rates. Space is firm; injections and withdrawals, on any day, are interruptible. Queue is in place for this service.
Off Peak Storage	Space is available for seasonal injections and corresponding withdrawals.
Firm Withdrawals and/or Injections	Daily firm rates; may be used to complement peak and offpeak storage or loans.
Loans	Volumes of gas available for predetermined periods of time.
Firm Transport	Firm transport service between any two points on Union's system.
Limited Firm	Firm transport service between any two points on Union's system, with a negotiated number of allowable days of interruption.
Load Balancing	This service can be tailored to meet individual customer demands. Service can be attached to firm contracts on Union's system to alleviate market swings.

Other General Aspects of Hub Services

- ◆ Customer may hold accounts at each receipt/delivery point.
- ◆ For parties currently holding a separate off-peak storage agreement, after the 60-day parking limit, volumes will be transported automatically to customer's offpeak storage account. Customer agrees to pay transportation/wheeling fee applicable at the time.
- ◆ In the event that customer has a balance that has exceeded the days allowed, Union has the irrevocable right to demand that customer reduce the parking balance to zero, or repay loan volumes within 48 hours. To the extent that customer does not comply, Union shall immediately invoke severe penalties.

UNION GAS SERVICE HUB (continued)

Status:

Has been providing a wide range of transactional or hub services since 1987, taking advantage of its location, abundance of storage and its interconnects to numerous pipelines.

Over the past four years, hub service volume has grown from 10 MMcf per day to over 300 MMcf per day.

Rates:

Wheeling -- Commodity Rate \$.15 per Mcf

Title Transfer -- Commodity Rate \$.0018 per Mcf

Interruptible Exchange -- Commodity Rate \$.425 per Mcf

Balancing Service - <u>Parking Rates</u>	<u>10-Day</u>	<u>60-Day</u>
on delivery to Union	\$.025 per Mcf	\$.043 per Mcf
on redelivery to Customer	\$.025 per Mcf	\$.043 per Mcf

- ◆ Customers will be billed automatically for the difference between the 10-day and 60-day rates for any volumes parked in excess of 10 days.
- ◆ Additional charges of \$.0018/Mcf per day accrue and accumulate after the 60-day period.

Loan Rates

on delivery to Customer	\$.036 per Mcf
on redelivery to Union	\$.036 per Mcf

- ◆ Additional charges accrue and accumulate on any loan balance outstanding for more than 10 days as follows:

April 1 - December 15	\$.0018/Mcf per day
December 16 - March 31	\$.007/Mcf on 1st day, plus \$.021/Mcf on 3rd day, plus \$.014/Mcf on 2nd day, plus \$.01/Mcf on nth day

Other Rate Considerations

- ◆ No maximum contract quantities
- ◆ Economic dispatch
- ◆ "No-bump" rule
- ◆ Rates include fuel

Intentionally blank

WESTERN MARKET CENTER (Pipeline Interconnection)

Owners: Four equity partners -- Tenneco Gas, Questar Corporation, Entech, Inc., (a division of Montana Power), and Union Pacific Fuels.

Administrator: Overland Trail Transmission Company (Union Pacific's affiliate)

Location: Near Muddy Creek in southwestern Wyoming (see map in Appendix B-2), with interconnects to:

Overland Trail	70 MMcfd
Overthrust	230 MMcfd (by displacement)
Colorado Interstate	129 MMcfd
Questar Pipeline	129 MMcfd
Kern River Gas Trans.	400 MMcfd
Northwest Pipeline	240 MMcfd
Altamont (Proposed)	719 MMcfd

Services/Benefits:

Will offer wheeling, parking, peaking and balancing services, as well as title transfer and electronic gas trading capability. Participating pipelines will interconnect with a single header facility, enabling shippers to redirect gas, on a real-time basis, from one market to another.

The hub will offer several "OneStep" services:

OneStep Data™ tracks cash prices, future tradings, and factors affecting prices, such as regional and national industry, financial and regulatory news. Also available will be the latest weather reports for western North America; maps of pipelines served by the Western Market Center; and a directory of suppliers, markets and major gas customers, such as utilities and industrial users.

OneStep Title™ tracks the details and partners behind every transaction before gas actually moves across the header. Because units of gas are often bought and sold over and over again -- and split in many combinations -- these chains of title are often incredibly complex.

If there is a disruption in gas deliveries due to weather, well shut-ins, or other factors, the title tracking system will notify customers immediately, along with every appropriate party in the chain. The shipper can then respond quickly to the supply or market failure.

With **OneStep Title™** prior to nomination deadlines, customers will be able to identify the party who sold the gas, the volume purchased, and the parties scheduled to receive the gas. **OneStep Title™** will combine this information with data submitted by other title tracking customers, creating a complete chain of title for each flow. Customers can use **OneStep Title™** at any time to confirm the particulars of their deals.

WESTERN MARKET CENTER (continued)

OneStep Store™ will use peaking, parking and balancing services to allow customers to overcome one of the "biggest hurdles in the business" -- assuring access to the right amount of gas when needed. Weather extremes, well-site disruptions and other factors can force customers to scramble for emergency supplies. At other times, customers may just need to "park" some gas for a while.

OneStep Flow™ will direct a customer's gas from one market to another by its wheeling service. The Center's header will connect five pipelines and will "wheel" gas in and out of the header with an electronic management system. It keeps real-time accounting records of all gas flowed through the header. About 1.8 Bcf per day of supply is available to customers. Customers can review these records on their PC during the course of a month, or at month's end. In the event of a flow disruption, the operator of the Center's header will alert customers immediately. OneStep Flow™ can then aid customers' efforts to wheel gas from a new supply source or to a new customer.

OneStep Flow™ also makes customer nominations. The Western Market Center will then confirm receipt and delivery of customer gas. The Center will also maintain a customer's gas in a "keep-whole" position. This means that customers will never be out of balance on the header.

Status:

Expected to be operational by mid-1995

Rates:

The Western Market Center rates are as follows:

OneStep Flow™	\$0.005/MMBtu
OneStep Store™	Posted Market Price
OneStep Title™	\$0.004/MMBtu
OneStep Data™	\$600/Month

Questar Pipeline will post an initial discounted interruptible transportation rate on its EBB for transportation to and from the new market center. This rate of \$.05 per Dth plus ACA surcharge and fuel reimbursement will be applicable from all receipt points on Questar's system and to all delivery points except for Mountain Fuel Supply's city gates. The rate will be effective when the header system is available for service. This rate is subject to change as warranted by market conditions.

STREAMLINE (Electronic Trading System)

Owners: Joint development by Williams Energy Ventures, Inc., a subsidiary of Williams Companies, and Natural Gas Exchange, Inc., a subsidiary of Westcoast Energy.

Administrator: Williams

Location: Various hubs/market centers.

Services/Benefits:

Provides real time control of customers' gas trading activities and offers standardized contract, credit reporting and operating procedures. Bids and offers are matched instantaneously -- anonymity, security integrity and performance are guaranteed. Provides direct links between buyers and sellers, ensuring that transactions are consummated according to the customers' specifications and without delay.

Handles (1) cash market transactions from the time customers enter a buy or sell position on the network through automatic bid/offer matching, (2) credit information, (3) contract administration, and (4) physical delivery at the market hub.

Efficiency advantages of StreamLine include

- ◆ Lower transaction costs
- ◆ Expanded market coverage through an immediate network -- buy/sell position exposure
- ◆ Immediate information via fiber-optic cable
- ◆ Physical gas delivery guarantees
- ◆ Expanded market access
- ◆ Standardized contracts
- ◆ Cleared credit
- ◆ 24-hour customer service
- ◆ Formal and computer-based training

Status:

Scheduled for rapid expansion in hubs across the continent, but currently serves U.S. hubs at Waha, Opal, Lebanon, Carthage, Station "65", and Empress in Alberta.

Rates:

See separate page for product fee structures.

Williams Energy Ventures Product Fee Structures

Streamline SM	Description	Transaction Fees	Monthly Fees
	Dedicated Work Station (DWS) Lease Line & Communications Router (if applicable) Streamline Software Training and Support	Carthage, Texas Hub Waha, Lebanon, Opal Hubs	\$750 One-Time Installation Fee ** \$650.00 Subscription Fee ** \$350.00 Demand Fee ** ** Waived for all traders until 4/1/95
	Capacity Central SM		
	Dedicated Work Station (DWS) Lease Line & Communications Router (if applicable) Capacity Central Software Training and Support	\$650.00 Monthly Subscription* \$.0075/MMBtu Transaction Fee paid by the buyer	\$.0067/MMBtu/d \$.0034/MMBtu/d
	Multiple Unit Discounts		
	Number of ID's	Fees	Considerations
	One	\$ 650.00 Monthly Subscription	Prices include: One Work Station; One Software Copy;
	Two	\$1,150.00	One Lease Line and other Communications; One Router
	Three	\$1,550.00	(if applicable). Training and Support covers all licensed
	Four	\$1,900.00	traders.
	Five	\$2,225.00	
	Six	\$2,425.00	
	Above Six	\$2,425.00 + 200.00 Each Above Six	
	Multiple Product Discounts		
	One DWS Lease Line & Communication Router (if applicable) Software Version 1.0	Fees	Considerations
		\$650.00 Monthly Subscription (for first product installed) \$350.00 Monthly Subscription (for additional products installed) Minimum Usage Charge (if apply) Transaction Fees	Prices include: One Work Station; One Software Copy; One Lease Line and other Communications; One Router (if applicable). Training and Support covers all licensed traders.

APPENDIX B-2

MARKET HUB MAPS

APPENDIX B-2
MARKET HUB MAPS
TABLE OF CONTENTS

AECO-C HUB

ELLISBURG-LEIDY HUB

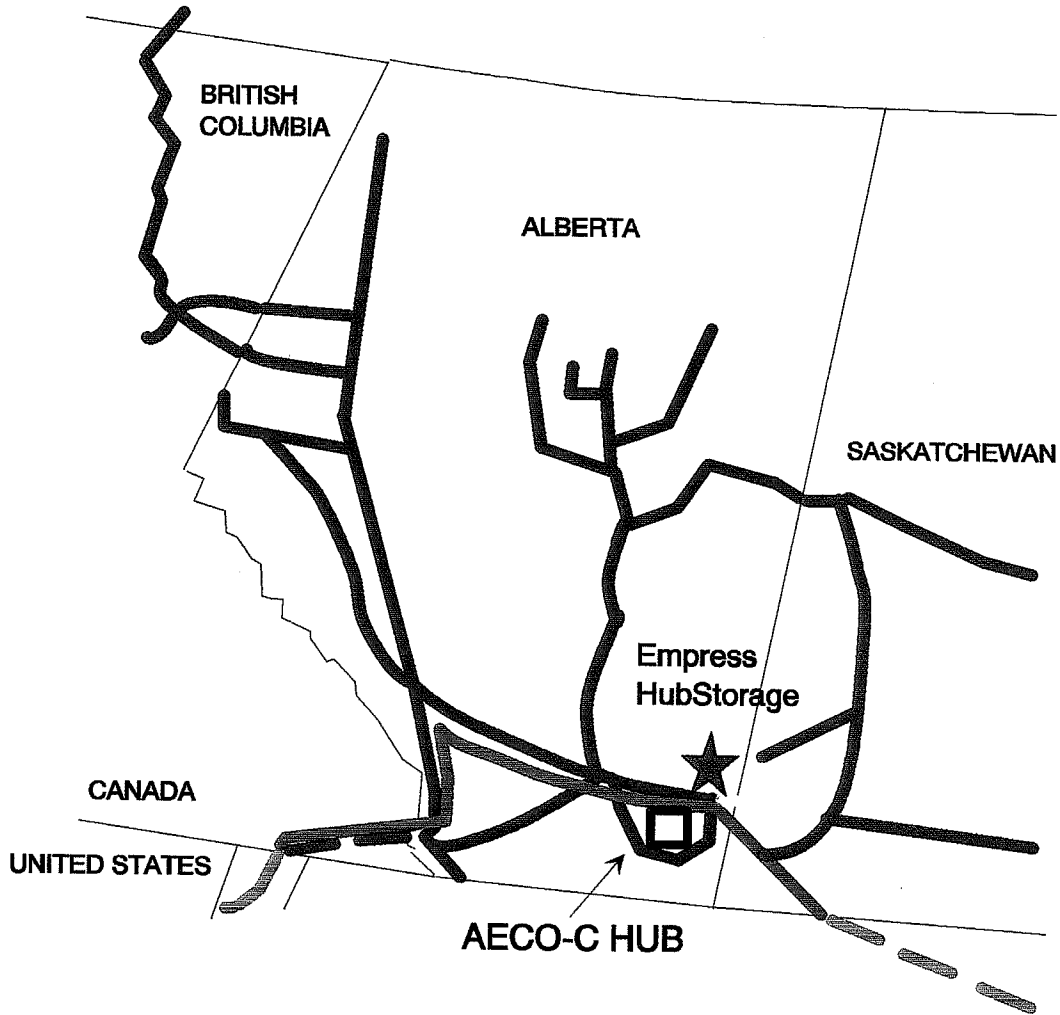
GRANDS LACS MARKET CENTER











PERRYVILLE HUB

UNION GAS SYSTEM HUB

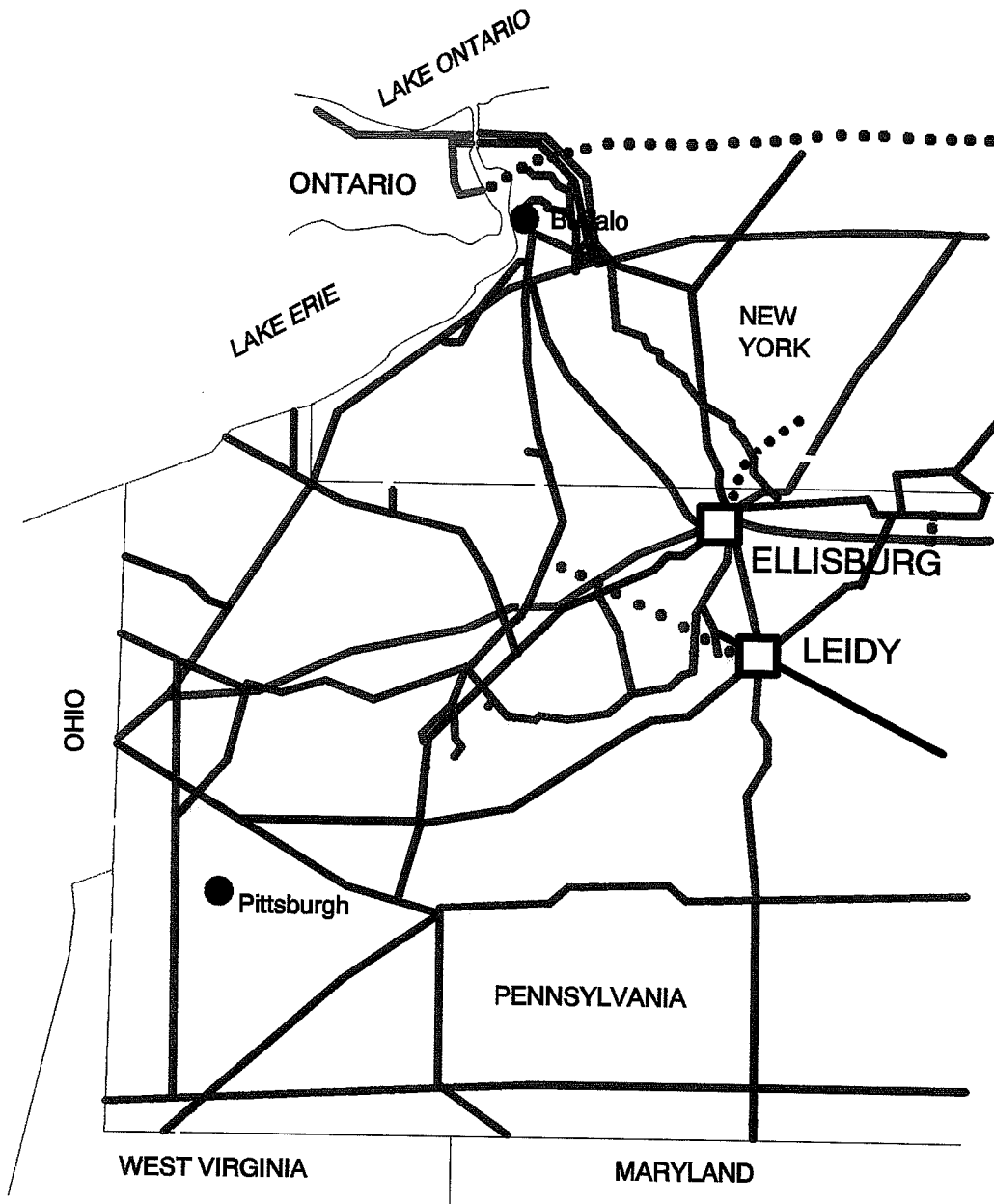
WESTERN MARKET CENTER/MUDDY CREEK














AECO-C HUB (ALBERTA)



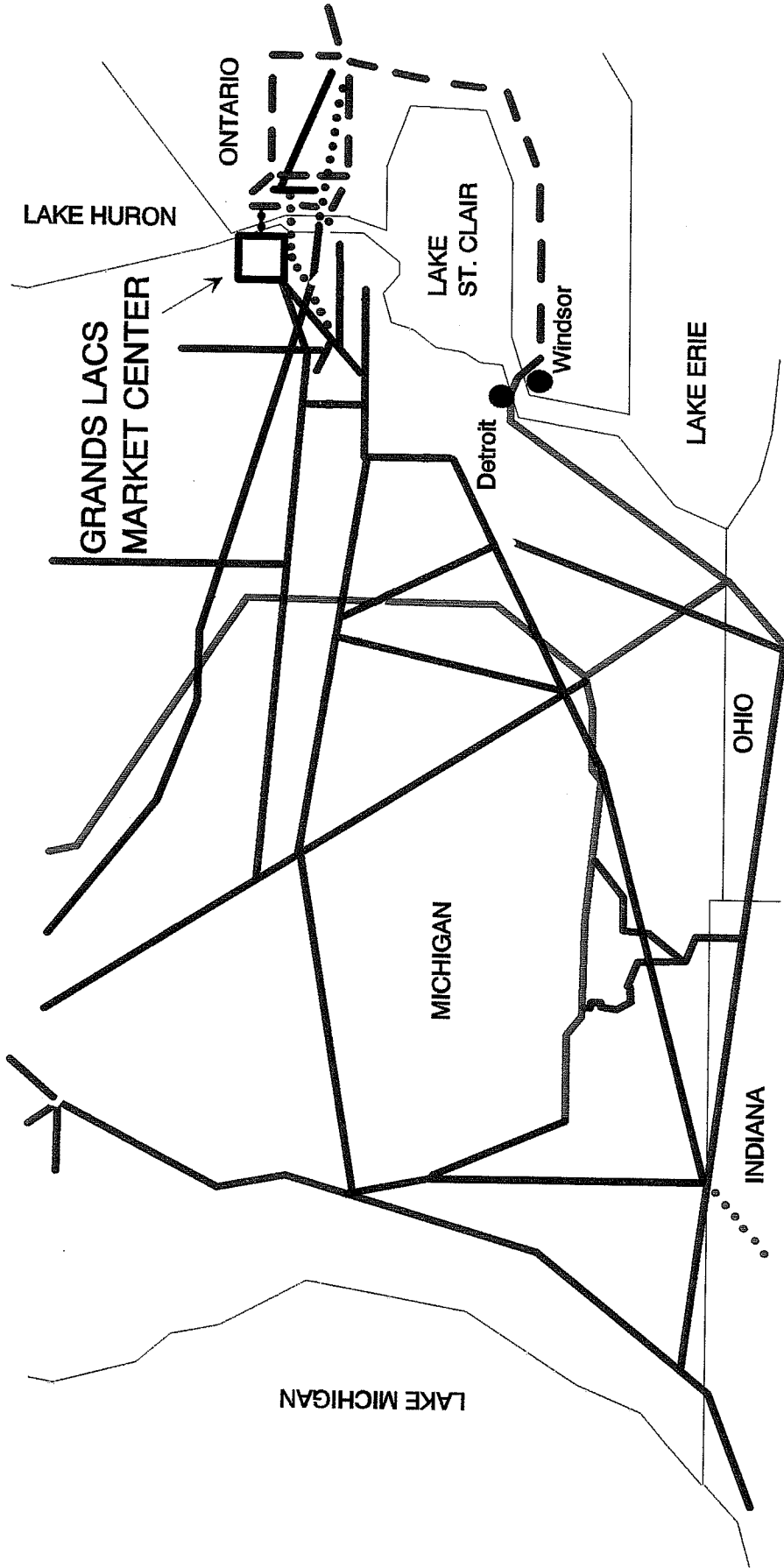
KEY		
 NOVA Corporation	 Alberta Natural Gas	 Empress HubStorage
 Foothills Pipelines	 Northern Border	 AECO-C HUB (includes AEC storage at Suffield, AB)
 Transgas Limited	 TransCanada Pipelines	
 Pacific Gas Transmission	 Westcoast Energy	

ELLISBURG-LEIDY HUB (PA)



KEY			
	National Fuel Gas		Columbia Gas
	NFG (proposed)		Texas Eastern
	Tennessee Gas		Transcontinental Gas
	CNG Transmission		Empire State
	TransCanada PipeLines		Penn-York Energy
	North Penn Gas		HUBS
			Cities

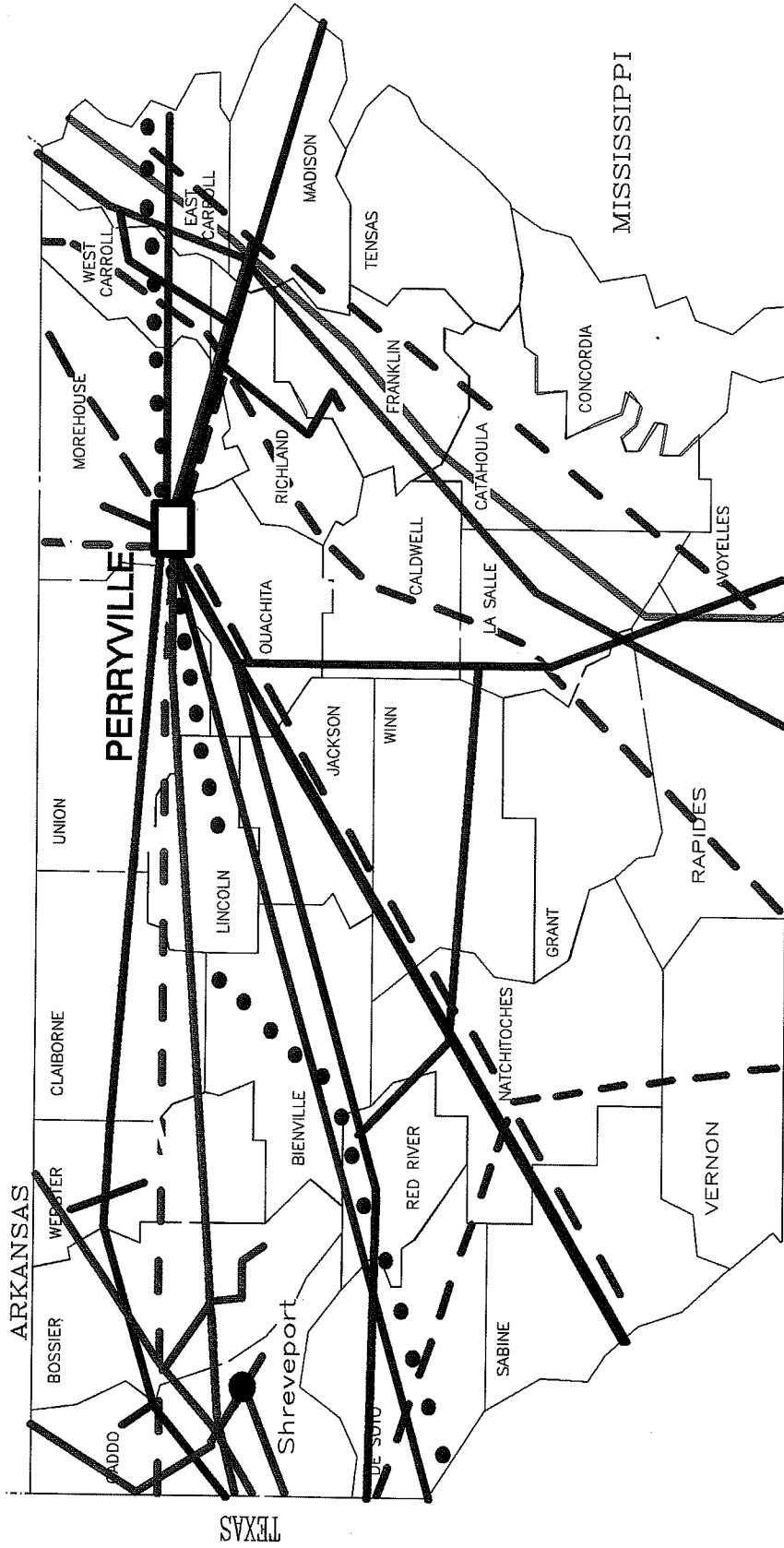
GRANDS LACS MARKET CENTER (MI)



KEY

—	ANR Pipeline	.....	TransCanada PipeLines	.....	ANR Link (proposed)
- - -	Consumers Power (U.S.)	- - -	Union Gas	- - -	Bluewater Pipeline (proposed)
—	Great Lakes Gas Transmission	.....	St. Clair Pipelines	—	Southeastern Michigan Gas
.....	Michigan Consolidated Gas	.....	Trunkline Gas	□	GRANDS LACS MARKET CENTER
—	Panhandle Eastern Pipe Line	—	Tecumseh (Consumers Gas)	●	Cities

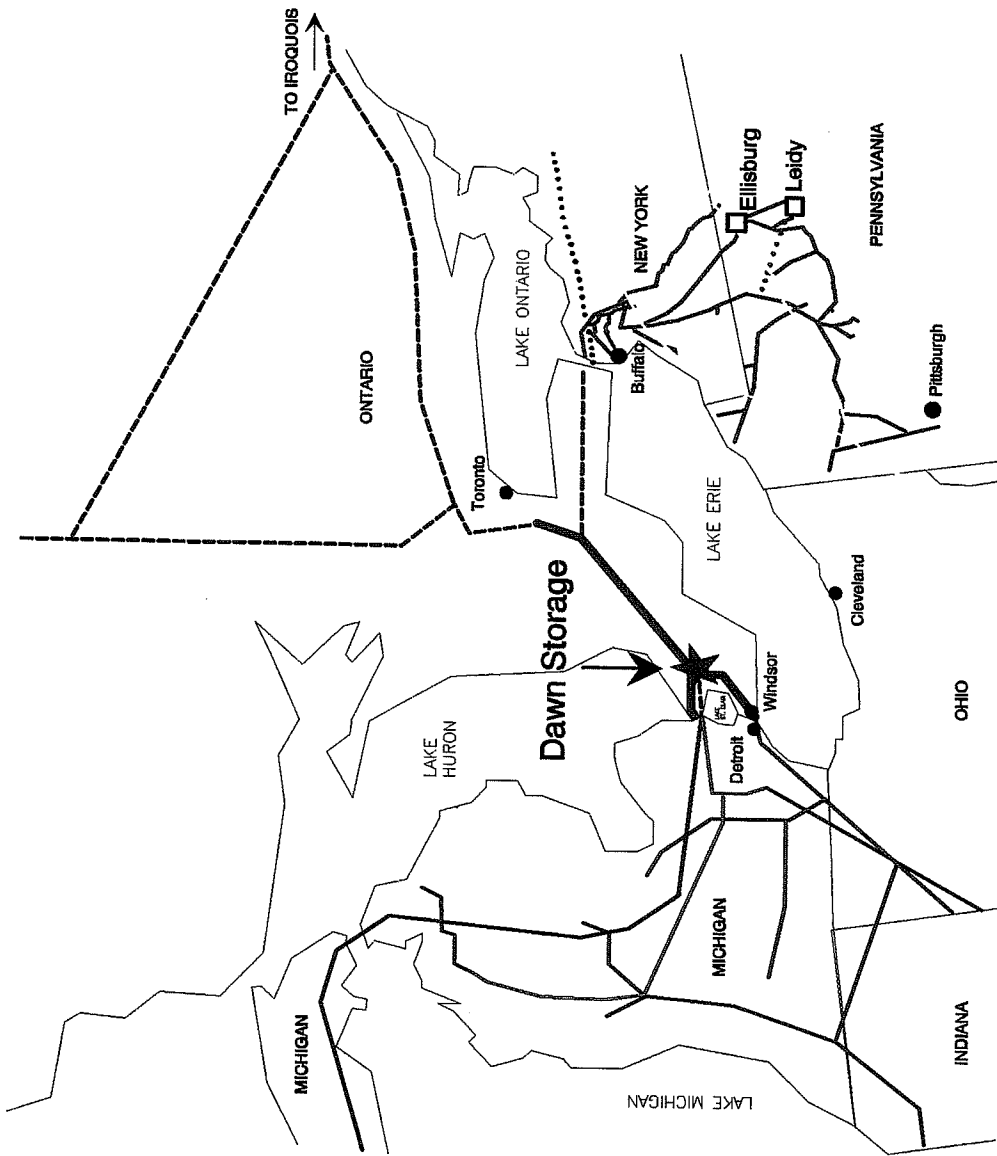
PERRYVILLE HUB (LA)



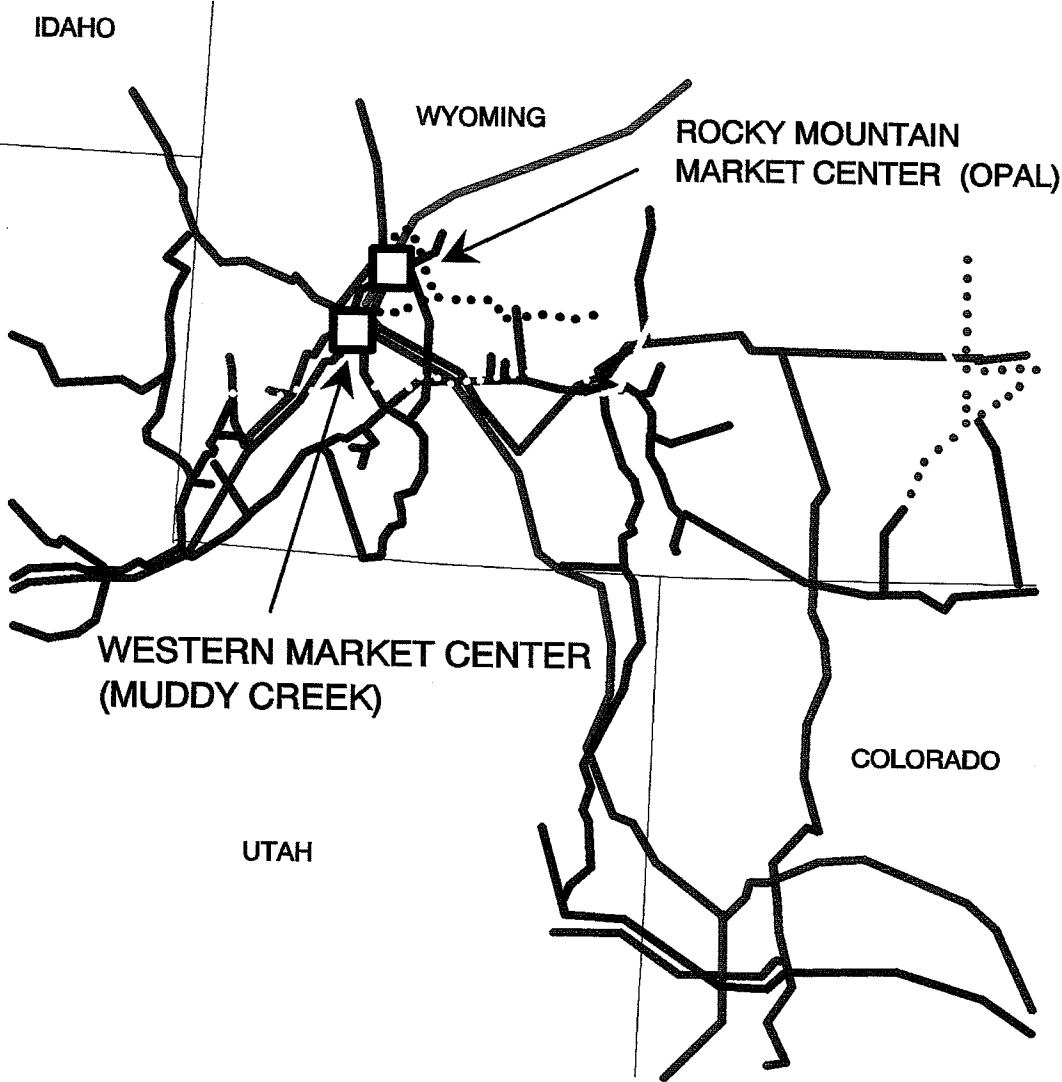
KEY	
	ANR Pipeline
	Koch Gateway
	NorAm Gas
	Texas Gas
	Southern Natural
	Columbia Gulf
	Mississippi River Trans.
	Tennessee Gas
	Trunkline Gas
	Texas Eastern
	HUB
	Cities











UNION GAS SYSTEM HUB (ON)

KEY	
—	ANR Pipeline
—	Tennessee Gas Pipeline
—	Michigan Consolidated
....	Empire State Pipeline
—	Great Lakes Gas Transmission
—	National Fuel Gas (proposed)
—	Panhandle Eastern
—	TransCanada PipeLines
—	UNION GAS
★	Storage
□	Hubs
●	Cities



WESTERN MARKET CENTER / MUDDY CREEK (WY)



KEY					
	Northwest Pipeline		Kern River Gas		Williams Natural Gas
	Colorado Interstate		Overland Trail		HUBS
	Questar Pipeline		Overthrust Pipeline		
	Altamont (proposed)		Wyoming Interstate		

APPENDIX C

STATISTICAL APPENDIX

- Schedule 1 - Inventory of U.S. Storage Operations**
- Schedule 2 - Inventory of Canadian Underground Storage Facilities**
- Schedule 3 - Summary of Proposed Gas Storage Projects**
- Schedule 4 - Summary of New Canadian Storage Projects**
- Schedule 5 - Summary of Major North American Market Hubs**

INVENTORY OF U.S. STORAGE OPERATIONS

State / Field	Owner / Operator	Reservoir Type	Base - Gas Requirement (MMcf)	Working Gas Capacity (MMcf)	Total Capacity (MMcf)	Total Injection (MMcf/d)	Maximum Deliverability (MMcf/d)
ALABAMA							
Mcintosh	Bay Gas Storage Co. Ltd d/	3	1,400.0	2,600.0	4,000.0	33.0	100.0
TOTAL ALABAMA			1,400.0	2,600.0	4,000.0	33.0	100.0
ARKANSAS							
Lavaca Deep	Arkansas Oklahoma Gas Corp.	1	3,290.0	63.0	3,353.0	0.3	12.0
Adams - Hale	Arkansas Western Gas Co.	1	4,500.0	277.0	4,777.0	1.3	20.0
King - Casey	Arkansas Western Gas Co.	1	600.0	66.0	666.0	0.3	5.0
Stockton - Casey	Arkansas Western Gas Co.	1	9,400.0	1,973.0	11,373.0	9.2	60.0
Stockton - Orr	Arkansas Western Gas Co.	1	1,600.0	136.0	1,736.0	0.6	10.0
Woolsey	Arkansas Western Gas Co.	1	5,400.0	1,168.0	6,568.0	5.5	90.0
TOTAL ARKANSAS			24,790.0	3,683.0	28,473.0	17.2	197.0
CALIFORNIA							
Los Medanos	Pacific Gas & Electric Co.	1	10,975.0	17,000.0	27,975.0	75.0	250.0
McDonald Island	Pacific Gas & Electric Co.	1	54,075.0	77,050.0	131,125.0	1,000.0	2,000.0
Pleasant Creek	Pacific Gas & Electric Co.	1	5,078.0	2,148.0	7,226.0	50.0	6.0
Aliso Canyon	Southern California Gas Co.	1	91,500.0	70,000.0	161,500.0	465.0	1,860.0
East Whittier	Southern California Gas Co.	1	425.0	800.0	1,225.0	65.0	75.0
Honor Ranch	Southern California Gas Co.	1	19,500.0	17,500.0	37,000.0	330.0	1,000.0
La Goleta	Southern California Gas Co.	1	32,600.0	13,500.0	46,100.0	150.0	600.0
Montebello	Southern California Gas Co.	1	27,500.0	11,700.0	39,200.0	105.0	795.0
Playa del Rey	Southern California Gas Co.	1	4,500.0	2,600.0	7,100.0	170.0	500.0
TOTAL CALIFORNIA			246,153.0	212,298.0	458,451.0	2,410.0	7,086.0
COLORADO							
Flank	Colorado Interstate Gas Co.	1	11,438.0	6,962.0	18,400.0	99.0	149.2
Fort Morgan	Colorado Interstate Gas Co.	1	6,962.0	7,360.0	14,322.0	124.0	348.1
Laiago	Colorado Interstate Gas Co.	1	13,288.0	8,155.0	21,443.0	84.0	149.2
Wolf Creek	Gasco Inc.	1	7,436.0	2,664.0	10,100.0	8.0	20.0
Springdale	KN Natural Gas Inc.	1	4,900.0	791.6	5,691.6	10.0	11.7
Asbury	Public Service Co. of Colorado	1	1,224.0	2,926.0	4,150.0	9.0	16.0
Fruita	Public Service Co. of Colorado	1	38.0	340.0	378.0	1.0	2.0
Leyden	Public Service Co. of Colorado	4	800.0	2,200.0	3,000.0	120.0	205.0
Roundup	Public Service Co. of Colorado	1	3,000.0	6,000.0	9,000.0	30.0	50.0
TOTAL COLORADO			49,086.0	37,398.6	86,484.6	485.0	951.2
ILLINOIS							
Glasford	Central Illinois Light Co.	2	8,121.0	3,714.0	11,835.0	75.0	150.0
Lincolt	Central Illinois Light Co.	2	8,015.0	4,159.0	12,174.0	65.0	63.0
Ashmore	Central Illinois Public Service Co.	1	2,736.0	770.0	3,506.0	10.0	18.0
Belle Gent	Central Illinois Public Service Co.	1	72.0	184.0	256.0	2.0	2.0
Johnson City	Central Illinois Public Service Co.	1	822.0	518.0	1,340.0	6.0	6.0
Richwoods	Central Illinois Public Service Co.	1	15.0	103.0	118.0	0.5	0.9
Sciota	Central Illinois Public Service Co.	2	3,690.0	872.0	4,562.0	7.0	14.0

INVENTORY OF U.S. STORAGE OPERATIONS

State / Field	Owner / Operator	Reservoir Type	Base - Gas Requirement (MMcf)	Working Gas Capacity (MMcf)	Total Capacity (MMcf)	Total Injection (MMcf/d)	Maximum Deliverability (MMcf/d)
ILLINOIS (cont.)							
Mills	Egyptian Gas Storage Corp.	1	100.0	600.0	700.0	5.0	5.0
Centralia	Illinois Power Co.	1	473.0	143.0	616.0	5.0	14.0
Eden	Illinois Power Co.	1	1,013.0	390.0	1,403.0	4.0	8.0
Freeburg	Illinois Power Co.	1	5,036.0	1,900.0	6,936.0	20.0	35.0
Gillespie	Illinois Power Co.	1	116.0	32.0	148.0	2.0	5.0
Hillsboro	Illinois Power Co.	1	14,110.0	7,600.0	21,710.0	40.0	125.0
Hookdale	Illinois Power Co.	1	285.0	715.0	1,000.0	30.0	18.0
Shanghai	Illinois Power Co.	2	7,712.0	3,600.0	11,312.0	20.0	80.0
Tilden	Illinois Power Co.	1	1,819.0	870.0	2,689.0	20.0	50.0
St. Jacob	Illinois Power Co.	2	4,700.0	800.0	5,500.0	3.7	30.0
Cooks Mills	Mississippi River Transmission Corp.	1	2,900.0	2,300.0	5,200.0	60.0	60.0
Herscher - Galesville	Natural Gas Pipeline Co.	2	25,400.0	9,000.0	34,400.0	600.0	900.0
Herscher - Northwest	Natural Gas Pipeline Co.	2	15,500.0	2,000.0	17,500.0	40.0	65.0
Herscher - Mt. Simon	Natural Gas Pipeline Co.	2	56,000.0	11,000.0	67,000.0	120.0	240.0
Loudon	Natural Gas Pipeline Co.	1	42,000.0	38,000.0	80,000.0	250.0	510.0
Ancona	Northern Illinois Gas Co.	2	101,230.0	54,734.0	155,964.0	255.8	850.0
Hudson	Northern Illinois Gas Co.	2	34,025.0	8,884.0	42,909.0	41.5	200.0
Lake Bloomington	Northern Illinois Gas Co.	2	33,909.0	12,350.0	46,259.0	57.7	175.0
Lexington	Northern Illinois Gas Co.	2	38,005.0	10,379.0	48,384.0	48.5	150.0
Pecatonica	Northern Illinois Gas Co.	2	1,956.0	1,053.0	3,009.0	4.9	75.0
Pontiac - Galesville	Northern Illinois Gas Co.	2	12,830.0	3,747.0	16,577.0	17.5	200.0
Pontiac - Mt. Simon	Northern Illinois Gas Co.	2	25,345.0	15,681.0	41,026.0	73.3	50.0
Troy Grove	Northern Illinois Gas Co.	2	33,982.0	28,533.0	62,515.0	133.3	850.0
Waverly	Panhandle Eastern Pipe Line Co.	2	46,473.0	446.0	46,919.0	2.1	70.0
Manlove	Peoples Gas Light & Coke Co.	2	98,144.0	44,256.0	142,400.0	300.0	1,040.0
TOTAL ILLINOIS			626,534.0	269,333.0	895,867.0	2,319.8	6,058.9
INDIANA							
Dixon	Citizens Gas & Coke Utility	1	1,946.0	834.0	2,780.0	19.2	16.8
Howesville	Citizens Gas & Coke Utility	1	2,975.0	1,275.0	4,250.0	24.0	36.0
Mineral City	Citizens Gas & Coke Utility	1	1,458.0	625.0	2,083.0	12.0	12.0
Simpson Chapel	Citizens Gas & Coke Utility	1	1,760.0	440.0	2,200.0	12.0	7.2
Switz City	Citizens Gas & Coke Utility	1	3,944.5	1,690.5	5,635.0	24.0	16.8
Worthington	Citizens Gas & Coke Utility	1	9,240.0	3,960.0	13,200.0	60.0	60.0
Greensburg	Indiana Gas Co.	1	700.0	478.0	1,178.0	1.0	1.0
Sellersburg	Indiana Gas Co.	2	1,200.0	143.0	1,343.0	7.5	12.0
Unionport	Indiana Gas Co.	2	1,001.0	123.0	1,124.0	10.0	20.0
Unionville	Indiana Gas Co.	1	3,000.0	3,275.0	6,275.0	20.0	64.0
West Point	Indiana Gas Co.	2	733.0	257.0	990.0	1.0	9.1
Wolcott	Indiana Gas Co.	2	4,500.0	2,530.0	7,030.0	20.0	61.0
Lawrenceburg Storage	Lawrenceburg Gas Co.	4	0.7	1.0	1.7	0.5	1.0
Calcutta - Carbon	Midwest Gas Storage	2	1,600.0	3,900.0	5,500.0	NA	200.0
Shaw	Midwest Natural Gas Corp.	1	90.0	25.5	115.5	1.5	0.9
Royal Center	Northern Indiana Public Service Co.	2	25,888.0	657.0	26,545.0	45.0	85.0

INVENTORY OF U.S. STORAGE OPERATIONS

State / Field	Owner / Operator	Reservoir Type	Base-Gas Requirement (MMcf)	Working Gas Capacity (MMcf)	Total Capacity (MMcf)	Total Injection (MMcf/d)	Maximum Deliverability (MMcf/d)
INDIANA (cont.)							
Glendale	Southern Indiana Gas & Electric Co.	1	215.0	182.0	397.0	0.9	NA
Loogootee	Southern Indiana Gas & Electric Co.	1	75.0	97.0	172.0	0.5	NA
Midway	Southern Indiana Gas & Electric Co.	2	1,304.0	2,179.0	3,483.0	14.0	50.0
Monroe City	Southern Indiana Gas & Electric Co.	1	3,167.0	456.0	3,623.0	18.0	24.5
Oliver	Southern Indiana Gas & Electric Co.	2	1,741.0	1,337.0	3,078.0	18.0	41.5
Alford	Texas Gas Transmission Co.	1	1,530.0	989.0	2,519.0	28.0	15.5
Leesville	Texas Gas Transmission Co.	2	2,244.0	2,531.0	4,775.0	14.0	20.4
Oaktown	Texas Gas Transmission Co.	1	429.0	622.0	1,051.0	8.0	4.6
White River	Texas Gas Transmission Co.	1	204.0	306.0	510.0	5.0	5.1
Wilfred	Texas Gas Transmission Co.	2	1,224.0	2,193.0	3,417.0	18.0	34.0
TOTAL INDIANA			72,169.2	31,106.0	103,275.2	382.1	798.4
IOWA							
Cairo-Gatesville	Natural Gas Pipeline Co.	2	12,200.0	3,400.0	15,600.0	50.0	60.0
Cairo-Mt. Simon	Natural Gas Pipeline Co.	2	38,700.0	12,200.0	50,900.0	120.0	170.0
Cairo-St. Peter	Natural Gas Pipeline Co.	2	19,200.0	7,800.0	27,000.0	92.0	150.0
Columbus City-Mt. Simon	Natural Gas Pipeline Co.	2	28,700.0	10,400.0	39,100.0	120.0	117.0
Columbus City-St. Peter	Natural Gas Pipeline Co.	2	11,700.0	2,900.0	14,600.0	49.0	50.0
Keota-St. Peter	Natural Gas Pipeline Co.	2	3,700.0	2,300.0	6,000.0	48.0	50.0
Redfield	Northern Natural Gas Co.	2	90,000.0	27,000.0	117,000.0	300.0	415.0
TOTAL IOWA			204,200.0	66,000.0	270,200.0	779.0	1,012.0
KANSAS							
Boefm	Colorado Interstate Gas Co.	5	15,814.0	6,365.0	22,179.0	79.0	124.3
Adolph	KN Natural Gas Inc.	1	5,300.0	545.0	5,845.0	5.0	8.2
Collinson	NorAm Gas Transmission	1	1,260.0	1,133.0	2,393.0	5.3	10.0
Cunningham	Northern Natural Gas Co.	1	32,000.0	20,000.0	52,000.0	300.0	530.0
Lyons	Northern Natural Gas Co.	1	16,000.0	6,000.0	22,000.0	100.0	130.0
Borchers North	PEPL / Southwest Gas Storage Co.	1	35,081.0	12,176.0	47,257.0	56.9	350.0
Richfield	Richfield Gas Storage	1	2,000.0	3,500.0	5,500.0	NA	50.0
Buffalo	United Cities Gas Storage Co.	1	180.0	65.0	245.0	0.3	1.8
Fredonia	United Cities Gas Storage Co.	1	160.0	114.0	274.0	0.5	1.8
Liberty North	United Cities Gas Storage Co.	1	1,500.0	1,273.0	2,773.0	5.9	30.0
Liberty South	United Cities Gas Storage Co.	1	164.0	34.0	198.0	0.2	1.0
Brehm	Western Resources Inc.	5	1,600.0	2,200.0	3,800.0	20.0	25.0
Yaggy	Western Resources Inc.	3	500.0	2,000.0	2,500.0	120.0	120.0
Alden	Williams Natural Gas	1	10,912.0	3,782.0	14,694.0	35.3 s/	143.0
Colony	Williams Natural Gas	1	7,647.0	5,083.0	12,730.0	39.5 s/	160.0
Craig	Williams Natural Gas	1	5,575.0	264.0	5,839.0	14.3 s/	59.0
Elk City	Williams Natural Gas	1	23,813.0	5,712.0	29,525.0	59.0 s/	239.0
McLouth	Williams Natural Gas	1	11,609.0	1,818.0	13,427.0	43.0 s/	175.0

INVENTORY OF U.S. STORAGE OPERATIONS

State / Field	Owner / Operator	Reservoir Type	Base - Gas Requirement (MMcf)	Working Gas Capacity (MMcf)	Total Capacity (MMcf)	Total Injection (MMcf/d)	Maximum Deliverability (MMcf/d)
KANSAS (cont.)							
North Weida	Williams Natural Gas	1	10,747.0	4,797.0	15,544.0	17.5 s/	71.0
Piqua	Williams Natural Gas	1	2,864.0	348.0	3,212.0	4.0 s/	16.0
South Weida	Williams Natural Gas	1	11,046.0	7,254.0	18,300.0	31.8 s/	129.0
TOTAL KANSAS			195,772.0	84,463.0	280,235.0	937.5	2,374.1
KENTUCKY							
East Slaughters	Alcan Ingot	2	138.0	629.0	767.0	3.0	3.0
Kettle Island	Delta Natural Gas Co. Inc.	1	785.0	121.1	906.1	1.0	1.2
Cecilia - Laurel	Elizabethtown Natural Gas	2	490.0	813.0	1,303.0	2.0	5.0
Cecilia - Lego	Elizabethtown Natural Gas	2	500.0	1,604.0	2,104.0	2.0	5.0
Center	Louisville Gas & Electric Co.	1	2,720.0	2,386.0	5,106.0	16.8	50.0
Doe Run Upper	Louisville Gas & Electric Co.	2	1,810.0	3,977.0	5,787.0	72.0	60.0
Magnolia Deep	Louisville Gas & Electric Co.	1	2,370.0	2,056.0	4,426.0	24.0	45.0
Magnolia Upper	Louisville Gas & Electric Co.	1	2,460.0	3,489.0	5,949.0	42.0	75.0
Muldraugh	Louisville Gas & Electric Co.	1	1,450.0	2,799.0	4,249.0	20.0	215.0
Dixie	Texas Gas Transmission Corp.	1	4,682.0	2,575.0	7,257.0	93.0	66.3
Graham Lake	Texas Gas Transmission Corp.	1	2,958.0	1,326.0	4,284.0	15.0	15.3
Hanson	Texas Gas Transmission Corp.	1	8,160.0	3,927.0	12,087.0	70.0	71.4
Midland	Texas Gas Transmission Corp.	1	64,474.0	68,668.0	133,142.0	500.0	882.5
West Greenville	Texas Gas Transmission Corp.	1	4,264.0	3,386.0	7,650.0	85.0	81.6
Barnsley	United Cities Gas Storage Co.	1	1,600.0	404.0	2,004.0	1.9	30.0
Bon Harbor	Western Kentucky Gas Co.	1	1,300.0	777.0	2,077.0	13.5	21.0
Grandview	Western Kentucky Gas Co.	1	350.0	242.0	592.0	5.0	2.1
Hickory School	Western Kentucky Gas Co.	1	850.0	470.0	1,320.0	15.0	19.0
Kirkwood Springs	Western Kentucky Gas Co.	1	400.0	223.0	623.0	6.0	10.0
Owensboro	Western Kentucky Gas Co.	1	41.0	19.0	60.0	1.9	2.4
St. Charles	Western Kentucky Gas Co.	1	3,470.0	2,912.0	6,382.0	22.0	35.8
TOTAL KENTUCKY			105,272.0	102,803.1	208,075.1	1,011.1	1,696.6
LOUISIANA							
Bear Creek	Bear Creek Storage Co. c/	1	50,000.0	58,000.0	108,000.0	900.0	900.0
Sorrento	Bridgeline Gas Distribution Co. e/	3	4,000.0	3,200.0	7,200.0	100.0	320.0
Bistineau	Koch Gateway Pipeline Co.	1	62,700.0	60,800.0	123,500.0	189.7	1,100.0
Napoleonville	Enron Storage	3	3,800.0	4,600.0	8,400.0	200.0	400.0
East Unionville	Mississippi River Transmission Corp.	1	31,600.0	20,200.0	51,800.0	94.4	420.0
West Unionville	Mississippi River Transmission Corp.	1	13,700.0	10,000.0	23,700.0	46.7	190.0
Ruston	NorAm Gas Transmission	1	3,500.0	2,200.0	5,700.0	40.0	60.0
Hester	Transcontinental Gas Pipe Line Corp.	1	11,500.0	12,000.0	23,500.0	36.0	102.0
Washington	Transcontinental Gas Pipe Line Corp.	1	45,000.0	75,000.0	120,000.0	370.0	800.0
Epps	Trunkline Gas Co.	1	29,851.0	11,281.0	41,132.0	100.0	120.0
TOTAL LOUISIANA			255,651.0	257,261.0	512,932.0	2,076.8	4,412.0

INVENTORY OF U.S. STORAGE OPERATIONS

State / Field	Owner / Operator	Reservoir Type	Base-Gas Requirement (MMcf)	Working Gas Capacity (MMcf)	Total Capacity (MMcf)	Total Injection (MMcf/d)	Maximum Deliverability (MMcf/d)
MARYLAND							
Accident	Texas Eastern Transmission Corp.	1	46,677.0	13,098.0	59,775.0	61.2	300.0
TOTAL MARYLAND			46,677.0	13,098.0	59,775.0	61.2	300.0
MICHIGAN							
Austin	ANR Pipeline Co.	1	11,300.0	12,000.0	23,300.0	480.0	800.0
Capac	ANR Pipeline Co.	1	12,200.0	20,000.0	32,200.0	180.0	270.0
Central Charlton	ANR Pipeline Co.	1	2,700.0	16,300.0	19,000.0	140.0	220.0
Coldwater	ANR Pipeline Co.	1	5,000.0	8,000.0	13,000.0	37.0	33.0
Croton	ANR Pipeline Co.	1	900.0	4,500.0	5,400.0	37.0	37.0
Goodwell	ANR Pipeline Co.	1	4,900.0	24,700.0	29,600.0	370.0	370.0
Lincoln	ANR Pipeline Co.	1	13,400.0	22,000.0	35,400.0	350.0	405.0
Loreed	ANR Pipeline Co.	1	15,700.0	32,500.0	48,200.0	325.0	500.0
Multonville	ANR Pipeline Co.	1	2,300.0	11,100.0	13,400.0	210.0	400.0
North Hamilton	ANR Pipeline Co.	1	7,100.0	5,000.0	12,100.0	46.0	17.0
Norwich	ANR Pipeline Co.	1	4,200.0	4,200.0	8,400.0	35.0	52.0
Orient	ANR Pipeline Co.	1	4,100.0	5,700.0	9,800.0	37.0	48.0
Reed City	ANR Pipeline Co.	1	10,600.0	18,000.0	28,600.0	205.0	400.0
South Chester 15	ANR Pipeline Co.	1	2,600.0	16,800.0	19,400.0	170.0	270.0
Winfield	ANR Pipeline Co.	1	7,100.0	7,400.0	14,500.0	65.0	73.0
Cold Springs	ANR Pipeline Co.	1	4,400.0	29,100.0	33,500.0	136.0	250.0
Excelsior	ANR Storage Co.	1	1,500.0	9,500.0	11,000.0	44.4	250.0
Rapid River	ANR Storage Co.	1	2,200.0	15,100.0	17,300.0	70.6	250.0
Blue Lake 18A	ANR / Blue Lake Gas Storage Co.	1	7,500.0	42,000.0	49,500.0	210.0	600.0
Eaton Rapids	ANR / Eaton Rapids Gas Storage	1	2,700.0	12,000.0	14,700.0	71.0	116.0
Lacey	Battle Creek Gas Co.	3	41.0	200.0	241.0	2.3	25.0
Lee 11	Battle Creek Gas Co.	1	200.0	700.0	900.0	5.6	6.6
Lee 2	Battle Creek Gas Co.	1	300.0	700.0	1,000.0	5.6	7.0
Four Corners	Consumers Power Co.	1	1,400.0	2,400.0	3,800.0	50.0	80.0
Hessen	Consumers Power Co.	1	6,900.0	11,000.0	17,900.0	100.0	150.0
Ira	Consumers Power Co.	1	3,500.0	4,000.0	7,500.0	200.0	250.0
Lenox	Consumers Power Co.	1	3,500.0	1,500.0	5,000.0	150.0	200.0
Lyon 34	Consumers Power Co.	1	656.0	700.0	1,356.0	20.0	40.0
Northville N-211	Consumers Power Co.	1	14,100.0	10,500.0	24,600.0	50.0	60.0
Overisel	Consumers Power Co.	1	40,000.0	24,000.0	64,000.0	225.0	300.0
Puttygut	Consumers Power Co.	1	7,600.0	9,100.0	16,700.0	225.0	250.0
Ray	Consumers Power Co.	1	22,000.0	44,000.0	66,000.0	600.0	1,200.0
Salem	Consumers Power Co.	1	23,000.0	12,000.0	35,000.0	150.0	200.0
Swan Creek	Consumers Power Co.	1	200.0	400.0	600.0	NA	NA
Belle River Mills	Michigan Consolidated Gas Co.	1	23,100.0	53,000.0	76,100.0	400.0	1,500.0
Columbus	Michigan Consolidated Gas Co.	1	2,500.0	18,000.0	20,500.0	180.0	430.0
New Haven	Michigan Consolidated Gas Co.	1	9,100.0	5,800.0	14,900.0	85.0	58.0
Taggart	Michigan Consolidated Gas Co.	1	31,100.0	55,000.0	86,100.0	575.0	550.0
West Columbus	Michigan Consolidated Gas Co.	1	3,800.0	23,000.0	26,800.0	270.0	780.0
Cranberry Lake	Michigan Gas Storage Co.	1	18,000.0	12,000.0	30,000.0	56.1	120.0

INVENTORY OF U.S. STORAGE OPERATIONS

State / Field	Owner / Operator	Reservoir Type	Base-Gas Requirement (MMcf)	Working Gas Capacity (MMcf)	Total Capacity (MMcf)	Total Injection (MMcf/d)	Maximum Deliverability (MMcf/d)
MICHIGAN (cont.)							
Riverside	Michigan Gas Storage Co.	1	7,500.0	4,500.0	12,000.0	20.0	40.0
Winterfield	Michigan Gas Storage Co.	1	47,000.0	29,000.0	75,000.0	250.0	360.0
Anderson	Michigan Gas Utilities Co.	1	500.0	300.0	800.0	NA	NA
Campbell	Michigan Gas Utilities Co.	1	200.0	300.0	500.0	NA	NA
Partello - Cortright	Michigan Gas Utilities Co.	1	1,400.0	1,800.0	3,200.0	26.0	50.4
Howell	Panhandle Eastern Pipe Line Co.	1	16,300.0	32,600.0	48,900.0	41.9	360.0
Washington 28	South Romeo Gas Storage / MichCon	1	2,200.0	9,800.0	12,000.0	NA	NA
Collin Field	Southeastern Michigan Gas Co.	1	900.0	1,200.0	2,100.0	NA	NA
Morton	Southeastern Michigan Gas Co.	3	1,200.0	2,000.0	3,200.0	24.0	60.0
TOTAL MICHIGAN			410,599.0	684,400.0	1,094,999.0	6,930.5	12,438.0
MINNESOTA							
Waterville - Waseca	Minnegasco Inc.	2	4,600.0	6,700.0	11,300.0	31.3	60.0
TOTAL MINNESOTA			4,600.0	6,700.0	11,300.0	31.3	60.0
MISSOURI							
St. Louis	Laclede Gas Co.	2	21.6	7.5	29.1	144.0	250.0
TOTAL MISSOURI			21.6	7.5	29.1	144.0	250.0
MISSISSIPPI							
Hattiesburg	Crystal Oil	3	1,800.0	3,500.0	5,300.0	175.0	350.0
Jackson	Koch Gateway Pipeline Co.	1	2,824.0	2,726.0	5,550.0	12.5	250.0
Amory	Mississippi Valley Gas Co.	1	500.0	1,200.0	1,700.0	6.0	20.0
Goodwin	Mississippi Valley Gas Co.	1	1,000.0	1,700.0	2,700.0	13.0	20.0
Petal	Petal Gas Storage Co. /	3	1,800.0	3,200.0	5,000.0	160.0	320.0
Muldon	Southern Natural Gas Co.	1	61,820.0	31,000.0	92,820.0	750.0	350.0
Eminence	Transcontinental Gas Pipe Line Corp.	3	4,460.0	12,060.0	16,520.0	240.0	1,500.0
TOTAL MISSISSIPPI			74,204.0	55,386.0	129,590.0	1,356.5	2,810.0
MONTANA							
Box Elder	Montana Power Co.	1	3,069.0	6,031.0	9,100.0	8.0	8.0
Cobb	Montana Power Co.	1	26,065.0	11,320.0	37,385.0	120.0	120.0
Dry Creek	Montana Power Co.	1	15,343.0	22,482.0	37,825.0	40.0	40.0
Baker	Williston Basin Interstate Pipeline Co.	1	122,773.0	164,427.0	287,200.0	103.0	114.0
TOTAL MONTANA			167,250.0	204,260.0	371,510.0	271.0	282.0
NEBRASKA							
Hurtsman	KN Interstate Gas Transmission	1	30,607.0	8,862.0	39,469.0	50.0	101.0
Big Springs	KN Natural Gas Inc.	1	47,250.0	6,593.0	53,843.0	80.0	120.0
TOTAL NEBRASKA			77,857.0	15,455.0	93,312.0	130.0	221.0

INVENTORY OF U.S. STORAGE OPERATIONS

State / Field	Owner / Operator	Reservoir Type	Base-Gas Requirement (MMcf)	Working Gas Capacity (MMcf)	Total Capacity (MMcf)	Total Injection (MMcf/d)	Maximum Deliverability (MMcf/d)
NEW MEXICO							
Washington Ranch	El Paso Natural Gas	1	15,000.0	10,114.0	25,114.0	47.3	250.0
Las Milpas	Gas Co. of New Mexico	2	3,704.0	1,300.0	5,004.0	8.0	10.0
Gamma Ridge	Llano, Inc.	1	NA	2,364.0	2,364.0	11.0	50.0
TOTAL NEW MEXICO			18,704.0	13,778.0	32,482.0	66.3	310.0
NEW YORK							
Woodhull	CNG Transmission Corp.	1	17,500.0	18,477.0	35,977.0	86.3	357.0
Dundee	Columbia Gas Transmission Corp.	1	7,840.0	3,520.0	11,360.0	33.0	73.8
Greenwood	Columbia Gas Transmission Corp.	1	2,751.0	574.0	3,325.0	4.0	4.0
North Greenwood	Columbia Gas Transmission Corp.	1	2,104.0	296.0	2,400.0	2.0	4.0
Honeoye	Honeoye Storage Corporation	1	3,913.0	3,475.0	7,388.0	16.2	40.0
Allegany (Limestone)	National Fuel Gas Supply Corp.	1	7,000.0	3,700.0	10,700.0	17.3	13.0
Beech Hill	National Fuel Gas Supply Corp.	1	13,010.0	9,900.0	22,910.0	46.3	61.0
Bennington	National Fuel Gas Supply Corp.	1	3,330.0	1,800.0	5,130.0	8.4	40.0
Colden	National Fuel Gas Supply Corp.	1	2,500.0	3,775.0	6,275.0	17.6	40.0
Collins	National Fuel Gas Supply Corp.	1	3,830.0	2,250.0	6,080.0	10.5	12.0
Derby	National Fuel Gas Supply Corp.	1	220.0	250.0	470.0	1.2	2.0
East Independence	National Fuel Gas Supply Corp.	1	4,200.0	2,200.0	6,400.0	10.3	17.0
Holland	National Fuel Gas Supply Corp.	1	1,770.0	900.0	2,670.0	4.2	10.0
Lawtons	National Fuel Gas Supply Corp.	1	970.0	900.0	1,870.0	4.2	10.0
Nashville	National Fuel Gas Supply Corp.	1	5,050.0	3,930.0	8,980.0	18.4	40.0
Perryburg	National Fuel Gas Supply Corp.	1	3,200.0	1,850.0	5,050.0	8.6	18.0
Sheridan	National Fuel Gas Supply Corp.	1	3,310.0	1,100.0	4,410.0	5.1	10.0
Tuscarora	National Fuel Gas Supply Corp.	1	2,586.0	3,800.0	6,386.0	17.8	40.0
West Independence	National Fuel Gas Supply Corp.	1	4,500.0	7,300.0	11,800.0	34.1	41.0
Wharton	National Fuel Gas Supply Corp.	1	800.0	3,792.0	4,592.0	17.7	40.0
Zoar	National Fuel Gas Supply Corp.	1	1,650.0	600.0	2,250.0	2.8	20.0
Adrian	Steuben Gas Storage Co. /l	1	1,994.0	6,200.0	8,194.0	44.0	59.0
TOTAL NEW YORK			94,028.0	80,589.0	174,617.0	410.0	951.8
OHIO							
Benton	Columbia Gas Transmission Corp.	1	17,945.0	6,855.0	24,800.0	54.0	81.6
Brinker	Columbia Gas Transmission Corp.	1	4,988.0	2,682.0	7,650.0	20.0	43.1
Crawford	Columbia Gas Transmission Corp.	1	41,720.0	13,400.0	55,120.0	92.0	190.0
Guerrsey	Columbia Gas Transmission Corp.	1	5,350.0	1,750.0	7,100.0	10.0	42.0
Holmes	Columbia Gas Transmission Corp.	1	13,692.0	5,403.0	19,095.0	35.0	50.0
Laurel	Columbia Gas Transmission Corp.	1	15,899.0	7,401.0	23,300.0	74.0	152.1
Lorain	Columbia Gas Transmission Corp.	1	8,316.0	2,384.0	10,700.0	11.0	81.1
Lucas	Columbia Gas Transmission Corp.	1	36,459.0	23,941.0	60,400.0	144.0	269.9
McArthur	Columbia Gas Transmission Corp.	1	6,430.0	4,470.0	10,900.0	46.0	94.9
Medina	Columbia Gas Transmission Corp.	1	7,427.0	873.0	8,300.0	19.0	66.8
Pavonia	Columbia Gas Transmission Corp.	1	26,946.0	21,654.0	48,600.0	107.0	309.6
Wayne	Columbia Gas Transmission Corp.	1	11,935.0	5,265.0	17,200.0	37.0	106.6
Weaver	Columbia Gas Transmission Corp.	1	32,119.0	17,881.0	50,000.0	119.0	228.4

INVENTORY OF U.S. STORAGE OPERATIONS

State / Field	Owner / Operator	Reservoir Type	Base - Gas Requirement (MMcf)	Working Gas Capacity (MMcf)	Total Capacity (MMcf)	Total Injection (MMcf/d)	Maximum Deliverability (MMcf/d)
OHIO (cont.)							
Wellington	Columbia Gas Transmission Corp.	1	16,145.0	6,755.0	22,900.0	38.0	103.7
Zane	Columbia Gas Transmission Corp.	1	60.0	30.0	90.0	0.1	0.1
Chippewa	East Ohio Gas Co.	1	8,700.0	1,857.0	10,557.0	100.0	546.0
Columbiana	East Ohio Gas Co.	1	1,731.0	1,380.0	3,111.0	12.0	25.0
Gabor	East Ohio Gas Co.	1	2,499.0	306.0	2,805.0	25.0	108.0
Stark - Summit	East Ohio Gas Co.	1	70,293.0	56,541.0	126,834.0	300.0	1,522.0
Muskie	National Gas & Oil Corp.	1	724.0	245.0	969.0	1.1	3.5
Perry	National Gas & Oil Corp.	1	0.2	973.0	973.2	4.5	30.0
Zane	National Gas & Oil Corp.	1	900.0	309.0	1,209.0	1.4	6.0
TOTAL OHIO			330,258.2	182,355.0	512,613.2	1,250.1	4,060.4
OKLAHOMA							
Sayre	Natural Gas Pipeline Co.	1	53,000.0	33,000.0	86,000.0	360.0	400.0
Ada	NorAm Gas Transmission	1	11,914.0	6,500.0	18,414.0	150.0	300.0
Chiles Dome	NorAm Gas Transmission	1	14,000.0	11,200.0	25,200.0	130.0	265.0
Dewey	Oklahoma Natural Gas	1	37,147.0	10,209.0	47,356.0	47.7	500.0
Haskell	Oklahoma Natural Gas	1	9,610.0	2,881.0	12,491.0	13.5	40.0
Osage	Oklahoma Natural Gas	1	1,892.0	882.0	2,774.0	4.1	60.0
West Edmond	Oklahoma Natural Gas	1	30,334.0	9,866.0	40,200.0	46.1	350.0
North Hopeton	Panhandle Eastern Pipe Line Co.	1	11,600.0	3,316.0	14,916.0	15.5	100.0
Enfisco	Phillips Petroleum Co.	1	550.0	1,219.0	1,769.0	5.7	20.0
Greasy Creek	Transok Inc.	1	2,636.0	12,501.0	15,137.0	58.4	330.0
Webb	Williams Natural Gas	1	45,155.0	13,634.0	58,789.0	55.6 s/	226.0
Oswego Lime	ZC Gas Gathering Inc.	1	180.0	115.0	295.0	0.5	2.5
TOTAL OKLAHOMA			218,018.0	105,323.0	323,341.0	887.1	2,593.5
OREGON							
Miller Station	Northwest Natural Gas	1	4,900.0	7,000.0	11,900.0	100.0	100.0
TOTAL OREGON			4,900.0	7,000.0	11,900.0	100.0	100.0
PENNSYLVANIA							
Ellisburg	CNG Transmission Corp. m/	1	45,900.0	64,090.0	109,990.0	299.5	1,176.0
Greenick	CNG Transmission Corp.	1	29,759.0	28,830.0	58,589.0	134.7	912.0
Harrison	CNG Transmission Corp. n/	1	13,382.0	20,718.0	34,100.0	96.8	350.0
Leidy - Tamarack	CNG Transmission Corp. o/	1	54,222.0	61,201.0	115,423.0	286.0	1,224.0
North Summit	CNG Transmission Corp.	1	14,851.0	11,500.0	26,351.0	53.7	115.0
Oakford	CNG Transmission Corp. p/	1	54,432.0	71,402.0	125,834.0	333.7	776.0
Sabinsville	CNG Transmission Corp.	1	17,958.0	17,697.0	35,655.0	82.7	418.0
Sharon	CNG Transmission Corp.	1	2,530.0	2,300.0	4,830.0	10.7	25.0
South Bend	CNG Transmission Corp.	1	11,530.0	5,810.0	17,340.0	27.1	200.0
Tioga	CNG Transmission Corp.	1	12,000.0	24,000.0	36,000.0	112.1	325.0
Blackhawk	Columbia Gas of Pennsylvania, Inc.	1	1,700.0	1,300.0	3,000.0	5.0	10.0
Artemas A	Columbia Gas Transmission Corp.	1	8,046.0	5,911.0	13,957.0	54.0	151.8
Artemas B	Columbia Gas Transmission Corp.	1	1,203.0	944.0	2,147.0	7.0	16.9

INVENTORY OF U.S. STORAGE OPERATIONS

State / Field	Owner / Operator	Reservoir Type	Base-Gas Requirement (MMcf)	Working Gas Capacity (MMcf)	Total Capacity (MMcf)	Total Injection (MMcf/d)	Maximum Deliverability (MMcf/d)
PENNSYLVANIA (cont.)							
Donegal	Columbia Gas Transmission Corp.	1	5,628.0	4,272.0	9,900.0	46.0	232.5
Heard	Columbia Gas Transmission Corp.	1	2,200.0	500.0	2,700.0	11.0	2.0
Holbrook	Columbia Gas Transmission Corp.	1	1,143.0	397.0	1,540.0	3.0	5.0
Majorsville Deep	Columbia Gas Transmission Corp.	1	8,163.0	5,060.0	13,223.0	47.0	40.0
Majorsville Shallow	Columbia Gas Transmission Corp.	1	2,383.0	600.0	2,983.0	10.0	14.0
Munderf	Columbia Gas Transmission Corp.	1	10.0	5.0	15.0	0.1	0.2
Buncula	Equitrans, Inc.	1	3,485.0	2,814.0	6,299.0	13.1	200.0
Finleyville	Equitrans, Inc.	1	331.0	285.0	616.0	1.3	42.0
Hunters Cave	Equitrans, Inc.	1	3,252.0	1,642.0	4,894.0	7.7	36.0
Moley	Equitrans, Inc.	1	3,041.0	4,151.0	7,192.0	19.4	70.0
Pratt	Equitrans, Inc.	1	4,717.0	2,254.0	6,971.0	10.5	40.0
Swarts	Equitrans, Inc.	1	492.0	470.0	962.0	2.2	28.0
Swarts West	Equitrans, Inc.	1	856.0	569.0	1,425.0	2.7	19.0
Tepe	Equitrans, Inc.	1	507.0	448.0	955.0	2.1	40.0
Belmouth	National Fuel Gas Supply Corp.	1	600.0	800.0	1,400.0	3.7	4.0
Boone Mountain	National Fuel Gas Supply Corp.	1	1,129.0	930.0	2,059.0	4.3	4.0
Corry	National Fuel Gas Supply Corp.	1	1,050.0	200.0	1,250.0	0.9	20.0
Deerlick	National Fuel Gas Supply Corp.	1	20.0	100.0	120.0	0.5	0.1
Duhring	National Fuel Gas Supply Corp.	1	290.0	105.0	395.0	0.5	1.0
East Branch	National Fuel Gas Supply Corp.	1	9,310.0	4,500.0	13,810.0	21.0	18.0
Galbraith	National Fuel Gas Supply Corp.	1	1,048.0	900.0	1,948.0	4.2	7.0
Hebron	National Fuel Gas Supply Corp. q/	1	702.0	2,550.0	3,252.0	11.9	25.0
Henderson	National Fuel Gas Supply Corp.	1	2,808.0	2,000.0	4,808.0	9.3	15.0
Keelor	National Fuel Gas Supply Corp.	1	1,550.0	1,330.0	2,880.0	6.2	20.0
Markle	National Fuel Gas Supply Corp.	1	180.0	850.0	1,030.0	4.0	6.0
Ow's Nest	National Fuel Gas Supply Corp.	1	2,110.0	650.0	2,760.0	3.0	1.0
Queen	National Fuel Gas Supply Corp.	1	645.0	300.0	945.0	1.4	2.0
St. Mary's	National Fuel Gas Supply Corp.	1	311.0	170.0	481.0	0.8	1.0
Summit	National Fuel Gas Supply Corp.	1	2,600.0	1,600.0	4,200.0	7.5	30.0
Swede Hill	National Fuel Gas Supply Corp.	1	800.0	300.0	1,100.0	1.4	5.0
Wellendorf	National Fuel Gas Supply Corp.	1	678.0	348.0	1,026.0	1.6	5.0
Wharton	National Fuel Gas Supply Corp.	1	10,650.0	11,647.0	22,297.0	36.7	260.0
Meeker	North Penn Gas Co.	1	1,500.0	3,000.0	4,500.0	14.0	25.0
Palmer	North Penn Gas Co.	1	6,000.0	10,000.0	16,000.0	46.7	80.0
Colwin	Peoples Natural Gas Co.	1	1,883.0	510.0	2,393.0	24.0	25.0
Gamble Hayden	Peoples Natural Gas Co.	1	1,727.0	1,122.0	2,849.0	7.0	20.0
Murrysville	Peoples Natural Gas Co.	1	1,716.0	1,530.0	3,246.0	18.0	35.0
Patton	Peoples Natural Gas Co.	1	85.0	63.0	148.0	0.3	8.2
Rager Mountain	Peoples Natural Gas Co.	1	11,193.0	9,300.0	20,493.0	63.0	110.0
Truittsburg	Peoples Natural Gas Co.	1	1,549.0	2,142.0	3,691.0	18.0	35.0
Webster	Peoples Natural Gas Co.	1	621.0	551.0	1,172.0	5.0	15.0
TOTAL PENNSYLVANIA			366,476.0	396,668.0	763,144.0	1,994.0	7,245.7

INVENTORY OF U.S. STORAGE OPERATIONS

State / Field	Owner / Operator	Reservoir Type	Base-Gas Requirement (MMcf)	Working Gas Capacity (MMcf)	Total Capacity (MMcf)	Total Injection (MMcf/d)	Maximum Deliverability (MMcf/d)
TEXAS							
Loop	American Gas Storage, LP	1	2,047.9	9,952.1	12,000.0	90.0	200.0
North Fethac	American Gas Storage, LP	1	745.6	5,254.4	6,000.0	150.0	140.0
Salado	American Gas Storage, LP	3	1,000.0	3,000.0	4,000.0	60.0	260.0
Stratton Ridge	Amoco Gas Company	3	1,080.0	1,770.0	2,850.0	80.0	250.0
Ambassador	Aquila Gas Pipeline	1	2,400.0	1,600.0	4,000.0	15.0	30.0
Pottsville	Aquila Gas Pipeline	1	3,000.0	5,750.0	8,750.0	26.9	35.0
Spindletop	Centana Intrastate Pipeline Co. /	3	1,818.9	5,200.0	7,018.9	130.0	600.0
Janelen	City of Brady, Texas	1	NA	NA	25.0	0.2	0.4
Pickton	Delhi Gas Pipeline Corp.	1	2,248.0	3,852.0	6,100.0	18.0	15.0
Stratton Ridge	Dow Chemical Company	3	5,900.0	7,300.0	13,200.0	80.0	380.0
West Rotherwood	Eastex Gas Storage	1	600.0	400.0	1,000.0	40.0	40.0
North Dayton	HNG Storage Company	3	1,500.0	3,300.0	4,800.0	250.0	500.0
Bammel	Houston Pipe Line Co.	1	65,500.0	52,200.0	117,700.0	300.0	1,239.0
Ambassador	Lone Star Gas Co.	1	660.0	1,620.0	2,280.0	9.2	40.0
Bethel	Lone Star Gas Co.	3	3,000.0	7,100.0	10,100.0	132.0	600.0
Hill	Lone Star Gas Co.	1	2,250.0	8,615.0	10,865.0	43.0	68.0
Lake Dallas	Lone Star Gas Co.	1	1,450.0	2,825.0	4,275.0	17.0	98.0
LaPan	Lone Star Gas Co.	1	1,070.0	3,425.0	4,495.0	40.0	120.0
Leeray	Lone Star Gas Co.	1	2,175.0	4,775.0	6,950.0	12.5	20.0
New York City	Lone Star Gas Co.	1	2,075.0	5,290.0	7,365.0	45.0	95.0
Pecan Station	Lone Star Gas Co.	1	900.0	1,310.0	2,210.0	7.5	38.0
Tri - Cities	Lone Star Gas Co.	1	9,950.0	25,353.0	35,303.0	154.0	325.0
Hilbig	Lower Colorado River Authority	1	1,069.0	4,931.0	6,000.0	66.0	100.0
North Lansing	Natural Gas Pipeline Co.	1	87,475.0	69,525.0	156,000.0	450.0	1,100.0
Clemens	Phillips Petroleum Co.	3	1,042.0	1,808.0	2,850.0	38.0	55.0
Lone Camp 600	Southwestern Gas Pipeline Co.	1	267.5	804.5	1,072.0	27.5	27.5
West Clear Lake	Tejas Gas Storage Co.	1	30,000.0	95,000.0	125,000.0	80.0	225.0
Moss Bluff	Tejas Power Corp.	3	1,718.0	5,575.0	7,293.0	150.0	900.0
Markham	Texas Brine Corp.	3	1,300.0	6,400.0	7,700.0	120.0	250.0
Bethel	Texas Utilities Fuel Co.	3	3,810.0	8,810.0	12,620.0	75.0	350.0
South Bryson	Texas Utilities Fuel Co.	1	2,100.0	5,500.0	7,600.0	100.0	125.0
Worsham Steed	Texas Utilities Fuel Co.	1	3,100.0	12,900.0	16,000.0	60.0	25.0
Wilson	Valero Energy Corp.	3	4,400.0	7,200.0	11,600.0	350.0	800.0
Katy	Western Gas Resources Storage	1	6,873.0	20,127.0	27,000.0	400.0	400.0
TOTAL TEXAS			254,524.9	397,472.0	651,996.9	3,616.8	9,450.9
UTAH							
Clay Basin	Questar Pipeline Co.	1	61,000.0	42,000.0	103,000.0	300.0	700.0
Chalk Creek	Questar Pipeline Co.	2	980.0	256.0	1,236.0	10.0	35.0
Coalville	Questar Pipeline Co.	2	2,100.0	692.0	2,792.0	15.0	75.0
TOTAL UTAH			64,080.0	42,948.0	107,028.0	325.0	810.0
WASHINGTON							
Jackson Prairie	Washington Natural Gas Co. k/	2	18,800.0	15,100.0	33,900.0	450.0	450.0
TOTAL WASHINGTON			18,800.0	15,100.0	33,900.0	450.0	450.0

INVENTORY OF U.S. STORAGE OPERATIONS

State / Field	Owner / Operator	Reservoir Type	Base-Gas Requirement (MMcf)	Working Gas Capacity (MMcf)	Total Capacity (MMcf)	Total Injection (MMcf/d)	Maximum Deliverability (MMcf/d)
WEST VIRGINIA							
Bridgeport	CNG Transmission Corp.	1	5,173.0	4,182.0	9,355.0	19.5	76.0
Fink - Kennedy - Lost Creek	CNG Transmission Corp.	1	84,320.0	61,590.0	145,910.0	287.8	900.0
Racket - Newburne	CNG Transmission Corp.	1	4,811.0	4,446.0	9,257.0	20.8	59.0
Terra Alta	Columbia Gas Transmission Corp.	1	30,527.0	9,936.0	40,163.0	68.0	162.2
Terra Alta South	Columbia Gas Transmission Corp.	1	13,222.0	3,378.0	16,600.0	14.0	69.2
Victory A	Columbia Gas Transmission Corp.	1	4,070.0	3,080.0	7,150.0	35.0	43.1
Victory B	Columbia Gas Transmission Corp.	1	14,463.0	9,537.0	24,000.0	92.0	134.8
Browns Creek	Columbia Gas Transmission Corp.	1	3,472.0	95.0	3,567.0	10.0	12.8
Cleveland	Columbia Gas Transmission Corp.	1	6,970.0	200.0	7,170.0	15.0	1.6
Coco A	Columbia Gas Transmission Corp.	1	26,221.0	18,279.0	44,500.0	166.0	217.8
Coco B	Columbia Gas Transmission Corp.	1	7,316.0	2,384.0	9,700.0	49.0	205.4
Coco C	Columbia Gas Transmission Corp.	1	11,012.0	6,258.0	17,270.0	75.0	146.9
Derricks Creek	Columbia Gas Transmission Corp.	1	4,412.0	1,788.0	6,200.0	26.0	24.7
Glady	Columbia Gas Transmission Corp.	1	19,867.0	10,133.0	30,000.0	70.0	303.5
Grapevine A	Columbia Gas Transmission Corp.	1	935.0	200.0	1,135.0	2.0	4.1
Grapevine B	Columbia Gas Transmission Corp.	1	18.0	8.0	26.0	0.1	0.2
Hunt	Columbia Gas Transmission Corp.	1	5,186.0	894.0	6,080.0	16.0	8.8
Lanham	Columbia Gas Transmission Corp.	1	3,211.0	1,589.0	4,800.0	19.0	27.4
Ripley	Columbia Gas Transmission Corp.	1	15,105.0	8,295.0	23,400.0	64.0	141.2
Rockport	Columbia Gas Transmission Corp.	1	5,378.0	2,782.0	8,160.0	39.0	139.5
Sissonville	Columbia Gas Transmission Corp.	1	648.0	200.0	848.0	7.0	7.1
Raleigh	Cranberry Pipeline Co.	1	600.0	1,000.0	1,600.0	7.0	20.0
X-1	Cranberry Pipeline Co.	1	200.0	2,750.0	2,950.0	40.0	40.0
Comet	Equitrans, Inc.	1	2,361.0	2,776.0	5,137.0	13.0	67.0
Hays	Equitrans, Inc.	1	87.0	93.0	180.0	0.4	8.0
Logansport	Equitrans, Inc.	1	758.0	2,504.0	3,262.0	11.7	38.0
Maple Lake	Equitrans, Inc.	1	1,391.0	738.0	2,129.0	3.4	8.0
Moblely	Equitrans, Inc.	1	1,624.0	3,486.0	5,110.0	16.3	43.0
Rhodes	Equitrans, Inc.	1	4,620.0	3,555.0	8,175.0	16.6	66.0
Shirley	Equitrans, Inc.	1	6,019.0	2,816.0	8,835.0	13.2	40.0
Skin Creek	Equitrans, Inc.	1	828.0	837.0	1,665.0	3.9	35.0
Augusta	Hampshire Gas Co.	1	4,428.0	1,180.0	5,608.0	5.5	24.0
Little Capon	Hampshire Gas Co.	1	4,965.0	1,316.0	6,281.0	6.1	26.0
TOTAL WEST VIRGINIA			294,218.0	172,005.0	466,223.0	1,232.3	3,100.3
WYOMING							
Bunker Hill	Northern Gas Co. of Wyoming	1	4,050.0	1,450.0	5,500.0	6.0	4.0
Kirk Ranch	Northern Gas Co. of Wyoming	1	1,440.0	580.0	2,020.0	3.0	2.0
Oil Springs	Northern Gas Co. of Wyoming	1	12,500.0	9,700.0	22,200.0	25.0	30.0
Leroy	Questar Pipeline Co.	2	5,500.0	836.0	6,336.0	20.0	65.0
Billy Creek	Williston Basin Interstate Pipeline Co.	1	2,401.3	542.2	2,943.5	4.5	5.0
Elk Basin	Williston Basin Interstate Pipeline Co.	1	34,825.7	28,379.4	63,205.1	50.0	112.0
TOTAL WYOMING			60,717.0	41,487.6	102,204.6	108.5	218.0
TOTAL UNITED STATES							
			4,286,959.9	3,500,997.8	7,787,957.7	29,816.1	70,337.8

Footnotes:

- a/ KNI applied for authority to abandon these facilities by transfer to affiliate KN Natural Gas.
- b/ Currently inactive.
- c/ Jointly owned by Southern Natural Gas and Tennessee Gas Pipeline.
- d/ 87.5% owned by MGS Storage Services, a wholly owned subsidiary of Mobile Gas Service Corp., and 12.5% owned by Olin Corp.
- e/ Subsidiary of Texaco.
- f/ Jointly owned by ANR Storage and MCN Corp. ANR Storage acts as operator.
- g/ Owned by Consumers Power Company.
- h/ Owned by Michigan Consolidated Gas.
- i/ Owned by Chevron.
- j/ Owned by Parhandle Eastern Pipe Line Co.
- k/ Equally owned by Washington Natural Gas, Washington Water Power, and Northwest Pipeline.
- l/ Determined by multiplying maximum injection rate by 214 days of injection.
- m/ CNG owns 39% and operates the facility, Tennessee Gas Pipeline owns 39%, and National Fuel Gas Supply owns 22%.
- n/ Equally owned by CNG Transmission and Tennessee Gas Pipeline.
- o/ CNG owns 50% and operates the facility, Texas Eastern Transmission and Transcontinental Gas Pipe Line each own 25%.
- p/ Equally owned by CNG Transmission and Texas Eastern Transmission.
- q/ Co-ownership between National Fuel Gas Supply and Tennessee Gas Pipeline.
- r/ Equally owned by Arlington Storage Corporation and ANR Storage Company.
- s/ Injection varies with inventory level. Figures provided by Williams are maximum sustainable tariff injection levels.

Reservoir Type

- 1: Depleted reservoir
- 2: Aquifer
- 3: Salt cavern
- 4: Converted coal cavern
- 5: Depleted oil field

Sources

Oil & Gas Journal (9/12/94) and information provided by the Texas Railroad Commission, the Michigan Public Service Commission, individual companies, industry trade press, Federal Energy Regulatory Commission (FERC) Orders and Form No. 2, and the American Gas Association Survey of Underground Gas Storage Facilities (1993).

INVENTORY OF CANADIAN UNDERGROUND STORAGE FACILITIES

Province	Field	Operator	Reservoir Type	Working Gas Capacity (MMcf)	Maximum Deliverability (MMcf/d)
BC	Aiken Creek	Unocal Canada	1	36,000.0	250.0
AB	Dunvegan	Anderson Exploration	1	12,000.0	35.0
AB	Suffield	Alberta Energy Company	1	70,000.0 a/	1,600.0 a/
AB	Carbon	Canadian Western Natural Gas	1	38,000.0	470.0
AB	Fort Saskatchewan	Northwestern Utilities	2	3,300.0	470.0
AB	Crossfield b/	Amoco	1	40,000.0	500.0
SA	All Fields	Transgas	2	39,000.0	570.0
ON	Tecumseh	Consumers Gas	1	79,000.0	1,300.0
ON	Dawn	Union Gas	1	122,000.0	1,742.0
QC	Pointe-du-Lac	Intragaz	1	600.0	42.0
TOTAL CANADA				439,900.0	6,979.0

a/ 1994 year-end capacity reported in AEC's Annual Report.
 b/ Jointly owned by Amoco (40%), TransCanada PipeLines (40%) and Alberta Natural Gas (20%).

Reservoir Type
 1: Depleted reservoir
 2: Salt cavern

Source: Natural Resources Canada, Natural Gas Storage: A Canadian Perspective (November 1994).

Schedule 3
SUMMARY OF PROPOSED GAS STORAGE PROJECTS, BY REGION

Region and Project Name	County, State	Developer / Owner	Type*	Maximum Capacity		
				Working (Bcf)	Withdrawal (MMcfd)	Injection (MMcfd)
MIDDLE ATLANTIC						
ca Phase 1	Steuben, NY	JMC / Equitrans / NGC / Union Gas	3	2.00	320	160
ca Phase 2	Steuben, NY	JMC / Equitrans / NGC / Union Gas	3	2.00	100	50
ca Phase 3	Steuben, NY	JMC / Equitrans / NGC / Union Gas	3	1.00	80	40
uta Phase 1	Schuyler, NY	JMC / Equitrans / NGC / Union Gas	3	2.00	320	160
uta Phase 2	Schuyler, NY	JMC / Equitrans / NGC / Union Gas	3	2.00	120	50
uta Phase 3	Schuyler, NY	JMC / Equitrans / NGC / Union Gas	3	1.00	60	40
ca Lake	Schuyler, NY	New York State Electric & Gas	3	0.80	80	20
nas Corners	Steuben, NY	Arlington Associates LP / ANR NE Gas Storage	1	5.30	70	33 a/
ins Glen	Schuyler, NY	New York State Electric & Gas / ANR Storage	3	2.00	200	NA
el Fields—Limestone	Cattaraugus, NY	Laurel Fields Storage / National Fuel Gas	1	7.00	77	51 a/
el Fields—Callen Run	Jefferson, PA	Laurel Fields Storage / National Fuel Gas	1	12.10	130	120 a/
-1 / Tioga	Tioga, PA	Market Hub Partners b/	3	10.00	500	125
rside	Greene & Fayette, PA	Equitrans / TETCO	1	3.10	28	28
TOTAL				50.30	2,085	877
EAST ATLANTIC						
ille	Smyth, VA	Tenneco Energy / Virginia Gas Co.	3	2.00	200	NA
MID NORTH CENTRAL						
son City	Williamson, IL	Central Illinois Public Service	1	0.50	10	7
khawk	Vigo, IN	Hamilton Natural Gas	2	5.28	44	38 a/
dal	Pike, IN	Har-ken	1	0.40	5	3
ds Lacs	St. Clair	CMS Energy / Market Hub Partners b/, d/	3	3.00	150	NA
aska 30	Kalkaska, MI	CMS Energy	1	17.00	200	150
3	Calhoun, MI	Panhandle Stor. / MG Ventures / Howard Energy	1	3.80	30	NA
gston Expansion	Livingston, MI	Panhandle Eastern Pipe Line	1	0.80	NA	NA
ington 10	Washington, MI	W-10 Holdings / ANR Washington 10 Co.	1	16.00	800	250
TOTAL				46.78	1,239	448
MID NORTH CENTRAL						
a Gas Storage Phase 1	Kiowa, KS	HNG / Williams Underground Gas Storage	3	1.40	125	100
a Gas Storage Phase 2	Kiowa, KS	HNG / Williams Underground Gas Storage	3	1.40	125	50
a Gas Storage Phase 3	Kiowa, KS	HNG / Williams Underground Gas Storage	3	1.40	125	50
a Gas Storage Phase 4	Kiowa, KS	HNG / Williams Underground Gas Storage	3	1.40	125	50
ville	Kiowa, KS	Enron Storage	3	5.00	500	250
ville—Waseca Expansion	Le Sueur, MN	Minnegasco	2	1.20	NA	NA
TOTAL				11.80	1,000	500
SOUTH CENTRAL						
bier	Muhlenberg, KY	Har-ken	3	0.90	6	4 a/
reek	Spencer, KY	Har-ken	1	6.50	50	33 a/
Hope	Nelson, KY	Har-ken	1	0.25	5	3 a/
St. Charles	Hopkins, KY	Har-ken	1	0.70	6	4 a/
arles	Hopkins, KY	Har-ken	1	14.75	120	80 a/
ence Phase 3	Covington, MS	Transcontinental Gas Pipe Line	3	2.90	NA	NA
sburg Phase 2	Forrest, MS	Crystal Oil	3	2.10	210	40
1 / Hazelhurst Phase 1	Copiah, MS	Market Hub Partners (b/) / TETCO (25%)	3	6.00	600	200
1 / Hazelhurst Phase 2	Copiah, MS	Market Hub Partners (b/) / TETCO (25%)	3	3.00	300	100
TOTAL				37.10	1,297	464

Schedule 3
SUMMARY OF PROPOSED GAS STORAGE PROJECTS, BY REGION

Region and Project Name	County, State	Developer / Owner	Type*	Maximum Capacity		
				Working (Bcf)	Withdrawal (MMcfd)	Injection (MMcfd)
WEST SOUTH CENTRAL						
Chacahoula	Lafourche, LA	Texas Brine Corporation	3	2.70	250	70
Chandeleur	Offshore, LA	Entre Energy	1	25.60	300	300
Cotton Plant	Caldwell, LA	Swift / NGC	1	16.00	450	173
HNG Sulphur Mines	Calcasieu, LA	HNG Storage Company	3	8.00	400	150
Jefferson Island	Iberia & Vermillion, LA	Equitable Resources	3	3.00	300	150
LA-1 Egan Phase 1	Acadia, LA	Market Hub Partners b/	3	4.00	400	150
LA-1 Egan Phase 2	Acadia, LA	Market Hub Partners b/	3	4.00	400	150
LA-1 Egan Phase 3	Acadia, LA	Market Hub Partners b/	3	4.00	400	150
Napoleonville Phase 2	Assumption, LA	Enron Storage	3	3.00	200	NA
Ouachita River	Union & Lincoln, LA	Ouachita River Partners / Leucadia Financial	1	27.00	550	250
Manchester	Grant, OK	Manchester Pipeline Corp.	1	15.00	250	100
Okfuskee	Okfuskee, OK	Unigas Corp.	1	30.00	600	200
Atkinson Gas Storage	Live Oak, TX	Kebo Oil / Atkinson Gas	1	28.00	400	300
Bethel	Anderson, TX	Bethel Gas Storage	3	3.70	500	300
Moss Bluff Phase 3	Liberty, TX	CMS Energy / Market Hub Partners b/	3	2.00	300	50
Nichols Station Plant	NA	Southwestern Public Service	3	3.00	300	150
Spindletop (Sabine-Cavern 1)	Jefferson, TX	Sabine Gas Transmission	3	3.50	600	240
Spindletop (Expansion)	Jefferson, TX	Centana / Panhandle Eastern	3	6.00	NA	NA
Stratton Ridge	Brazoria, TX	MG Storage	3	7.25	250	100
TOTAL				195.75	6,850	2,983
ROCKY MOUNTAIN						
Pataya Phase 1	Mohave, AZ	Golden Storage / Sphirx	3	6.00	250	120
Pataya Phase 2	Mohave, AZ	Golden Storage / Sphirx	3	6.00	250	120
Tranam Phase 1	Mohave, AZ	Tran Am Energy	3	11.00	1,000	NA
Tranam Phase 2	Mohave, AZ	Tran Am Energy	3	9.00	1,000	NA
Douglas Creek	Rio Blanco, CO	Williams Storage Company	1	10.00	200	250
Rush Creek	Weld, CO	Williams Storage Co. / Piceance Natural Gas	1	3.50	120	100
Young	Morgan, CO	Colorado Interstate Gas et al.	1	5.30	200	100
Baker Expansion	Fallon, MT	Williston Basin / MDU	1	NA	40	20
Clay Basin Expansion	Daggett, UT	Questar Pipeline	1	4.30	63	NA
Elk Basin Retrofit	Park, WY	Williston Basin / MDU	1	5.50	27	27
Southwest Wyoming	Uinta, UT	Questar Pipeline	3	5.00	500	300
TOTAL				65.60	3,650	1,037
PACIFIC SOUTHWEST						
Lodi	San Joaquin, CA	Northern California Gas Storage c/	1	12.00	500	250
Putah Sink	Sacramento, CA	Nahama & Weagant Energy	1	22.70	600	180
Ten Section	Kern, CA	McFarland Energy	1	25.00	500	NA
Wild Goose	Butte, CA	NA	1	12.00	600	200
TOTAL				71.70	2,200	630
PACIFIC NORTHWEST						
Jackson Prairie Phase 1	Lewis, WA	Northwest PL / WA Natural Gas / WA Water Power	2	5.00	40	20
Jackson Prairie Phase 2	Lewis, WA	Northwest PL / WA Natural Gas / WA Water Power	2	5.00	40	20
TOTAL				10.00	80	40
TOTAL U.S.				491.03	18,601	6,979

* Type: (1) depleted reservoir, (2) aquifer, (3) salt cavern.

a/ Estimated

b/ Partnership of Tejas Power, NIPSCO, New Jersey Resources, Miami Valley Leasing (Dayton Power & Light affiliate) and PSE&G.

c/ Partnership between HNG Storage and Sofregaz.

d/ St. Clair Pipelines and Enron Gas Services Corp. also have ownership interests.

Source: U.S. Department of Energy and Foster Associates, Inc.

Schedule 4

SUMMARY OF NEW CANADIAN STORAGE PROJECTS

<u>Company</u>	<u>Project Name</u>	<u>Province</u>	<u>Type*</u>	<u>Working Gas Added (Bcf)</u>	<u>Deliverability Added (MMcfd)</u>
Canadian Western Natural Gas	Carbon	AB	1	10.0	100
AECO C "I" Pool	Suffield	AB	1	15.0	200 a/
Amoco	Crossfield	AB	1	0.0	600
Union/Enron	Empress	AB	2	5.0	1,000
Anderson Exploration	Dunvegan	AB	1	NA	70
Altai Resources	Lac St. Pierre	QC	1	29.0	NA
Transgas	Melville	SA	2	2.7	0
	TOTAL			<u>61.7</u>	<u>1,970</u>

Type = depleted field (1) or salt cavern (2)

/ Adjusted to exclude expansion online at the end of 1994.

Source: Natural Resources Canada, Natural Gas Storage: A Canadian Perspective, November 1994

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail. The records should be kept in a secure and accessible location, and should be updated regularly.

2. The second part of the document outlines the various methods used to collect and analyze data. This includes the use of surveys, interviews, and focus groups. Each method has its own strengths and weaknesses, and it is important to choose the most appropriate one for the research objectives. The data should be analyzed carefully to identify any trends or patterns.

3. The third part of the document describes the results of the research. This includes a detailed analysis of the data and a discussion of the findings. The results should be presented in a clear and concise manner, and should be supported by appropriate evidence. The findings should be discussed in the context of the research objectives and the existing literature.

4. The final part of the document provides a conclusion and recommendations. This should summarize the key findings of the research and provide practical advice for future research and practice. The recommendations should be based on the findings and should be realistic and achievable.

Conclusion and Recommendations

Based on the findings of this study, it is recommended that...

Further research should be conducted to explore the relationship between...

Schedule 5
SUMMARY OF MAJOR NORTH AMERICAN MARKET HUBS **

Hub/Market Center	Operator/Owner	Interconnecting Pipelines	Services Offered					Daily Capacity (Bcf)	Storage Capacity (Bcf)
			Parking	Wheeling	Loaning	Title Transfer	Electronic Trading		
MIDDLE ATLANTIC									
CNG/Sabine Center	CNG Transmission/Sabine Pipe Line	CNG system, interconnects with TGT, ANR, Tennessee, TETCO, Appalachian points, Iroquois, NFGS, Transco, Canadian supplies @ Niagara	x	x		x		259.0	
Wilkesburg-Leidy, PA	Enerchange a/	CNG, Columbia Gas, NFGS, Tennessee, TETCO, Transco	x	x	x	x		>5.0 >5.0	
National Fuel, NY & PA	National Fuel Gas Supply	Proposed use of entire system, interconnects with Tennessee, TETCO, CNG, and Columbia	x	x					
New York, NY	Brooklyn Union	NY Facilities System (Brooklyn Union, ConEd, LILCO), links to Iroquois, Tennessee, TETCO, Transco & Algonquin; upstream to CNG				x			
EAST NORTH CENTRAL									
Chicago, IL	Enerchange a/	NIGAS system, interconnects with ANR, Midwestern, NGPL and Northern Natural	x	x	x	x		165.0	
Columbia Energy Market Center	Columbia Gas System	Columbia Gas, Columbia Gulf	x	x		x	x		
Grand Lacs/Marysville, MI	CMS Gas Trans. & Storage, Market Hub Partners c/, St.Clair Pipelines, (Union Gas), Enron Gas Services	Union Gas, GLGT, ANR, Trunkline, PEPL, MichCon, Southeastern MI Gas	x	x	x	x	x	5.0	
Canton, OH	East Ohio Gas	ANR, CNG, TETCO, TGT PEPL, Columbia Gas					x	3.0	
EAST NORTH CENTRAL									
Mid-Continent, KS	Western Resources	Western Resources system, interconnects with ANR, CIG, KNI, Mesa Operating, NGPL, Northern Natural, PEPL, Williams	x	x					
EAST SOUTH CENTRAL									
Mericiusko, MS		Koch Gateway, Southern, TETCO		x					
EAST SOUTH CENTRAL									
Walla Walla, TX & OK	KN Interstate	ANR, Delhi, El Paso, NGPL, NorAm, PEPL, Red River, Transok, TexCon/Transok, Transwestern, Westar, Williams	x	x		x	x	0.2	
Worth, TX	Union Pacific Fuels (East TX Gas Systems/EasTrans)	East TX Gas System/EasTrans header with connections to Delhi, Koch Gateway, Lone Star MidCon Sonat Venture, NorAm, Southern, Tejas Gas, Tennessee TETCO, TGT, Amoco, Crystal, Verado, TX Gas Gathering and Valero; separate interconnects with Gulf States, MRT, NGPL and Texoma		x		x	x	1.0	

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SUMMARY OF MAJOR NORTH AMERICAN MARKET HUBS **

Hub/Market Center	Operator/Owner	Interconnecting Pipelines	Services Offered					Daily Capacity (Bcf)	Storage Capacity (Bcf)
			Parking	Wheeling	Loaning	Title Transfer	Electronic Trading		
WEST SOUTH CENTRAL (continued)									
Gulf Coast Star Center, LA	Texaco b/	Bridgeline Gas, Sabine Pipe Line (see Henry Hub), ANR, TETCO, LA Gas Service, LA Intrastate Gas, Neches, Tejas Gas, Winnie PL, Houston PL, Channel Industries, FGT	x	x	x	x	x		
Henry (Erath), LA	Sabine Pipe Line	Koch Gateway, Southern, NGPL, TGT, Transco, Trunkline, Columbia Gulf, Dow Intrastate, Sabine, Acadian, LA Resources, Sea Robin, Texaco Gas Gathering		x		x		19.0	
Houston, TX	Eastex Energy	Koch Gateway, NGPL, Tennessee, Trunkline, with interconnects through Enercorp (Eastex) to Houston PL @ Bammel storage, MidCon TX, Tejas Gas, TETCO, Transco; connections to Valero; includes Rotherwood		x		x			
Katy, TX	Western Gas Resources	Tennessee, Transco, Trunkline, Koch Gateway, NGPL, Amoco, Dow-Tenngasco, Houston PL Lone Star, MidCon TX, Oasis, Tejas Gas, Exxon	x	x	x	x	x	0.8	17.0
Louisiana	LA Resources	LA Resources, interconnects with Acadian, ANR, Bridgeline, Columbia Gulf Cypress, Dow Intrastate, FGT, Sabine, Koch Gateway, LA Gas Service, Sea Robin, LA Intrastate Gas, NGPL Oxy, Southern, Stingray, Tennessee, TETCO, TGT, Transco, Trunkline	x	x		x			
Monroe, LA	Matrix	Koch Gateway, NorAm, TGT, TETCO, Tennessee, Southern, MRT, Trunkline, Columbia Gulf, ANR, BP Gas, Mid-LA Gas, LA Intrastate Gas, Delhi							
Moss Bluff, TX	Market Hub Partners c/	Channel Industries, Houston PL MidCon TX, NGPL, Tejas Gas, TETCO, Trunkline (proposed)		x		x	x		
Perryville, LA	NorAm Gas Transmission	MRT, NorAm, ANR, Columbia Gulf, Koch Gateway, Southern, TETCO, Tennessee, TGT, Trunkline	x	x	x	x	x	1.5	
South Texas	TransTexas	Channel, Houston PL, Koch Gateway, NGPL, Tejas Gas, Tennessee, Transco, Trunkline, Valero, with interconnects to FGT, TETCO		x		x		2.7	
Waha/Permian Basin, TX	Valero	El Paso, Northern Natural, Transwestern, NGPL, Lone Star, Delhi, Westar, Oasis	x	x	x	x	x	1.2	
Waha Inter-change, TX	Encina Transmission	Encina header with interconnects to Lone Star, Northern Natural, Transwestern, Valero/TUFCO, Westar/Meridian		x					
Waha Header, TX	Lone Star	Oasis PL header connects with Delhi, El Paso, Lone Star, Mobil, NGPL, Red River, Transwestern, TUFCO, Valero, Westar		x					
Waha/Midland, TX		American Oil & Gas, BP Gas, El Paso, Northern Natural, Oasis PL, Transwestern, Lone Star, Koch Gateway, NGPL, Seagull, Oasis PL, Delhi, Red River, Valero		x					

Schedule 5
SUMMARY OF MAJOR NORTH AMERICAN MARKET HUBS **

Hub/Market Center	Operator/Owner	Interconnecting Pipelines	Services Offered					Daily Capacity (Bcf)	Storage Capacity (Bcf)
			Parking	Wheeling	Loaning	Title Transfer	Electronic Trading		
ROCKY MOUNTAIN									
Blanco, NM	Transwestern	El Paso, Northwest, Transwestern, Gas Co of NM, Western Gas Supply							
Rocky Mountain Market Center/Opal, WY	Williams Energy	CIG, Kern River, Northwest				x	x	0.6	
Wamsutter, WY	Union Pacific	Williams, Union Pacific							
Western Market Center/Muddy Creek, WY	Tenneco, Questar, Entech (MT Power), Union Pacific	CIG, Kern River, Northwest, Overland Trail, Questar Altamont (proposed)	x	x	x	x	x	1.8	
PACIFIC									
California Energy Hub (Cal-Hub)/Southern CA Gas	Enerchange a/	SOCAL system inconnects with El Paso, El Paso, Kern River, Mojave, PG&E, Transwestern, Southwest Gas, SDG&E	x	x	x	x			112.0
Pacific Gas Trans.	Pacific Gas Trans./Pacific Gas & Elec.	Use of entire system as line pack-based hub	x		x				
CANADA									
AECO C Hub	Alberta Energy	NOVA, TransCanada	x	x	x	x		1.3	66.0
Intra-Alberta	NGX					x	x		
NOVA	NOVA					x	x		
Union Gas Service	Union Gas	Union Gas system interconnects with TransCanada, GLGT, PEPL, MichCon	x	x	x	x		300.0	12.0

NOTES: ** Other market centers include Niagara NY, Pittsburgh PA, Tuscola IL, Detroit MI, Guymon OK, Houston Ship Channel TX, Longview/Atlanta TX, and Topock AZ.
a/ Hub operations formerly administered by Hub Services, Inc. (HSI), an NGC affiliate. Enerchange, developed by affiliates of NGC, NICOR, Pacific Enterprises and National Fuel Gas, succeeds and expands services previously offered by HSI.
b/ The Gulf Coast Star Center utilizes all of Texaco's LA facilities, including 4 processing plants, Sorrento storage, and over 50 pipeline interconnects.
c/ Partnership of Tejas Power, NIPSCO, New Jersey Resources, Miami Valley Leasing (Dayton Power & Light affiliate) and PSE&G.

SOURCES: FERC, Office of Economic Policy, Importance of Market Centers, August 21, 1991
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