APPENDIX M
NATURAL RESOURCES AND ENERGY SUPPLY

There are two primary sources of energy consumption at an airport – stationary facilities and aircraft operations. Stationary facilities use electricity and natural gas to provide cooling, lighting, heat, and hot water to buildings, the airfield, and parking areas. Aircraft operations consume fuel energy (e.g., Jet A fuel, AVGAS, unleaded gasoline, and diesel fuel) to operate the aircraft and power the ground support equipment (GSE) that service the aircraft.[1] Airport development projects may impact the demand for energy by proposing the development of new buildings, runways, taxiways, or other on-airport facilities that could affect energy consumption.

In terms of natural resources, a construction project may require the acquisition of land or require the removal of dirt, rock, or gravel that could diminish or deplete a supply of natural resources such as oil, coal, minerals, or trees.

Airport improvement projects consume, produce, and/or conserve measurable amounts of energy and natural resources through either the operation of stationary facilities or through aircraft operations, and to some extent, during construction. A project's impact on the available supply of energy and natural resources is determined by evaluating projected supply and demand.

The FAA requires that the evaluation of natural resources and energy supply for project alternatives include enough detail to fully explain the projected demand for energy and natural resources, and state the measures that may be taken to minimize the impact. For most airport actions, changes in energy demands would not result in significant impacts. In addition, airport improvement projects do not usually increase the consumption of natural resources to the point that significant impacts would occur.[2]

This section and the information presented in Chapter Five, Natural Resources and Energy Supply, presents the assessment of the consumption of energy and natural resources for the Sponsor's Proposed Project and its alternatives. The purpose of the assessment was to determine whether there would be major changes in the demand for energy at the airport that would have the potential to exceed the local supply or if the project would require rare materials or potentially deplete the supply of natural resources in the area.

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1 Included with GSE are the other types of ground access vehicles, including, but not limited to, staff vehicles, shuttles, and maintenance vehicles.

2 FAA, Order 1050.1E, *Environmental Impacts: Policies and Procedures (including Change 1)*, Appendix A, Section 13, *Natural Resources and Energy Supply*, March 20, 2006.

M.1 METHODOLOGY

The energy requirements for future years were projected by calculating the 2006 ratio of the annual throughput of each energy type to the direct operational parameter(s) that affects the power demand, such as annual enplanements or annual operations or terminal area. The ratios were then applied to the 2012 and 2018 operations and passenger data to determine power requirements for each alternative. For each project alternative other than Alternative A, the energy demand was adjusted based on the requirements for the proposed airfield lighting and terminal expansion, depending on the various proposed airfield configurations.

M.1.1 STATIONARY FACILITIES

At CMH, electric and natural gas energy (i.e., utility power) is primarily consumed by stationary facilities such as the terminal building, and to a lesser degree by the lighting for the airfield and parking areas. The requirement for electrical energy far surpasses the need for natural gas power, which is used primarily to heat the terminal and to generate hot water for use in the terminal kitchens, restrooms, and maintenance areas. The airport's demand for electric and natural gas energy for stationary facilities includes:

- Electricity for cooling the four large terminal buildings;
- Electricity to power the lights, signage, and other electrical devices in and around the terminal, and parking facilities;
- Electricity to light the three runways, associated taxiways, and apron areas; all of which require edge lights along with centerline lights on the runways, and navigational aids;
- Electricity to operate the runway approach lighting systems and runway end identifier lights; and
- Natural gas power for heating and hot water used in the terminal buildings.

The total annual use of electric and natural gas energy under existing conditions was provided by the airport and was converted to Millions of British Thermal Units (MMBTUs) for ease in comparing the current levels to future levels evaluated under the project alternatives. The energy usage under the Existing (2006) Baseline is summarized in **Table M.1***, Annual Utility Power and Fuel Demand – 2006 Existing Baseline.*

Table M-1
ANNUAL UTILITY POWER AND FUEL DEMAND – 2006 EXISTING CONDITIONS
Port Columbus International Airport

	Energy Type					
	UTILITY energy		FUEL energy			
	Electricity	Natural Gas	Jet A Fuel	AvGas	Diesel	Gasoline
Annual	116,425 MMBTU	38,474 MMBTU	61,248,061 gallons	857,616 gallons	206,822 gallons	1,714,959 gallons
Monthly Average	9,702 MMBTU	3,206 MMBTU	5,104,005 gallons	71,468 gallons	17,235 gallons	142,913 gallons

Note: AvGas is low-lead aviation gasoline for general aviation aircraft.
MMBTU is million BTU (British thermal unit). One BTU of heat is equal to 1/180 of the heat required to raise the temperature of one pound of water from 32 degrees Fahrenheit to 212 degrees Fahrenheit at a constant pressure of one atmosphere.

Source: Comprehensive Program Analysis, Burns & McDonald, 2005; CRAA, 2007, Landrum & Brown Analysis, 2007.

Electricity: The increased electrical energy required to operate the terminal and parking facilities was based upon projected annual enplanements for 2012 and 2018[3]. The increased electric energy required to light the airfield under the proposed alternatives was projected based upon typical electricity consumption of airfield lighting equipment, per area to be lighted, per the number of nighttime hours at CMH (one hour before sunset until one hour following sunrise) and the average annual hours where low clouds and limited visibility would require use of the airfield lights.[4] The analysis used the following equations and assumptions:

- 1 kWh = 3,412 BTU;
- New taxiways would be 75 feet wide;
- Annual hours of lighting would be 4,755;
- Taxiways would use 24, 30-Watt bulbs per 300 feet of pavement; and
- Apron edge lighting would use 11, 30-Watt bulbs per 300 feet of pavement.

The electrical energy demand for the project alternatives was further modified to reflect requirements for Phase 1 of the proposed terminal and parking garage expansion, anticipated to be completed by 2018. The energy demands of the expanded terminal and parking garage was based upon the requirements to operate a 649,200 square foot terminal and a 632,321 square foot parking garage, the size of each structure expected to be operational by 2018. **Table M-2**, *Summary of*

[3] Information on projected enplanements for 2012 and 2018 is included in Appendix C, Aviation Activity *Forecast*.
[4] Low clouds and obscured visibility in this analysis was assumed to reflect weather conditions defined under instrument flight rules (IFR).

Actual and Projected Annual Utility Power and Fuel Demand, shows the projected electricity usage for each project alternative.

Natural Gas: Natural gas demand was increased from existing levels to the 2012 and 2018 based upon the expected square footage of the terminal to reflect heating requirements. Natural gas demand is expected to increase from 2006 to 2012 due to the reconfiguration of the terminal facilities that was completed in April 2007 to accommodate SkyBus and other ongoing projects at CMH. Table M-2, *Summary of Actual and Projected Annual Utility Power and Fuel Demand*, shows the projected natural gas usage for each project alternative.

M.1.2 AIRCRAFT OPERATIONS

The consumption of aviation fuel, JET A and AVGAS, is dependent upon the number of aircraft operating at CMH. The projected demand for aviation fuel included consideration of the average aircraft taxi time and average departure queue delay time, which is different under each of the project alternatives. The change in taxi and queue delay time can either increase or decrease the demand for both JET A and AVGAS fuel as compared to the baseline no-action requirements of the same future year. The demand for gasoline and diesel fuel, used primarily by GSE, is also dependent on the number of annual operations and the type of aircraft that are being serviced at the airport. The airport's demand for fuel energy for aircraft operations includes:

- JET A fuel for jet and turboprop aircraft;
- AVGAS for piston-engine aircraft;
- Diesel fuel for GSE and ground access vehicles; and
- Gasoline fuel for GSE, rental cars, and ground access vehicles.

The total annual use of fuel energy under existing conditions, includes fuel used for aircraft operations as well as GSE, ground access vehicles, and rental car refueling. was obtained by determining the annual fuel throughput for each fuel tank by type at CMH (see Table M.1).

The composition of the aircraft fleet at CMH in 2012 and 2018 would remain essentially the same as under 2006 Existing Conditions – 69 to 76 percent of the aircraft would use JET A fuel and 24 to 31 percent [5]of the aircraft would be powered by AVGAS. Therefore, the ratio of annual aircraft operations to annual fuel throughput under the Existing (2006) Baseline was applied to the number of annual operations projected for 2012 and 2018 to determine the fuel usage for the 2012 and 2018 No Action alternatives. Under each project alternative for 2012 and 2018, the fuel demand may increase or decrease depending on the difference in the combined average aircraft taxi and departure queue delay times, which were applied to the 2012 and 2018 baseline data to determine the total annual fuel requirements under all the project alternatives. The future analysis of fuel demand

[5] Numbers based upon the average annual day operations for the Existing (2006) Baseline and projected average annual day operations for 2012 and 2018. It was assumed that commercial aircraft would be fueled with JetA and that general aviation aircraft would be fueled with AvGas.

included the assumption that jet and turboprop engine aircraft accounted for the use of JET A fuel at the airport, and general aviation piston-engine aircraft accounted for the total annual throughput of AVGAS. Therefore, the demand for JET A and AVGAS was assumed to increase with the increase in annual aircraft operations.

A similar methodology was used to calculate the changes in demand for gasoline and diesel fuel, assuming that GSE and rental cars were responsible for the majority of the annual gasoline and diesel fuel demand. The demand for gasoline and diesel fuel would change in aircraft operations at CMH. The analysis included the assumption that the composition of the aircraft fleet at CMH would remain essentially the same through 2018 as was given for the Existing (2006) Baseline. Therefore, to project the annual throughput of gasoline and diesel fuel, a ratio was calculated relating the annual number of operations for the Existing (2006) Baseline to the annual gasoline and diesel fuel throughput during the baseline period. The ratio was applied to the total annual operations in 2012 and 2018. The analysis included the assumption that the proposed changes to the airfield would not substantially affect the demand for the use of GSE, and therefore would not cause a change in the requirement for gasoline and diesel fuel otherwise required for an alternative.

The project alternatives include features that increase, and sometimes decrease, the total fuel demand at the airport as compared to the no-action baseline conditions of the same future year. The proposed changes to the airfield configuration under each project alternative are projected to affect the combined average aircraft taxi time and the average departure queue delay. Aircraft operate at lower power settings during taxi and in the queue and it is during these times that fuel consumption is relatively high per minute of operation as the engines run less efficiently than when operated at the higher power settings. Consequently, an increase, or decrease, in either taxi time or queue time under a project alternative would change the total annual fuel demand as compared to the future no-action baseline alternative. The change in fuel use because of the change in the average aircraft taxi and queue time was based upon the annual emissions output generated by Emissions and Dispersion Modeling System (EDMS). The projected fuel consumption for each project alternative is shown in Table M-2.

Table M-2
SUMMARY OF ACTUAL AND PROJECTED ANNUAL UTILITY POWER AND FUEL DEMAND
Port Columbus International Airport

	Energy Type					
	UTILITY energy		FUEL energy			
	Electricity (in MMBTUs)	Natural Gas (in MMBTUs	Jet A Fuel (in gallons)	AvGas (in gallons)	Diesel (in gallons)	Gasoline (in Gallons)
2006 Baseline	116,425	38,474	61,248,061	857,616	206,822	1,714,959
2012 No Action	145,326	38,885	75,324,811	1,054,202	254,172	2,107,584
2012 C2a	145,802	38,885	75,400,637	1,054,538	254,172	2,107,584
2012 C2b	145,802	38,885	75,429,728	1,054,666	254,172	2,107,584
2012 C3a	145,788	38,885	75,381,581	1,054,453	254,172	2,107,584
2012 C3b	145,788	38,885	75,409,448	1,054,577	254,172	2,107,584
2018 No Action	171,916	38,885	84,682,607	1,184,558	285,575	2,367,979
2018 C2a	272,851	67,284	84,832,729	1,185,064	285,575	2,367,979
2018 C2b	272,851	67,284	84,849,560	1,185,121	285,575	2,367,979
2018 C3a	272,838	67,284	84,802,071	1,184,961	285,575	2,367,979
2018 C3b	272,838	67,284	84,819,270	1,185,019	285,575	2,367,979

Notes:

* AvGas is low-lead aviation gasoline for general aviation aircraft.

MMBTU is million BTU. One BTU of heat is equal to 1/180 of the heat required to raise the temperature of one pound of water from 32 degrees Fahrenheit to 212 degrees Fahrenheit at a constant pressure of one atmosphere.

Source: Comprehensive Program Analysis, Burns & McDonald, 2005; CRAA, 2007, Landrum & Brown Analysis, 2007.

M.3 NATURAL RESOURCES

Due to the urbanization of the airport environs, natural cover and concentrations of natural resources are relatively non-existent at and around CMH. The typical resources used in the construction of airport improvements consist of cement, concrete, steel, wood, glass, plastics, earthen fill, rock/gravel, and water. All of these resources are readily available within the region and none are in short supply. Many of the building materials (e.g., lumber, sheetrock, glass, roofing materials, piping, etc.) are developed from raw materials and shipped from other locations to the construction site. It is anticipated that construction of the airfield and terminal improvements proposed at CMH would not have a detrimental effect on the supply or availability of natural or man-made materials in the region.

M.4 CONCLUSION

The inventory of existing stationary facilities and aircraft operations at CMH did not identify any unusual energy uses that would indicate that the power companies or fuel suppliers would have difficulty providing adequate capacity to meet the demand of airport facilities, or that any natural resources that would be used during construction were in short supply.

The electricity and natural gas providers have been contacted to determine the capability to meet these future projected energy demands under these proposed alternatives. These utilities indicated that they had the facilities to provide this increase in energy demand. Engineering assessments and cost-benefit analyses may be required before the increase in energy demand can be met. Copies of coordination letters are provided in the following section.

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U.S. Department
of Transportation
**Federal Aviation
Administration**

Detroit Airports District Office
Metro Airport Center
11677 South Wayne Road, Ste. 107
Romulus, MI 48174

September 26, 2007

Anthony Greve
AEP Ohio
850 Tech Center Drive
Gahanna, OH 43230

Re: Port Columbus International Airport
Environmental Impact Statement

Dear Mr. Greve:

The Federal Aviation Administration (FAA) is preparing an Environmental Impact Statement (EIS) to review the potential impacts from proposed capital improvements for the Port Columbus International Airport (CMH). The Columbus Regional Airport Authority (CRAA) proposes to replace Runway 10R/28L with a new runway of approximately the same length. The new runway is proposed to be relocated south of the existing Runway 10R/28L to allow for passenger terminal expansion that will accommodate future aviation demand at the airport.

The FAA has contracted with Landrum & Brown, Inc., an aviation planning firm, to conduct the study for the FAA. Landrum & Brown has assembled a team of firms that have expertise in various environmental areas. In support of the EIS, Landrum & Brown and their team members are required to collect a large amount of data from various agencies, local jurisdictions, and other groups that have a special interest in the airport or the area around the airport. The information they collect will be incorporated into the EIS analysis as necessary. Your assistance in providing any information you have available is greatly appreciated and will result in a more comprehensive study of the potential effects of the proposed projects at CMH.

Implementation of the project would affect the demand for electric power, which would require the FAA to include in the EIS an evaluation of the potential increased demand for electrical energy due to the Airport Sponsor's Proposed Project and the project alternatives.

The expected increase in the demand for electric power would include energy required to light and cool the proposed passenger terminal spaces and light the proposed airfield. The FAA estimates that the demand from any of the project alternatives would not be greater than 150,000 MMBTUs of electric

power per year in 2012 and 280,000 MMBTUs of electric power per year in 2018 based on the size of the proposed buildings and the extent of the airfield modifications. The 2006 baseline year usage was approximately 116,425 MMBTUs of electric power per year, a value based on an energy efficiency audit conducted by the Columbus Regional Airport Authority.

Pursuant to FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, the FAA is required to contact the airport's energy suppliers to determine if projected demands can be met by the power company's existing or planned facilities. We would appreciate your determination with regard to the ability of AEP Ohio to meet the projected additional energy demand at CMH by October 15, 2007.

Please provide this information to:

Chris Sandfoss
Landrum & Brown, Inc.
11279 Cornell Park Drive
Cincinnati, Ohio 45242

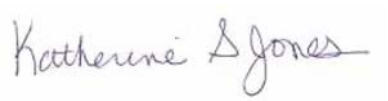
Phone: (513) 530-1256

Fax: (513) 530-1278

Email: csandfoss@landrum-brown.com

The FAA and the CRAA appreciate your assistance in this process. If you have any questions or comments regarding the EIS or the request for information, please contact me at (734) 229-2958 or by email at CMH-EIS@FAA.gov:

Sincerely,



Katherine S. Jones
Community Planner

AEP
OHIO®
A unit of American Electric Power

AEP Ohio
850 Tech Center Drive
Gahanna, OH 43230
AEPOhio.com

Mr. Chris Sandfoss
Landrum & Brown, Inc.
11279 Cornell Park Drive
Cincinnati, OH 45242

October 3, 2007

Re: Port Columbus International Airport

Dear Mr. Sandfoss:

This letter is in response to the Katherine S. Jones' letter dated September 26, 2007 regarding the expected increase in electric power for Port Columbus International Airport.

A cursory review of the area around Port Columbus shows that American Electric Power does have facilities in the area that can be made available to serve the proposed load increases. Service details would have to be worked out once the load centers are known.

If you should have any questions regarding the above project, please feel free to contact me at (614) 883-7941.

Sincerely,

Anthony J. Greve
Customer Services Engineer

U.S. Department
of Transportation
**Federal Aviation
Administration**

Detroit Airports District Office
Metro Airport Center
11677 South Wayne Road, Ste. 107
Romulus, MI 48174

September 26, 2007

Anthony Greve
AEP Ohio
850 Tech Center Drive
Gahanna, OH 43230

**Re: Port Columbus International Airport
Environmental Impact Statement**

Dear Mr. Greve:

The Federal Aviation Administration (FAA) is preparing an Environmental Impact Statement (EIS) to review the potential impacts from proposed capital improvements for the Port Columbus International Airport (CMH). The Columbus Regional Airport Authority (CRAA) proposes to replace Runway 10R/28L with a new runway of approximately the same length. The new runway is proposed to be relocated south of the existing Runway 10R/28L to allow for passenger terminal expansion that will accommodate future aviation demand at the airport.

The FAA has contracted with Landrum & Brown, Inc., an aviation planning firm, to conduct the study for the FAA. Landrum & Brown has assembled a team of firms that have expertise in various environmental areas. In support of the EIS, Landrum & Brown and their team members are required to collect a large amount of data from various agencies, local jurisdictions, and other groups that have a special interest in the airport or the area around the airport. The information they collect will be incorporated into the EIS analysis as necessary. Your assistance in providing any information you have available is greatly appreciated and will result in a more comprehensive study of the potential effects of the proposed projects at CMH.

Implementation of the project would affect the demand for electric power, which would require the FAA to include in the EIS an evaluation of the potential increased demand for electrical energy due to the Airport Sponsor's Proposed Project and the project alternatives.

The expected increase in the demand for electric power would include energy required to light and cool the proposed passenger terminal spaces and light the proposed airfield. The FAA estimates that the demand from any of the project alternatives would not be greater than 150,000 MMBTUs of electric power per year in 2012 and 280,000 MMBTUs of electric power per year in 2018 based on the size of the proposed buildings and the extent of the airfield modifications. The 2006

baseline year usage was approximately 116,425 MMBTUs of electric power per year, a value based on an energy efficiency audit conducted by the Columbus Regional Airport Authority.

Pursuant to FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, the FAA is required to contact the airport's energy suppliers to determine if projected demands can be met by the power company's existing or planned facilities. We would appreciate your determination with regard to the ability of AEP Ohio to meet the projected additional energy demand at CMH by October 15, 2007.

Please provide this information to:

Chris Sandfoss
Landrum & Brown, Inc.
11279 Cornell Park Drive
Cincinnati, Ohio 45242

Phone: (513) 530-1256

Fax: (513) 530-1278

Email: csandfoss@landrum-brown.com

The FAA and the CRAA appreciate your assistance in this process. If you have any questions or comments regarding the EIS or the request for information, please contact me at (734) 229-2958 or by email at CMH-EIS@FAA.gov:

Sincerely,

Katherine S. Jones

Katherine S. Jones
Community Planner

Columbia Gas of Ohio
A NiSource Company
New Business Team
200 Civic Center Dr.
Columbus, OH 43215

October 2, 2007

Chris Sandfoss
Landrum & Brown, Inc.
11279 Cornell Park Dr.
Cincinnati, OH 45242

Re: Port Columbus International Airport – Environmental Impact

Thank you for wanting to choose Columbia Gas of Ohio, Inc. (COH), a NiSource Company, to serve your natural gas needs for your new proposed project. This letter is to confirm COH does have adequate facilities available to serve the load addition to Port Columbus. Although COH facilities may be in the vicinity of your proposed property, a cost analysis will need to be run by our engineering department. I have enclosed one of our "Information Request Packets". Once Attachment A of the Information Request Packet has been answered and returned and all other requested information is released to the COH New Business Team, gas availability and any capacity issues will be determined; as well as any deposit and/or Aid-To-Construction costs that may be required.

Please note that availability is contingent upon a cost benefit analysis. If the project is not deemed economically feasible for Columbia Gas, a deposit may be necessary

If you have any questions regarding availability, or how it is determined, please feel free to contact me at 800-440-6111 ext 3041 Monday-Friday, 8:00am to 4:00pm. Columbia Gas and I look forward to partnering with you on this and future projects.

Sincerely,

Jody

Columbia Gas of Ohio a Nisource Company
Jody Beaver
New Business Rep

Columbia Gas of Ohio
A NiSource Company

October 2, 2007

Chris Sandfoss
Landrum & Brown, Inc.
11279 Cornell Park Dr.
Cincinnati, OH 45242

Re: Port Columbus

We appreciate this opportunity to provide natural gas for your commercial project. We are committed to providing the economic parameters and conditions for this request in a timely manner. We will process your request upon receipt of the following information. *Please note that we are unable to submit the project for an engineering review and approval until all the information has been received.*

1. Scaled site utility plan with preferred meter location identified, if this is a new structure. The plan should include a site location area map that clearly identifies the facility in relation to the surrounding streets. Scaled plans are utilized to determine customer service line length (main to meter).

   Note: Please provide Auto Cad files in DWG format via the email address listed below. A complete set of paper drawings is also required and should be mailed to 200 Civic Center Dr, Columbus, Ohio 43215, Attn: Jody Beaver. The design and construction dictate the necessity for both plan formats.

2. Please complete attachment A that requests the following information:
   - List of gas equipment, including the BTU/hr breakdown for each piece of natural gas equipment to be installed. The installation of process boilers may require additional information.
   - If multiple meters are needed the load and equipment information should be broken down by meter.
   - Required delivery pressure.
   - Building/addition square footage.
   - Construction start date and gas needed date.
   - Name, mailing address, email address, and telephone number for the contact person on this project.

The design and cost analysis for your project may take approximately 10 days to complete; however, this timeframe may vary depending upon the complexity of the project. Tap and meter scheduling will be communicated to you at a later date. We have also included additional information that details other general service guidelines. Please read it carefully and contact me if you have any questions. Please provide us adequate lead-time to process your new service request. We are committed to providing you with safe, reliable and efficient service and we look forward to working with you.

Sincerely,

Jody Beaver
200 Civic Center Dr, Columbus, OH 43216
jbeaver@nisource.com 1-800-440-6111 x 3041
Fax: 614-460-5466

Attachment A (Jody Beaver)

Project Name _____

Project Service Address & City: _____

_____

Customer Service Line Size & Length: _____

Building/Addition square footage _____ Number of meters required _____

Required Delivery Pressure: 7" wc 2 PSI 5 PSI Other _____

3. Construction start date _____Gas needed date_____.

4. Project contact information:

Name: _____

Address:_____

_____

E-Mail: _____

Phone/Cell/Fax :_____

Gas Equipment	**# of Units**	**Connected BTU/hr**	**Total BTU/hr**
Space Heat Equipment:			
Example: Rooftop Units	*4*	*100,000*	*400,000*
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Water Heat:			
_____	_____	_____	_____
_____	_____	_____	_____
Other Equipment:			
Example: Heat Treat Oven	*1*	*5,000,000*	*5,000,000*
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Boilers:			
_____	_____	_____	_____
		Total Load	_____

Attachment B

General Information:

Delivery Pressure

Columbia's standard delivery pressure is 7" water column (7" wc) at the inlet of the meter. All internal pipe sizing and equipment specification should be based on this. Any delivery pressure request other than 7" wc may not be possible, may result in delays in the design process and have economic ramifications. Therefore, do not size house lines for pressure above 7" wc until you hear back from us.

House line sizing is the responsibility of the customers. Please refer to the National Fuel and Gas Code requirements.

Customer Service Line & Metering

It is the customer's responsibility to size and install the customer service line. This line runs from property line to the meter location. Please visit our website at www.columbiagasohio.com for links to Gas Pipeline Installation Standards information.

Customer is responsible for building the meter set. Meter set drawings are also located on our website. We will make every attempt to accommodate your meter location preference, however we reserve the right to determine the final meter location.

Meter location should be in a straight line of sight from meter location to mainline and not placed where it is subject to damage (e.g. driveways, parking lots, etc). Other protection may also be required.

No indoor locations will be approved.

Manifold meters - a maximum of 8 meters per regulator.

Note: customer also is responsible for extending customer service line to mainline under *private* roads.

Company service line (tap) procedures and meter set guidelines will be addressed upon project approval.

Boilers

If boilers are being installed, please provide specific information about whether they are lead, lag or redundant boilers and if they are direct-fired or modulating.

System Capacity

Please be aware that a project's gas demand or impact on a gas system can affect the timeline for design and approval. The added demand can also create the need for overall system improvement, which can impact project cost. We are committed to notifying you immediately upon determination of this circumstance.

Permits/Easements

Right-of-way: Columbia Gas may need to obtain right-of-way to serve projects located in private streets or property. The design and approval of your project can be processed more quickly and for less cost by providing Columbia Gas right-of-way at the project's design stage. The design stage includes dedication of easements or right of way on plats, which will go to record. We will provide details concerning easement language and details upon request.