

**BEFORE THE
UNITED STATES DEPARTMENT OF COMMERCE
OFFICE OF POLICY AND STRATEGIC PLANNING
WASHINGTON, D.C.**

Construction of Pipelines Using Domestic
Steel and Iron: Request for Comments



Docket No. 170309252-7252-01

**COMMENTS OF
AMERICAN GAS ASSOCIATION
AMERICAN PETROLEUM INSTITUTE
ASSOCIATION OF OIL PIPE LINES
GPA MIDSTREAM ASSOCIATION
INTERSTATE NATURAL GAS ASSOCIATION OF AMERICA**

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Executive Summary

The American Gas Association (AGA), the Association of Oil Pipe Lines (AOPL), the American Petroleum Institute (API), the Interstate Natural Gas Association of America (INGAA) and GPA Midstream Association (GPA) jointly submit these comments in response to the Department of Commerce (“Commerce”) Notice and Request for Comments entitled, “Construction of Pipelines Using Domestic Steel and Iron” (“Notice”).¹ The trade associations (“Associations”) filing these comments represent the vast majority of pipeline operators engaged in transporting natural gas, natural gas liquids, crude oil, refined petroleum products, and carbon dioxide. The Associations appreciate the opportunity to provide information and comment as Commerce develops the plan directed by the Presidential Memorandum on Construction of American Pipelines.²

Growth in domestic natural gas and oil production fuels America’s economy, and pipelines are the critical link that brings these domestic energy resources to market. In addition to the hundreds of thousands of jobs supported by the energy production and pipeline sector, domestic energy abundance has driven a resurgence of our manufacturing sector and the broader U.S. economy. The energy delivered by America’s pipelines powers domestic industry and serves as the feedstock used in a variety of manufacturing processes, from petrochemicals (paints, plastics, makeup) to fertilizer. In connection with the Presidential Memorandum, it is noteworthy that steel mills use natural gas delivered via pipeline to melt and form steel.

In 2014, 500,000 miles of liquid and natural gas transmission pipelines lines transported 16.2 billion barrels of crude oil and petroleum products and 27.3 trillion cubic feet of natural gas at a safety rate of 99.99 percent. Local distribution companies delivered natural gas through over 2 million miles of pipelines, and gathering system operators collected crude oil and natural gas through over 300,000 miles of pipelines. As part of the Trump administration’s broader energy policy and infrastructure plan, new and existing pipelines will play a critical role in connecting growing production and consumer demand.

The Associations support President Trump’s objective to grow domestic jobs and boost the U.S. economy by reinvigorating American manufacturing. Members of the Associations already employ a large American workforce to design, construct, operate and maintain their privately owned and financed pipelines and associated facilities. A single major pipeline project can bring thousands of American jobs in construction, manufacturing and supporting sectors, along with hundreds of millions of dollars in U.S. worker payroll. As a result of current hiring practices for labor and current sourcing practices for materials and equipment, approximately *70 percent* of spending for today’s oil and gas pipeline projects ends up in the pockets of American workers and business owners. Furthermore, distribution and gathering pipeline projects have taken advantage of advances in polymer piping; the vast majority of polymer piping, and the raw material used to manufacture polymer piping, is manufactured in the U.S.

¹ Construction of Pipelines Using Domestic Steel and Iron, 82 Fed. Reg. 13,973 (March 16, 2017).

² Presidential Memorandum Regarding Construction of American Pipelines, <https://www.whitehouse.gov/the-press-office/2017/01/24/presidential-memorandum-regarding-construction-american-pipelines> .

However, a number of hurdles unique to pipeline-grade steel and pipe manufacturing must be overcome to expand domestic pipeline production and manufacturing. If these hurdles are not overcome, government action to increase domestic steel and pipe production could have the unintended result of reducing or significantly delaying new pipeline projects and limiting U.S. pipeline job growth. Fewer new pipeline projects would run counter to the Trump administration's goal of expanding U.S. energy production and infrastructure to support the economy, job growth, and national security. The plan to be developed by Commerce should recognize that global sourcing of steel is currently essential for the continued growth of America's energy pipeline infrastructure and the U.S. economy overall. The Associations believe that these comments will assist Commerce in identifying and addressing these hurdles.

An advantage of trade is that it allows economies to specialize in areas where they have a competitive advantage. The specialized steel, pipe, and equipment required to construct and maintain pipelines necessitates tight controls on chemical composition, mechanical properties and quality. Manufacturing facilities need advanced equipment and state-of-the-art processes to achieve this result. Current domestic capacity to produce certain materials and equipment used to construct, operate, and maintain energy pipelines is limited. For example, one commonly used line pipe material is grade X70 steel, which is not currently produced in any quantities above 0.750-inch thickness at U.S. steel mills; heavier thicknesses are necessary for certain pipelines. Similarly, domestic equipment manufacturers are currently unable to meet the Memorandum's definition of "produced in the United States" for many pieces of equipment.

Domestic steel and pipeline manufacturing industries would need time to boost their capability to meet the unique demand and support the continued growth of America's energy pipeline infrastructure. The companies that currently supply the U.S. pipeline industry have spent considerable time and resources perfecting their processes. New entrants would need to consider these costs relative to the size of the niche market for pipeline materials and equipment.

Consequently, the Associations are concerned that domestic sourcing requirements could undermine the ability to achieve the positive economic impacts, including job growth, associated with pipeline manufacturing and construction. Additionally, domestic sourcing requirements have the potential to adversely affect maintenance activities and reliability of existing pipelines.

It is important to understand that pipeline companies, like other manufacturers, value shorter supply chains over longer ones. If it were possible to source all materials and equipment within the borders of the U.S. at a competitive cost, policy intervention would not be necessary because the market would favor domestic content over imported content. Domestic sourcing requirements, which are a *demand-side* approach, do not currently exist for any infrastructure projects funded with private capital. A better approach is to focus on any regulatory, tax or trade policies that currently present barriers to U.S. companies developing steel, pipe, and equipment production capacity and competing for pipeline manufacturing projects; this would be a *supply-side* approach. As those barriers are identified and appropriately addressed, U.S. steel, pipe, and equipment production should be in a better position to supply the demands of the pipeline sector.

The Associations believe that the following considerations are essential for Commerce's plan:

- Consider the constraints for materials and equipment that cannot be procured domestically in adequate quantities, at the necessary technical specifications, and in time to meet market demand;
- Consider potential impacts to reliability of existing pipelines if materials and equipment cannot be sourced within the time necessary to meet maintenance requirements;
- Consider the potential for domestic sourcing requirements to have the unintended consequences of reducing or delaying investment, and consequently reducing jobs, in the U.S. energy industry and in pipeline construction;
- Consider the cost and service implications, for industry and for consumers, of any potential domestic sourcing requirements;
- Exclude pipeline projects that already have shipper commitments and/or pending or issued federal or state permits, such as interstate projects with a pending or issued FERC certificate, projects that have been approved by the state agency responsible for intrastate transmission and distribution pipelines, and projects that are subject to federal or state agency siting or permitting review. New policies should only be supply-side and should only apply prospectively, as the lead time for obtaining materials and equipment for constructing pipeline projects is often measured in years;
- Consider the varied operational characteristics, pipe and equipment needs, and regulatory frameworks of transmission, gathering, and distribution pipeline systems; and
- Consider the multiple factors that affect sourcing decisions made by pipeline operators and production decisions made by steel and pipe mills and equipment manufacturers, as discussed in these comments;

The Presidential Memorandum directed the development of a domestic sourcing plan “to the extent permitted by law.” Neither the Presidential Memorandum, nor the Federal Register Notice, nor any other information now available, provides the legal authority for any such requirement. Therefore, to assist in the development of a plan that complies fully with the president's instructions, the Associations request that interested stakeholders are given a meaningful opportunity to provide advance comment on the possible legal limitations and ramifications of any plan.

The Associations respectfully provide the following comments to assist Commerce's understanding of: 1) the anticipated demand for line pipe and steel/iron equipment used in pipeline projects; 2) the technical requirements that make pipeline steel products unique and challenging to manufacture; 3) the decision-making processes that pipeline operators, mills, and equipment manufacturers use in sourcing line pipe, equipment and steel; 4) current limitations on the ability to competitively source these materials and equipment with purely domestic content; and 5) the potential effect of domestic sourcing requirements on pipelines at various stages between project inception and construction.

While the Presidential Memorandum raises a number of challenges, the companies represented by the five trade associations commit to engaging with the appropriate executive branch officials,

project regulators, and other vital partners, particularly steel manufacturers, to forge solutions that will promote job growth and affordable energy in America.

Sincerely,



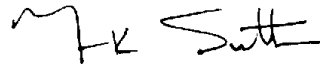
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I. Introduction – Importance of Energy Infrastructure and Pipelines³

The American people want, and future generations deserve, access to affordable, reliable and abundant energy that can be developed and delivered safely and with respect for our environment. Pipelines are essential to the prudent transportation of energy in America and are a modern, safe and efficient way to move crude oil, petroleum products, and natural gas from where it is produced to where it is refined and processed to where it is used. In 2014, 500,000 miles of liquid and natural gas transmission pipelines lines transported 16.2 billion barrels of crude oil and petroleum products and 27.3 trillion cubic feet of natural gas at a safety rate of 99.99 percent. Local distribution companies delivered natural gas through over 2 million miles of pipelines, and gathering system operators collected crude oil and natural gas through over 300,000 miles of pipelines. The U.S. will need more pipelines to keep pace with growing production and consumer demand; unfortunately, the current lack of energy infrastructure is negatively affecting consumers.

Energy infrastructure is essential in supporting and growing America's economy

The private sector is responding by investing billions of dollars in our nation's energy infrastructure. According to a forthcoming ICF study, between 2012 and 2016, capital spending on the U.S. energy infrastructure that moves and transforms oil and gas into everyday products has averaged \$78 billion per year ("energy infrastructure" includes pipelines, refineries, manufacturing and processing plants, etc.).⁴ Pipelines (including pumps and compressors) represent about 38 percent of this infrastructure investment, with liquid and natural gas transmission pipelines accounting for \$20.3 billion of the annual average spending and gathering lines and refined product lines accounting for another \$9.5 billion.

Investment in energy infrastructure has had a significant impact on the U.S. economy. In 2016 alone, investment of \$71 billion helped support over one million jobs and added \$100 billion to GDP. Looking forward, investments in energy infrastructure over the next 18 years could total between \$1.1 and \$1.3 trillion with transmission, gathering, and refined product pipeline investments again representing about 34 percent of that total. This is a sustained infusion of capital into the economy that provides workers with stability, supporting between 828 thousand and one million jobs per year.

Additionally, to sustain our nation's positive trajectory and position as a global energy leader, the new administration and Congress should work with the private sector to enable the expansion of our nation's energy infrastructure through consistent regulations and efficient processes. The *Presidential Memorandum on the Construction of American Pipelines* issued on January 24,

³ Note: Section I is intended to address Question a - g and Question 1 of Commerce's request for comments

⁴ ICF International, Inc. (forthcoming) "U.S. Oil and Natural Gas Infrastructure Investment through 2035"

2017 by the Trump Administration instructed the Secretary of Commerce to develop a plan for increasing the use of American-made steel for pipeline construction.⁵

While the Presidential Memorandum raises a number of challenges, the companies represented by the five trade associations commit to engaging with the appropriate executive branch officials, project regulators, and other vital partners, particularly steel manufacturers, to forge solutions that will promote job growth and affordable energy in America.

Substantial domestic content is already employed in U.S. pipeline projects – benefiting American workers

The Associations support President Trump’s objective to grow domestic jobs and boost the U.S. economy by reinvigorating American manufacturing. Members of the Associations already employ a large American workforce to design, construct, operate and maintain their privately funded pipelines and associated facilities. A single major pipeline project can bring thousands of American jobs in construction, manufacturing and supporting sectors, along with hundreds of millions of dollars in U.S. worker payroll.

Growth in domestic natural gas and oil production fuels America’s economy, and pipelines are the critical link that brings these domestic energy resources to market. In addition to the hundreds of thousands of jobs supported by the energy production and pipeline sector, domestic energy abundance has driven a resurgence of our manufacturing sector and the broader U.S. economy. The energy delivered by America’s pipelines powers domestic industry and serves as important inputs in a variety of manufacturing processes, from petrochemicals (paints, plastics, makeup) to fertilizer to steel mills.

As a result of current hiring practices for labor and current sourcing practices for materials and equipment, a large percentage of the dollars spent on U.S. pipeline projects ends up in the pockets of U.S. workers. ICF estimates 53 – 57% of the cost of constructing liquid pipelines and 60% of the cost of constructing natural gas pipelines is construction labor – excavation crews, pipe laying crews, welders, etc. Typically, companies that build pipelines will hire local workers with the required skills and pay local, market-based wage rates – these are jobs that must be completed domestically for U.S. pipeline projects. ICF estimates that materials account for 37 – 39% of project cost for liquid pipeline projects and 33% of project cost for natural gas pipeline projects.⁶ Considering current hiring practices for labor and current sourcing practices for materials and equipment, ICF estimates that overall domestic content for today’s oil and gas pipeline projects is approximately 70%.⁷

Furthermore, many operators of natural gas distribution and oil and gas gathering pipelines are currently building polyethylene, polyamide, and composite pipelines (“polymer pipelines”). The

⁵ Presidential Memorandum Regarding Construction of American Pipelines, <https://www.whitehouse.gov/the-press-office/2017/01/24/presidential-memorandum-regarding-construction-american-pipelines> .

⁶ Note: These calculations exclude costs for large equipment packages (compressors, pumps, vessels, etc.), as these were excluded from the Notice.

⁷ Domestic content is the same thing as domestic income, in that a person in the U.S. will earn income, either through wages or through ownership income.

vast majority of polymer pipe used for distribution and gathering pipeline projects within the U.S. is manufactured domestically. Furthermore, 100% of the raw materials (e.g. resin) used in domestic manufacturing processes for polymer pipe are also produced domestically, using domestic natural gas.

A fair, free trade environment is necessary to grow American manufacturing and infrastructure

Today's highly integrated and interdependent North American energy value chain benefits the United States by expanding the size of domestic energy markets, creating economies of scale to attract private investment, lowering capital costs and, most importantly, reducing energy costs for consumers. System integration also enhances U.S. energy security and provides export markets for the U.S. as the world's new leader in oil and natural gas production.

The Associations contend that individual trade cases are the most effective mechanism for promoting domestic production, without the potential unintended consequences of a blanket domestic sourcing requirements, which are outlined in these comments. The oil and natural gas industry is a strong proponent of free trade; the Associations believe that, given an even playing field, U.S. companies and our workforce can compete with any country in the world. However, as recent Department of Commerce ("Commerce") determinations have made clear, free trade does not always equate to fair trade. For example, in 2015, Commerce announced its affirmative final determinations in the antidumping duty investigations of imports of welded line pipe from Korea and Turkey. A similar determination was found against China for welded carbon quality steel line pipe in 2009. Furthermore, in 2016/7 Commerce placed tariffs on imports of cut-to-length steel plate from a number of countries including China, Brazil, South Africa, and Turkey. Trade actions such as these, which address the concerns of the domestic steel industry, may be a better way to help domestic steel production, and minimize the risk of reducing or delaying pipeline projects and hurting pipeline construction jobs.

Different types of pipeline systems use a variety of materials and equipment that is supplied by distinct manufacturing operations

Each phase of the oil and natural gas supply chain - gathering, transmission, and distribution - has diverse and dynamic operations that should be considered in Commerce's plan to increase domestic sourcing of steel and iron pipe and equipment used for pipeline projects. The strategies used to move energy through these segments is affected by the pipe and equipment used, as well as the way they are regulated. For instance, distribution pipeline systems may operate at lower pressure and temperature, allowing for non-metallic piping to be used in certain applications. Natural gas distribution pipelines are usually smaller diameter pipe, while liquids and gas transmission lines operate safely at higher pressures and larger pipe diameters. Oil and natural gas gathering pipelines have a particularly broad range of operating pressures and temperatures and pipe diameters. Furthermore, these diverse operations require the Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) to regulate each segment of the supply chain somewhat uniquely. Each of these considerations impacts the different pipe and equipment that is used throughout the various segments of the value chain.

The specialized steel, pipe, and equipment required to construct and maintain pipelines necessitates tight controls on chemical composition, mechanical properties and quality. Manufacturing facilities need advanced equipment and state-of-the-art processes to achieve this result. Steel line pipe is manufactured according to the specifications of the American Petroleum Institute (API), the American Society of Mechanical Engineers (ASME), the American National Standards Institute (ANSI), and the American Society for Testing and Materials (ASTM). Various grades of line pipe can be manufactured, based on the yield strength appropriate for the pipeline application. Line pipe is manufactured as either seamless or welded. Most line pipe used in the United States is manufactured as longitudinally welded pipe, as discussed further in Section III. Methods for making line pipe steels and line pipe have evolved over the years resulting in increased levels of strength, toughness, ductility and weldability, resulting from manufacturing processes and quality-assurance measures.

Demand for pipeline equipment and ancillary components is largely proportional to demand for pipe, although specific needs vary depending on the industry segment (*e.g.*, transmission pipelines) and the type of service (*e.g.*, natural gas). Commerce’s Notice defines “*equipment*” as “valves and other steel and/or iron apparatus attached to pipe;” the Associations therefore interpret “*equipment*” to represent steel/iron valves, fittings, and flanges. Demand for this equipment across Upstream, Midstream, and Downstream energy sectors have different drivers. Upstream demand is rapidly rising due to domestic oil drilling activities. Midstream pipeline infrastructure is expanding to new areas to meet Upstream and Downstream demand. In addition, existing pipelines are continually being inspected and maintained to meet operating standards, as well as being repurposed; pipe, valves and fittings are routinely replaced as part of these activities. Downstream demand is also rising due to expansion to areas that do not currently have natural gas, innovative state rate mechanisms that allow for faster replacement of distribution pipelines, and steady domestic and international growth from the global refining and chemical industry, due in part to low natural gas prices.

A peak in pipeline construction has occurred in recent years

It is important to put this sustained capital expansion into context, though. ICF estimates that the amount of pipeline mileage⁸ added each year increased from 2010 (earliest data available) to 2013. In 2010 roughly 14,500 miles of pipeline was added. This rose to roughly 17,000 miles of additional pipelines in years 2011 and 2012. Pipeline additions hit their peak in 2013 with 23,000 miles. This is consistent with the need for new gathering systems for oil production created in the Bakken regions and for natural gas (and gas liquids) in the Marcellus/Utica regions, along with the need for additional transmission pipelines out of those areas.

While pipeline projects will continue to have significant economic impact, growth going forward is uncertain and may not be as robust as the industry has experienced in recent years – this may impact whether steel, pipe, and equipment manufacturers choose to make the significant investment in additional capacity and capabilities moving forward to serve the niche market for

⁸ These mileage numbers exclude distribution mains and services, which are overwhelmingly being installed with polyethylene and other polymer pipe materials.

pipeline materials and equipment. Since 2013, the amount of transmission, gathering, and refined product pipe added each year has declined annually (19,000 miles in 2014 to 8,700 miles in 2016). Going forward, the demand for new transmission and gathering pipe is expected to average between 7,000 and 9,000 miles per year, according to ICF. A similar trend is evident in the data for distribution pipelines, where an average of 20 thousand miles were installed or replaced between 2010 and 2015, the rate going forward is estimated at 9 to 11 thousand miles per year. It is important to note that transmission pipelines represent between 12 and 18 percent of the total pipeline mileage constructed per year.

Pipeline projects involve substantial capital investment and long timelines to complete

Commerce should look prospectively when developing its plan, and consider impacts to ongoing projects, which involve long timelines and substantial capital outlays. Large interstate pipeline projects, with significant variation, take approximately 4 years from conception to placement into service. The average is about 1 year for development, 1 year to prepare for filing, about 17 months to get permit approvals, and about 7 months for construction. Smaller interstate projects require approximately 3 years to complete. Included in this submission is data further describing the permitting process. Over the past several years, the Associations estimate that nearly 1 year has been added to the process due to increasing delays in regulatory approvals and permits. Agreements for the procurement of materials and equipment may be entered into years in advance of construction.

Based on a regression analysis of data from the Oil and Gas Journal (OGJ), ICF determined the average U.S. transmission pipeline cost of \$178,000 per inch-mile for 2016.⁹ ICF also calculated regional cost multipliers from OGJ data that range from 0.65 for states in the Central region to 1.68 for states in the Northeast.

Background of Trade Associations Participating in these Comments

Founded in 1918, the American Gas Association (AGA) represents more than 200 local energy companies that deliver clean natural gas throughout the United States. There are more than 73 million residential, commercial and industrial natural gas customers in the U.S., of which 95 percent--more than 69 million customers--receive their gas from AGA members. Today, natural gas meets more than one-fourth of the United States energy needs. With an abundant domestic supply, natural gas is poised to help achieve many of the nation's economic, security and environmental goals for years to come.

The American Petroleum Institute (API) represents over 640 oil and natural gas companies, leaders of a technology-driven industry that supplies most of America's energy, supports more than 9.8 million jobs and 8 percent of the U.S. economy, and, since 2000, has invested nearly \$2 trillion in U.S. capital projects to advance all forms of energy, including alternatives.

⁹ ICF (forthcoming) "U.S. Oil and Natural Gas Infrastructure Investment through 2035"

The Association of Oil Pipe Lines (AOPL) represents owners and operators of liquid pipelines. AOPL members transport about 96.8 percent of the crude oil, refined products, and natural gas liquids barrel-miles reported to FERC as moved by pipelines, as well as carbon dioxide.

GPA Midstream represents nearly 100 corporate members of all sizes; most are U.S.-based companies, but we do have members across the globe as well. Our members are engaged in the gathering and processing of natural gas into saleable pipeline gas, which are commonly referred to as “midstream” activities in the energy industry. Processing includes removing impurities from the raw gas stream produced at the wellhead, as well as the extraction for sale of natural gas liquids (ethane, propane, butane and natural gasoline).

The Interstate Natural Gas Association of America (INGAA) is a trade association that advocates regulatory and legislative positions of importance to the natural gas pipeline industry in North America. INGAA is comprised of 25 members, representing the vast majority of the interstate natural gas transmission pipeline companies in the U.S. and comparable companies in Canada. INGAA’s members operate approximately 200,000 miles of pipelines, and serve as an indispensable link between natural gas producers and consumers.

II. Technical Requirements for Line Pipe & Equipment¹⁰

There are many distinct steps in manufacturing the wide variety of line pipe and equipment – these steps often occur at separate facilities

As mentioned previously, pipeline projects utilize an array of line pipe products and steel/iron equipment. There are many distinct steps in the manufacturing process for line pipe and steel/iron equipment; furthermore, the manufacturing processes and required equipment can differ substantially based on the end product. In many cases, the manufacturing process is not vertically integrated; different manufacturing steps may take place at different facilities owned by different companies.

Pipelines vary in size, from 1/2 inch up to 48 inches in diameter, depending on the application. Line pipe for constructing oil and gas transmission pipelines is most often made from steel, and, in particular, either low-carbon steel or low-alloy steel. These two types of materials are primarily composed of iron (98 to 99 percent iron), but small amounts of carbon (0.001 to 0.30 percent by weight), manganese (0.30 to 1.50 percent by weight), and other intentionally added alloying elements in small amounts (niobium, molybdenum, vanadium, titanium) can have beneficial effects on the strength and toughness of steel (“toughness” is the ability to resist crack initiation and propagation).

Other iron-based materials such as ductile iron (almost pure iron) and cast iron (usually a relatively high-carbon material) are either too low strength or too brittle to function well as structural materials for higher pressure pipelines. Stainless or high-alloy steels are essential for

¹⁰ Note: Section II is intended to address Question 5 and Question 6 of Commerce’s request for comments

special applications, such as high-temperature piping and pressure vessels or tool steels, but they are not suitable and cannot be made economically in the quantities needed for pipeline construction. Only low-carbon steels or low-alloy steels offer the appropriate ranges of desirable properties (i.e., strength, toughness, ductility, and weldability) that are required for larger diameter pipeline applications. Pipe may also be made of non-metallic materials, including polymers or a composite of polymers with reinforced steel. Applications for non-metallic pipe materials are discussed further below, but these materials are often used for lower pressure applications and when the product being moved is especially corrosive.

Figure 1 depicts a broad overview of the steelmaking process for “API 5L” line pipe (the API 5L standard is discussed in further detail below). The process starts with iron ore and recycled steel that is melted, refined, and cast at steel mills into slabs, blooms, or billets, depending on the end product. These initial processes are critical in defining the specific chemistry and mechanical properties of the steel that are required for line pipe, as discussed in the proceeding section.

Pipeline steel and line pipe necessitates tight controls on chemical composition, mechanical properties and quality – this requires advanced equipment and state-of-the-art processes

Each type of line pipe relies on a similar high quality steelmaking practice to control chemical composition and steel cleanliness (free of harmful levels of deleterious contaminants such as phosphorous and sulfur). Steel chemical composition is the greatest factor in weldability, and one of the greatest factors in the mechanical properties for the finished line pipe. Steel making may be by basic oxygen furnace (BOF) or electric arc furnace (EAF), and modern secondary metallurgy practices including ladle refining and vacuum degassing. The final chemical composition will vary by the specification from the pipe mill for the type of pipe manufacturing process, equipment and ultimate delivery condition of the final product.

Pipelines may be constructed using seamless or welded line pipe. *Seamless line pipe* is produced by piercing and rolling solid blooms and billets (at “rolling mills”), without the need for welding. Seamless pipe is generally available in smaller diameters, under 30-inch, in a variety of thicknesses and grades. There are several common seamless line pipe manufacturing processes such as mandrel rolling, plug rolling and pilger rolling. All of these processes are done while the steel is very hot where the steel is malleable and readily formed into a tube of the desired diameter and wall thickness. Delivery condition for finished seamless line pipe includes the as-rolled condition, and pipes that have undergone post forming heat treatments such as normalizing, or quench and tempering.

Modern hot strip mills and plate mills use advanced hot rolling and controlled cooling methods to produce high quality strip and plate to be used for manufacturing *welded line pipe*. Thick slabs are hot rolled into thinner plates or strips under carefully controlled reduction forces and temperature ranges in powerful rolling presses, followed by controlled and uniform accelerated cooling to produce uniform fine grained microstructure, uniform thickness and mechanical properties – high strength, toughness, weldability and strain capacity. When considering welded pipe, plate and coil steel rolling processes incorporate differing rolling techniques to obtain required properties. For the chemical composition selected, slab size along with power in the

rolling mill and availability of accelerated cooling will define final steel microstructure and mechanical properties.

The majority of steel line pipe used in pipeline projects is welded pipe, including high-frequency electric resistance welded (HFW), helical submerged arc welded (SAWH) or longitudinal submerged arc welded (SAWL). HFW line pipe is cold formed from coil that is uncoiled into flat strip then passed through a series of forming rollers into a cylindrical shape. During this forming process, a longitudinal weld seam is made by passing a high frequency induction or conductive electrical current across the mating edges of the strip. The weld seam is autogenous, meaning no filler metal is added during the welding process.

SAWH line pipe is also cold formed from coil. The coils are unwound then the strip is fed through a helical forming mill and the helical seam is welded using the submerged arc welding process. This process uses a filler metal added during the welding process.

Finally, SAWL line pipe is made by forming plate into a cylinder by several cold forming processes, most commonly UOE (U-forming, O-forming, Expansion), JCO (J-forming, C-forming, O forming), and three-roll bending. The longitudinal seam on these pipes are welded using the submerged arc welding process.

Finished line pipe undergoes a series of quality tests and inspections. Once completed and deemed acceptable, line pipe is often externally coated with a high-quality coating to protect the pipeline from corrosion. The external coating is often a thin-film of fusion bonded epoxy about 12 mils thick. The surface finish of the steel is critical and must be suitable for fusion bonded epoxy coating.

Introducing new steel sources should be a careful and phased-in process

The process sequence for manufacturing line pipe has certain project risks; if line pipe does not pass quality tests and inspections at the manufacturing facility or upon delivery, this can add significant delay and cost to a pipeline project. In accordance with the API 5L product specification, the pipe is qualified for a specific grade based on mechanical properties of the finished pipe and is not qualified based on the mechanical properties of the finished coil or plate. Because of the forming processes, the mechanical properties, such as yield strength and toughness, differ between the plate or coil and finished pipe. The shift in plate or coil to pipe properties depends on the chemical composition of the steel, the plate or coil rolling and cooling practices, the pipe diameter and thickness and the pipe manufacturing methods. Plate or coil from two different sources processed on the same pipe mill may have differing shifts in mechanical properties based on differing composition, control rolling and cooling practices and plates or coils from the same rolling process will have different shifts in mechanical properties on different pipe mills based on differing pipe manufacturing processes. This presents the project risk that plates or coils may ultimately not fulfill the pipe grade requirements.

New steel sources should be phased-in over time. It is important for a pipe mill to have established sources of plates or coils within known mechanical property shifts and not treat alternative sources as readily interchangeable. The pipe mill may choose to reduce project risk

by using more than one source of plate or coil (possibly including an international source) to reduce this risk. Similarly, a pipe customer may choose to reduce project risk by using more than one pipe source (possibly including an international source).

Pipeline Steel Making Overview

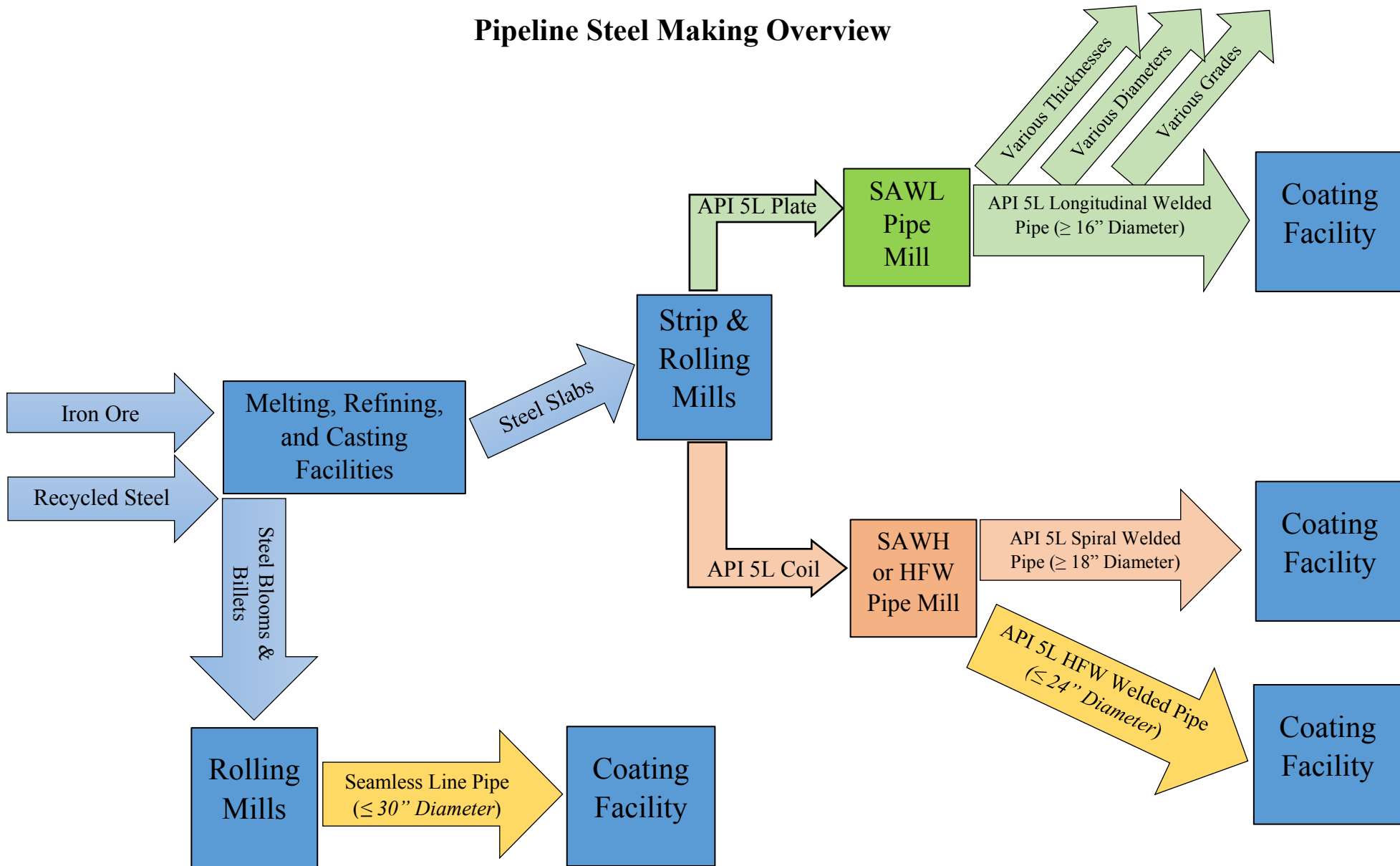


Figure 1: The flow diagram above represents a high-level overview of the manufacturing process for pipeline-quality steel and line pipe. For each welding method and seamless line pipe, a range of thicknesses, diameters and grades are available – this is shown for SAWL pipe as an example. Diameter ranges are approximate and may not represent every manufacturer.

API 5L is the base line pipe specification that consists of historical, validated criteria

API Specification 5L, Line Pipe (API 5L) provides requirements for the manufacturing of seamless and welded steel pipes for use in liquid and gas transmission pipelines. API 5L is the base specification that consists of historical, scientifically validated criteria for manufacture of line pipe for safe, effective, and economical gas and oil pipelines. This specification is continuously maintained and revised to meet modern steelmaking and line pipe manufacturing state-of-the-art. API Specification 5L covers line pipe grades from A25 to X120, diameter from ½ inch to 84 inches, and wall thickness up to 2 inches. There are two product specification levels, PSL 1 and PSL 2. PSL 1 is a standard quality level and PSL 2 applies tighter controls on chemical composition, mechanical properties, and quality. Specification 5L also has annexes for supplemental requirements for fracture control in gas pipelines, sour service, and offshore service.

Specification 5L is maintained by industry engineers and other experienced personnel representing line pipe manufactures and pipeline operators. API 5L is referred to throughout the world and recognized for technical accuracy and evidence-based requirements.

As mentioned above, the steel chemical composition and cleanliness is the greatest factor in weldability and contributes greatly in the mechanical properties for the finished line pipe. API Specification 5L includes appropriate limits on chemical composition and places quality requirements on the starting material. Specification 5L places further limits on chemical composition for more severe services such as sour service (containing H₂S) and off shore pipelines. Line pipe manufacturers further refine the specific steel chemical composition to suit their particular manufacturing process requirements and the requirements of the final line pipe being manufactured.

Steel used to manufacture line pipe is standardized, but requires modifications and customization based on each specific pipe mill manufacturing equipment and end user design specifications. Starting steel for line pipe manufacturing is not a “one size fits all” commodity and a high level of metallurgical and manufacturing technical know-how is required to manufacture line pipe fully meeting the requirements of API Specification 5L.

Line pipe manufactured strictly in accordance to the requirements of API Specification 5L will be a high quality product regardless of manufacturing location. Permissible and reasonable tolerances for attributes such as chemical composition, mechanical properties and dimensions give pipe mills the opportunity for efficient ongoing production and quality control using statistical process control methods. However, high skill, experience and technical know-how are needed to manufacture consistently acceptable line pipe meeting Specification 5L requirements. Specification 5L is not a “how to” instructional manual, rather a set of boundary limits and performance characteristics that the finished product must meet.

Regardless of manufacturing location, pipe manufactured to API 5L will be high quality

Given the significance of API 5L to the industry, it is included in API’s Monogram™ Program, which requires that participating manufacturers maintain the capabilities, including the resources,

processes and technology, to manufacture products per the scope of the standard they are licensed to. This program helps to assure that API 5L line pipe meets the rigorous technical requirements of the API 5L specification, regardless of where the manufacturing occurs. API 5L licensed manufacturers will mark the conforming product, so that it is easily recognizable and identifiable. These organizations must also implement, maintain, and continually improve their quality management system to meet the oil and natural gas industry’s quality management system, including having on-site certification audits, followed by annual surveillance audits and recertification audits every three years, to verify compliance with the program requirements. The program requirements and obligations are enforced through a legally binding agreement between API and the steel manufacturer. The API 5L Monogram is a way manufacturers are recognized for their ability to manufacture products that meet API specifications, and end-users can verify that the products are quality because they meet the requirements of the standard.¹¹

As of March 30, 2017, there are 38 mills with active API Monogram™ Licenses for API Specification 5L Line Pipe in the United States and 536 worldwide. For corrosion resistant pipe, there is one plant in the U.S. with the API 5LC monogram and 34 worldwide. The break down by mill type is as follows. A domestically located pipe-mill should not necessarily imply domestic sourcing of steel slabs, plate, and coil – this is discussed further in Section III.

Pipe Type	No. of Licensed Mills in U.S.	Pipe Type Definition
SMLS	7	SMLS pipe – seamless pipe. Pipe without a welded seam, produced by a hot-forming process, which can be followed by cold sizing or cold finishing to produce the desired shape, dimensions and properties
SAWH	6	SAWH pipe – helical submerged-arc welded pipe. Tubular product having one helical seam produced by the submerged-arc welding process
SAWL	3	SAWL pipe – longitudinal submerged-arc welded pipe. Tubular product having one or two longitudinal seams produced by submerged-arc welding
HFW	23	HFW pipe – high-frequency welded pipe. Electric welded pipe produced with a welding current frequency equal to or greater than 70 kHz

API Specification 5L 45th edition is currently under revision in accordance with API practice for review and revision on a 5-year cycle. Some noteworthy changes will be made, including a new annex for line pipe for strain based designs. However, there are no changes or additions that would have an impact on current manufacturing capacity and supply.

Manufacturing API 5L line pipe can be costly and slow compared to other steel products

The API line pipe steel requirements push the “edge of technology” with regard to technical specification requirements. Very careful control of internal slab quality and steel composition is needed to assure reliable field weldability, which is a critical element of pipeline construction since field welds join each pipe joint and fitting. The steel chemistry and mechanical properties of the slab are critical to achieving high strength plate and coil used to produce line pipe. Steel coil and plate is produced from slab that requires very high standards for control of composition

¹¹ API, recognizing that operators desire to use certified products, maintains a real-time list of companies that can utilize the API Monogram. This list is available for the public at <https://mycerts.api.org/Search/CompositeSearch>.

and internal slab soundness. The rolling mills are required to provide plate and coil products within very narrow thermo-mechanical control limits to meet the mutual specification requirements for enhanced weldability, high strength, toughness, and strain capacity. Powerful rolling presses combined with accelerated cooling are needed to achieve steel microstructures that will meet these specifications. For these reasons, of the different products that can be manufactured at steel and pipe mills, API 5L steel and pipe is among the slowest and most costly to manufacture. The Associations understand that it can take twice as much time to manufacture one ton of API 5L product, compared to other steel products.

A general trend for modern pipelines is to design for increasing product throughput resulting in larger pipe diameter and higher operating pressures. Therefore, the wall thickness for high throughput pipelines increases correspondingly. This places a greater emphasis on the quality standards necessary for steelmaking, rolling and line pipe manufacturing to meet the specification requirements for oil and gas pipelines. Thicker pipe can necessitate use of thicker slabs in order to achieve optimum rolling reduction. The availability of thicker slabs may necessitate use of slabs from international sources. Each pipeline construction project has unique attributes with respect to design, schedule, and outside stakeholder items.

Many mills have elected not to invest in the API 5L market

As wall thickness is increased, it becomes more difficult for strip mills to produce compliant mechanical tests (strength, drop weight tear test, etc.). In other cases, many rolling mills do not have the width capability to meet the requirements of the pipe mill. There are numerous domestic rolling facilities that are either relatively new or recently upgraded with disciplined thermo-mechanical rolling capability. However, this rolling capability has limited use beyond API plate and coil supply and, therefore, many rolling mills have elected not to invest in this relatively small API market. Current sourcing options for API 5L line pipe is discussed in further detail in Section III.

Commerce should also consider line pipe requirements beyond API 5L

For certain critical applications (pipelines in services such as deep water offshore, CO₂, slurry pipe, and liquefied natural gas), many operators specify steel requirements for chemistry, physical properties, and quality assurance that exceed the requirements of API 5L and its annexes. Operators do this to ensure the highest standards in safe operations for these critical applications. Experience has shown that domestic steel manufacturers and pipe mills may not meet these higher specifications.

Some challenges for domestic mills, with respect to requirements beyond API 5L, include:

- Meeting non-standard hardness testing (Charpy V-Notch) requirements
- Chemistry restrictions (for example, being able to restrict the percentage of vanadium)
- Quality assurance and control would require modification to meet higher specifications

As an example, there are certain specifications above and beyond API 5L that need to be considered for CO₂ service. The potential exists for some CO₂ streams to contain sufficient H₂S that sulfide stress cracking (SSC) and/or hydrogen induced cracking (HIC) testing may be necessary. Many domestic mills currently lack the capability to perform these tests.

Limited facilities worldwide are equipped to manufacture the wide array of valves, fittings, and flanges at the necessary specifications

Similar to line pipe, material specifications for pipeline steel/iron equipment (valves, fittings, and flanges) are held to a high standard for quality, high toughness, weldability, chemistry, and consistent mechanical properties. The requirements for this equipment are further compounded by requirements related to formability and heat treatment during the manufacturing process. Specialized equipment is again required for the manufacturing process, and few facilities worldwide are equipped to manufacture the various specifications for valves, fittings, and flanges needed to ensure safe and reliable construction and operation of pipeline projects.

The predominant pipeline design codes (ASME B31.4 and ASME B31.8) include lists of acceptable valve, flange and fitting specifications for design and materials that are published by standards bodies API, ASME¹², MSS¹³ and ASTM¹⁴. Generally, the API, ASME and MSS specifications contain mechanical design and dimension requirements, and ASTM specifications contain requirements for steel making, forging or forming, heat treatment, quality and inspection.

Commonly used industry standards for pipeline valves include the following (non-exhaustive):

API 6D	Specification for Pipeline and Piping Valves
ASME B16.34	Valves – Flanged, Threaded, and Welding End
ASTM A105	Carbon Steel Forgings for Piping Components
ASTM A216	Carbon and Low-Alloy Steel Forgings, Requiring Notch Toughness Testing for Piping Components
ASTM A350	Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service

Pipeline flanges and fittings are normally made from carbon manganese steel or high strength low alloy steel (HSLA). Maximum limits are placed on carbon content and other important steel alloying elements to assure the finished components are conducive to welding while retaining specified strength and toughness without requiring post weld heat treatments. Commonly used industry standards for pipeline flanges include the following (non-exhaustive):

ASME B16.5	Pipe Flanges and Flanged Fitting
ASME B16.47	Large Diameter Steel Flanges

¹² American Society of Mechanical Engineers

¹³ Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.

¹⁴ ASTM International, (formerly known as The American Society for Testing and Materials)

MSS-SP-44	Steel Pipeline Flanges
ASTM A105	Carbon Steel Forgings for Piping Components
ASTM A350	Carbon and Low-Alloy Steel Forgings, Requiring Notch Toughness Testing for Piping Components
ASTM A694	Carbon and Alloy7 Steel Forgings for Pipe Flanges, Fittings, Valves, and Parts for High-Pressure Transmission
ASTM A707	Forged, Carbon and Alloy Steel Flanges for Low-Temperature Service

Flanges are usually machined from forgings. The starting material for the forging will be a cast steel ingot or continuous cast steel strand that has been cut into sections called billets or blooms. The ingot, billet or bloom is hot forged in a press or a ring-roller to a shape near to the final flange shape, and then heat treated. The specific type of post forming heat treatment depends upon the steel alloy chemical composition and the specified mechanical properties (i.e. strength, toughness). The final steps are machining to the specified dimensions, machining the weld bevel end and drilling bolt holes in the flange ring.

Fittings that are butt welded inline to the pipeline are known as buttwelding fittings. These include elbows, tees and reducers that allow through-flow of the pipeline contents. Buttwelding fittings are wrought, or hot formed from a steel cylinder. For smaller and medium diameter fittings, the starting cylinder is usually a seamless pipe. Some types of welded pipes are also used for medium- and larger diameter fittings. Plates are sometimes used as the starting raw materials for very large diameter fittings. Two halves are hot formed from plates then welded together. Buttwelding fittings are heat treated similarly to forged flanges and the ends are machined to a bevel required for welding to pipe. Commonly used industry standards for pipeline buttwelding fittings include the following (non-exhaustive):

ASME B16.9	Factory-Made Wrought Buttwelding Fittings
ASME B16.49	Factory-Made Wrought Steel Buttwelding Induction Bends for Transportation and Distribution Systems
ASTM A234	Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Services
ASTM A420	Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low Temperature Service
MSS-SP-75	Specification for High Test Wrought Butt Welding Fittings

Fittings known as socket-welding fittings or outlet fittings enable smaller pipe connections or branches to be welded on to pipelines. These are made by hot forging followed by heat treatment and finish machining. Commonly used industry standards for pipeline socket and outlet fittings include the following (non-exhaustive):

ASME B16.11	Forged Fittings, Socket-Welding and Threaded
ASTM A234	Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Services
ASTM A420	Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low Temperature Service
MSS-SP-83	Class 3000 Steel Pipe Unions Socket Welding and Threaded
MSS-SP-97	Integrally Reinforced Forged Branch Outlet Fittings – Socket Welding, Threaded, and Buttwelding Ends

Modern, high strength fittings and flanges require specific technical expertise to manufacture

A high level of metallurgical engineering knowledge and manufacturing technical know-how is required to produce flanges and fittings for modern high strength pipelines. Successful manufacture of weldable, high strength steel components with good toughness becomes increasingly difficult as size and mass increases. There have been reports of failures of pipeline flanges and fittings due to substandard quality. Last year, the Canadian regulator, the National Energy Board, issued Safety Advisory SA 2016-01 titled, “Standards for Manufactured Pipe & Fittings and the Potential for Substandard Material Properties.” The advisory included their finding that *“The issue of pipe and fittings having substandard material properties entering the market place, and subsequently being installed on pipelines, is an industry wide concern.”* The USA regulator DOT – PHMSA has not issued a formal advisory specific to flanges and fittings, but the issue is known to them¹⁵.

The industry specifications from ASME, MSS and ASTM are base specifications and serve as the starting point for many pipeline operators who have their own specifications. Individual company purchasing specifications are needed to enhance industry specifications by closing known shortcomings in the industry specifications, and include technical requirements specific to the intended service.

Some new manufacturers may find it difficult to meet the requirements of industry standards. API has established minimum specifications and certified domestic manufacturers based on location and valve types, as part of the previously-mentioned API Monogram™ Program. The number of active certifications is listed in Table 1 below. In most cases, pipeline operators apply additional specifications that are even more rigorous, further reducing the number of accepted manufacturers. It is crucial to note that, although these manufacturing facilities are located in the U.S., most source materials internationally, and therefore would *not* currently be able to meet the definition of “produced in the United States” that is outlined in the Presidential Memorandum. Sourcing of this equipment is discussed in further detail in Section III.

¹⁵See slides #21 and 22 of PHMSA presentation found at <https://primis.phmsa.dot.gov/rd/mtgs/071812/KenLee.pdf>

Table 1: Active U.S. API 6D Producers

Valve Type	Active API Certification
Ball	33
Gate	14
Plug	9
Check	19

Many operators of distribution and gathering pipelines are building polymer pipelines

Many operators of natural gas distribution and oil and gas gathering pipelines are currently building polyethylene, polyamide, and composite pipelines (“polymer pipelines”). Distribution pipelines are often smaller diameter and operate at lower pressures than transmission pipelines, which allows for the use of polymer pipe; these conditions also exist for certain gathering pipelines. These polymer pipes used in gas distribution and oil/gas gathering applications are highly engineered, designed and specified for these critical applications. The vast majority of polymer pipe used for distribution and gathering pipeline projects within the U.S. is manufactured domestically. Furthermore, 100% of the raw materials (e.g. resin) used in domestic manufacturing processes for polymer pipe are also produced domestically, using domestic natural gas and domestic natural gas liquids (ethane and propane extracted from raw natural gas at gas processing plants). This is discussed further in Section III.

Polyethylene pipe is available through 24-inch in diameter with 12-inch and smaller being routinely used while larger dimensions are increasingly being used. Polyamide pipe is manufactured in pressure ratings to 250 psi and diameters to 8-inch. Composite pipelines transport produced fluids, natural gas, crude oil and produced water associated with both conventional and shale resource developments in pressures up to 3,000 psi.

III. Sourcing of Line Pipe and Equipment¹⁶

The Associations support President Trump’s objective to grow domestic jobs and boost the U.S. economy by reinvigorating American manufacturing. There is substantial domestic content in the line pipe and equipment currently used in U.S. pipeline projects. However, current domestic capacity to produce certain materials and equipment used to construct, operate, and maintain energy pipelines and address the key sourcing factors used in pipeline product purchasing decisions is limited. Domestic steel and pipeline manufacturing industries would need time to boost their capability to meet the demand and support the continued growth of America’s energy

¹⁶ Note: Section III is intended to address Questions 2 – 4 and Question 8 of Commerce’s request for comments

pipeline infrastructure. The companies that currently supply the U.S. pipeline industry have spent considerable time and resources perfecting their processes. New entrants would need to consider these costs relative to the size of the niche market for pipeline materials and equipment. In pursuing the president's goal, it is important for Commerce to consider the decision-making process for steel manufacturers, line pipe and steel/iron equipment manufactures, and pipeline operators.

The supply and demand dynamics for pipeline material and equipment are complex – further study is needed

There is substantial domestic content in the line pipe currently used in U.S. pipeline projects, supporting quality jobs for U.S. workers. The Associations estimate that forty to fifty pipe mills worldwide actively supply U.S. pipeline projects with pipeline-quality line pipe. Roughly half of these mills are located within the U.S. The Associations estimate that average annual domestic line pipe consumption is 2.5 – 4.5 million U.S. tons, with approximately half of this line pipe being produced at U.S. pipe mills. The steel inputs (blooms, billets, coil, and plate) are currently manufactured both domestically and internationally.

A successful plan for increasing the domestic steel content of U.S. pipeline projects will recognize the important variations in the line pipe products that may be used, and the different steel materials necessary for the production of different types of line pipe. Section I of these comments discusses different types of pipeline projects: natural gas and liquid gathering pipelines, natural gas and liquid transmission pipelines, and natural gas distribution pipelines – all of which have different pipe needs. The Associations have commissioned ICF to develop a detailed analysis of domestic steel, pipe, and equipment production capability as well as an assessment of the demand for the various line pipe products. The analysis is anticipated to yield measures of industry concentration (Herfindahl-Hirschman Index) with and without foreign competition and an assessment of barriers to entry on the part of new domestic manufacturers. Due to the exhaustive nature of the study, it will not be completed until after April 7th but will be submitted to Commerce within approximately 30 days. For the current comments, the Associations offer a general assessment of the domestic capabilities for producing certain line pipe products.

Specific limitations exist for large diameter line pipe, especially in heavier thicknesses

As noted in Section II, transmission pipelines generally transport large volumes of energy products over long distances at high pressures. A variety of factors are considered when designing these pipelines, including product flow rate, diameter, pressure, and location. Design requirements are established by PHMSA in the Code of Federal Regulations, as well as through various engineering standards that are applied on a project-specific basis. To meet the necessary safety and service requirements, these pipelines are often constructed using line pipe with larger diameters and wall thicknesses. “Large diameter” line pipe, generally 30-inch in diameter and

greater¹⁷, is fabricated using specific equipment and welding processes that are uniquely designed for pipes of this size. There are currently eight domestic pipe mills producing pipeline-quality line pipe in diameters of 30” and greater.

Five of these mills produce large diameter line pipe using the helical submerged arc welding (SAWH) method (which uses API 5L coil as a steel input, as discussed in Section II). Oil and gas pipeline projects, responding to the U.S. shale boom, have driven the construction and expansion of these mills over the past five to eight years; thus, the recent uptick in pipeline construction has created new U.S. pipe-making jobs. These facilities are substantial manufacturing plants which have collectively doubled the US capacity to produce large diameter line pipe. These pipe mills receive heavy wall thickness, high strength steel coils (produced by hot strip mills) as starting material to produce large diameter, high strength, spiral welded line pipe. These pipe mills source coils domestically for much of the needed supply. However, as the demand or size/grade requirements exceed the capability of domestic hot strip rolling mills, international coil supply is used to supplement existing U.S. capacity.

While many new transmission pipelines are constructed using SAWH line pipe, there is a limit to the pipe wall thickness that can be produced using this method; this method is generally limited to line pipe thicknesses of approximately 0.688-inch and lower. Line pipe for projects requiring heavier wall thicknesses is generally fabricated using the longitudinal submerged arc welding (SAWL) method (which uses API 5L plate as a steel input, as discussed in Section II). Three domestic mills currently produce large diameter line pipe using the SAWL method. For SAWL pipe mills, plate is used as starting material (versus coil for SAWH). Again, foreign plate supply is also needed to supplement existing U.S. capacity.

More than half of the steel plate and coil inputs that these large diameter pipe mills used in 2016 was imported. For SAWH large diameter line pipe, the Associations estimate that there is 1.2 – 1.3 million tons of total annual production capacity between the five U.S. pipe mills. For SAWL large diameter line pipe, the Associations estimate that there is 800,000 – 900,000 tons of total annual production capacity between the three U.S. mills.

Additionally, slab sourcing from international sources is used by domestic rolling mills to supplement U.S. slab capacity. As explained in Section II, the steel chemistry and mechanical properties of the slab are critical to achieving high strength plate and coil used to produce line pipe. While there are many domestic steelmaking facilities with excellent process capability for producing slab, the current capacity for slab that meets the key purchasing factors is also inadequate to support all domestic rolling mills that manufacturer API plate or coil.

One particular concern is that grade X70 steel plate and coil and their steel slab precursors are not currently produced in any quantities above 0.750-inch thickness at U.S. steel mills, and heavier thicknesses are necessary for certain pipelines. Grade X70 is the most commonly-used grade for large diameter transmission pipeline projects. In the near-term, a reduction or

¹⁷ NOTE: For the purposes of these comments, the Associations use “large diameter” to refer to pipelines of 30-inch diameter and greater. Depending on the context, other industry documentation may use “large diameter” to refer to pipelines of 16-inch diameter and greater.

restriction in availability of imported slabs, plate, and coil, especially the heavier thicknesses, would limit the ability of U.S. pipe mills to manufacture domestic line pipe and support U.S. pipeline construction projects.

The vast majority of polymer pipe is manufactured domestically.

For smaller diameter pipelines, many operators of natural gas distribution and a small percentage oil and gas gathering pipelines are currently building polyethylene, polyamide, and composite pipelines. Overall, these polymer pipelines represent thousands of jobs and millions of miles of pipelines that have been installed. The vast majority of polymer pipe used for distribution and gathering pipeline projects within the U.S. is manufactured domestically. Furthermore, 100% of the raw materials (e.g., resin) used in domestic manufacturing processes for polymer pipe are also produced domestically, using domestic natural gas and liquids (ethane and propane) extracted from domestic natural gas at gas processing plants.

All polyethylene pipe used for U.S. oil and gas pipeline projects is currently manufactured domestically. Polyethylene pipelines are designed to operate at lower pressures that are typical of natural gas distribution and oil and gas gathering pipelines. Polyethylene pipe is available through 24-inch in diameter with 12-inch and smaller being routinely used while larger dimensions are increasingly being used. According to the Plastic Pipe Institute, over 60,000 miles of plastic pipe installed in 2016. More than 95% of all new natural gas distribution main projects are polyethylene due to its proven record of safe, leak-free and long-term performance. Polyethylene pipe use continues to grow and now represents the majority (more than 55%) of all gas distribution mains installed in the US. versus steel and cast iron. All polyamide pipe used for U.S. oil and gas pipeline projects is currently manufactured domestically as well. Construction of new chemical and polymer plants has been announced in areas closer to natural gas sources such as North Dakota, West Virginia, and Texas.

Over 15,000 miles of flexible reinforced thermoplastic composite pipe have been installed in the U.S. since 2005, with manufacturing sites in several locations throughout the U.S. The majority (>80%) of composite pipe used in the US is manufactured in the U.S. with domestically produced polymers.

Pipeline projects currently rely heavily on an international supply chain for iron/steel equipment

For pipeline projects, the array and variety of equipment needs are even broader than the line pipe needs. As such, pipeline projects currently rely heavily on an international supply chain for this equipment and the steel/iron used to manufacture it.

Equipment manufacturers have segmented their processes such that a specific dedicated facility that is part of their worldwide supply network is responsible for producing one component that is necessary for the production of a particular piece of equipment. The various components from all of the facilities are then assembled at one location, oftentimes in the U.S. As an example, valve manufacturers have been segmenting their business over time such that various facilities located outside of the U.S. specialize in producing the end connection, body shell, journal, plug, stem and/or seat and the final assembly of the valve is made within the United States. Many of the

API licensed domestic valve manufacturers are assembly and testing locations for globally-sourced valve components.

Valves used in pipeline projects are, therefore, supplied by international manufacturers. Since 2013, manufacturers have consolidated through acquisition to leverage their buying power and footprint on a worldwide basis. The international footprint provides manufacturing efficiencies by consolidating each manufacturing step into fewer strategic locations. The manufacturers have benefited from quality, cost and lead time improvements for each manufacturing stage and location. Two major valve manufacturers represent greater than a 75% market share; these manufacturers import castings and semi-finished machined parts to the U.S., and then provide assembly domestically. As such, there are no pipeline valve (API 6D) manufacturers in the United States that can currently meet the definition of “produced in the United States” that is provided in the Presidential Memorandum. These U.S. valve assembly facilities, and their employees, rely totally on the ability to import casting and semi-finished parts.

Pipeline fitting and flange manufacturers would also be challenged to meet the definition of “produced in the United States” in the Presidential Memorandum. Pipeline fitting and flange (“fittings”) manufacturers utilize steel pipe or forgings from steel bloom/billet as a material input to their manufacturing process. There are two primary manufacturers of fittings that represent 62% of all fittings sold to the U.S. energy sector. The primary domestic manufacturer for high yield fittings imports specialized pipe from Japan and Korea to use in manufacturing fittings. Although there are domestic steel pipe manufacturers capable of supplying this material, the volume requirements for semi-finished steel pipe for fittings generally do not meet the minimum volume manufacturing tonnage currently required by domestic mills. The second manufacturer imports the majority of its fittings as finished products from Italy. The steel used for the manufacturing process is made at a nearby Italian mill. These fitting manufacturers, for example, cannot currently meet the definition of “produced in the United States” that is provided in the president’s memo.

In addition to consolidating and streamlining the pipeline valve and fitting manufacturing process, manufacturers have shifted from direct marketing and sales to a distribution model utilizing fewer distributors with strong global and regional foot prints. The manufacturers have nearly eliminated their finished goods inventory position and shifted it to the distributor base. Under this model, distributors are able to inventory large diameter valves that were previously only available on a special order basis. Manufacturers are continuing to sell direct for new construction projects that require large quantities of commodity valves and engineered valves.

Multiple factors affect the sourcing decision that are made by pipeline operators

Pipeline operators consider a variety of factors when making purchasing decisions for pipeline projects. Obviously, the cost of a pipeline project impacts the economics and viability of the project. Certainly, the price of a product (line pipe or equipment) is an important factor – however, product price is by no means the only factor that influences project cost or overall purchasing decision-making. It is also incorrect to assume that the price of internationally sourced line pipe and equipment is always lower than the cost of domestic pipe and equipment;

in the globalized markets for these products, prices are often competitive between international and domestic suppliers, especially considering greater freight costs and taxes for imported products.

Material cost is a significant driver for the price of both line pipe and equipment. Steel is the largest cost component, roughly 60%, next to labor for these items. Domestic plate prices have risen to their highest point since February 2015 due to demand and outages. Hot rolled coil prices rose through 2016 and continue to be strong in 2017. Logistics is another pricing component. Logistics includes all of the costs associated with moving the product from the manufacturer to the destination including but not limited to handling, transportation, customs and duties, tariffs (as applicable), expediting, storage, and inspection costs.

Quality and safety are of paramount importance in pipeline operators' decision-making. Regardless of manufacturing location, manufacturers must have a demonstrated capability for reliably producing line pipe or equipment to the rigorous technical specifications required for pipeline projects, to ensure safe construction and operations of the pipeline project. Pipelines are subjected to a series of inspections and tests before being put in service. If sub-quality materials are identified during inspection and testing, additional costs and construction delays may be incurred while the issue is remedied.

An example includes ovality requirements. During construction, the pipe is welded in the field. When the pipe ends are not within ovality tolerance of the circumference, the welding takes longer to assure that the weld fuses the pipe completely and in a manner such that the integrity tools can move through the pipe without getting caught. As another example, during pipe production, visual quality defects in the pipe are cut out causing shorter pipe lengths outside the tolerance limits of the specification. The pipe specification will typically require 97% of the pipe joints to be within the length tolerances. Since the pipe joints are welded together in the field, an increase in the number of shorter pipe joints increases the number of welds required and overall construction costs.

Product lead time significantly impacts purchasing decisions. Pipeline infrastructure needs to be built on a timely basis to support quality pipeline construction jobs and to bring the benefits of abundant, affordable domestic energy to American homeowners, manufacturing plants and other markets. Furthermore, in many areas of the U.S., there are limited windows during which certain pipeline construction activities can be completed due to weather restrictions, permit requirements (including protected species considerations), and other factors. An eight-week delay in the delivery of necessary line pipe or equipment could delay project completion into the next construction season. Additionally, such delays would likely drive up project costs.

Commerce's plan should consider the impacts of product lead time on pipeline construction projects. Given the limited number of facilities within the U.S. that are capable of supplying certain line pipe and equipment, as discussed previously, downtime and reliability of these facilities could substantially impact product lead time, if pipeline projects have limited ability to source line pipe and equipment internationally.

Operators also consider warranties and flexibility when selecting a supplier for line pipe and equipment. Operators seek warranties for product quality, including when purchasing line pipe and equipment beyond industry minimum requirements. Key terms for large orders include limitations and liability, delay liquidated damages, warranty period, risk of loss during transit to final destination, indemnification, termination for convenience, cancellation costs, payments terms, material cost escalation clauses and supplier representations regarding specifications. Operators have indicated that some line pipe suppliers may only warranty a small fraction of the entire line pipe cost, while other pipe mills may be willing to warranty the total purchase price of the line pipe order and pay indemnity to remove any defective pipe that has been installed. Operators have also noted concern regarding the timeframe the warranty covers. Certain suppliers oftentimes offer a longer warranty timeframe, which is important if the pipe must be stored for a period of time before construction can start.

Operators also consider flexibility of a manufacturer to accommodate changes during the production process, particularly the ability to expand the pipe diameter to move additional energy products as production forecasts increase in a region. Operators have found international suppliers to be more flexible with their orders if an operator needs to change an order. This is because international pipe mills are often vertically integrated with the mill providing the steel inputs and often have larger operations that allow them to find an alternative buyer for pipe that has already been produced.

IV. Potential impacts of domestic content requirements on pipeline projects

Domestic sourcing requirements may have the unintended consequences of reducing or delaying new pipeline projects

Commerce's plan should consider potential impacts to new pipeline projects, including new replacement projects, and the associated domestic engineering, construction, operations, and maintenance jobs, as well as the impacts to domestic energy producers and consumers. As outlined previously, there is currently limited domestic production capacity for certain pipeline-quality steel and steel/iron equipment that meets the needs of pipeline operators - specifications, price, product lead time, warranties, and flexibility. Relying solely on U.S. production of pipeline quality steel, line pipe, and steel/iron equipment could lead to long construction delays and higher costs, potentially canceling planned pipeline projects or blocking new pipeline projects, preventing new and existing job opportunities and preventing further domestic energy infrastructure buildout that benefits U.S. businesses and consumers.

Given the variety of steel products that domestic manufacturers can choose to produce, the price for steel for line pipe is the opportunity cost of manufacturing the line pipe steel versus the profit from other structural steel and plate varieties that can be produced more efficiently. As a result of a domestic content requirement, the opportunity cost would need to be at a premium of the more efficient steel varieties, resulting in significantly higher prices for line pipe. As total demand

approaches total capacity, domestic producers of line pipe may increase margins and/or consumers may bid up prices in order to secure supply.

Lead times are very dependent on overall market demand. For example, lead times for a 24-inch API 600# ball valve is currently 22-28 weeks, but has previously risen to 52 weeks or more during high demand periods. Suppliers of valves and fitting have suggested that a domestic content requirement could easily extend to 15 months or more as domestic steel raw material sources are developed. Furthermore, at least one manufacturer has estimated that it would take over 24 months to approve new suppliers to support demand.

As outlined previously, there is currently no domestic production capacity for certain line pipe (large diameters and thicknesses) and a variety of steel/iron equipment. New projects that require this line pipe and equipment would be forced to pause for months or years while additional domestic manufacturing facilities are planned, designed, constructed, and tested. Commerce's plan should consider a phase-in period that would allow pipeline operators, domestic mills, and distributors some ability to prepare for these requirements and bring additional production capacity online. Still, even with an appropriate phase-in, Commerce should consider excluding products where there are no quantities available that are "produced in the United States."

The following examples, taken from actual pipeline projects, represent specific potential impacts to new pipeline projects if the ability to use international line pipe and steel/iron equipment is limited.

Example 1: Onshore Pipeline Project

The pipe required for this segment is greater than 30-inch in diameter, consisted of wall thicknesses of 0.600-inch, 0.720-inch and 0.864-inch, grade X70, and must conform to the API 5L-PSL2 specification. A domestic pipe mill was selected for this project. Steel plate for the pipe was secured both domestically and internationally. Domestic steel suppliers could not meet all of the plate requirements due to demand and availability; certain large, thick steel within the operator's pipe specifications was not available domestically.

- There are five steel producers domestically capable of producing grade X70 cut-to-length steel; however, two of these producers only produce steel for their own pipe mills
- The selected domestic pipe mill was unable to qualify one of the remaining three steel producers beyond grade X52.
- One of these steel producers could not accommodate the required pipe diameter.
- The one remaining domestic steel plate producer was selected.
- The producer selected was not able to meet the customer's delivery schedule or specification requirements for the 0.720-inch and 0.864-inch steel
- This resulted in an increased volume of plate being awarded to international manufacturers

Example 2: Offshore Pipeline Project

The pipe required for this segment is 26-inch in diameter, 0.750-inch in wall thickness, grade X65, and must conform to the API 5L-PSL2 specification. Only one pipe mill located within the U.S. provided a bid for this project. The bid from the domestic mill was almost double the cost of the other two bids from international suppliers. Even more importantly, the domestic mill was unable to meet several important technical requirements, which are critical for safety and constructability:

- The minimum pipe length from the domestic mill was unacceptable for any offshore pipe laying barge
- The domestic pipe mill would not accept the company's roundness specification
- The domestic pipe mill would not meet the company's chemistry specification
- The domestic pipe mill would not carry out weldability testing, per the company's quality assurance and quality control requirements

Furthermore, the current shale boom is dependent on the construction of oil and natural gas gathering systems. As soon as these projects are permitted, construction moves forward. These projects are dependent on having adequate availability to an abundant supply of pipeline materials. If materials are not readily available, the pace of America's shale growth may be slowed.

Consider disruptions to ongoing pipeline projects and the jobs supported by these projects

It is clear that the intent of the Presidential Memorandum is for the Commerce's plan to apply prospectively to new pipeline construction. To prevent disruption to ongoing pipeline construction projects and the construction jobs supported by these projects, Commerce should consider excluding pipeline projects that already have shipper commitments and/or pending or issued federal or state permits. This exclusion would apply to interstate projects with a pending or issued FERC certificate, intrastate transmission and distribution pipelines projects that have been approved by the responsible state agency, and to pipeline projects that are subject to federal or state agency review. ("Shipper commitments" means that customers have signed contracts to utilize pipeline capacity for transporting energy products.)

Due to: (i) the significant costs and time associated with constructing new pipeline infrastructure; and (ii) the fact that new pipelines are ordinarily pursued based on advanced shipper commitment/agreements, or to serve new communities or customers, the planning for domestic pipelines begins years in advance of pipeline construction. For liquid and interstate natural gas transmission projects, the projected construction costs are calculated/estimated at the initial planning stages to allow project proponents to negotiate agreements with shippers and shipper groups, which may take into account the price and source of steel pipe and appurtenant equipment. For intrastate and distribution pipeline projects, projected construction costs are needed to determine if a project to a new community or customer is economically feasible.

Pipelines that are in the planning stages therefore cannot readily be modified to account for a domestic sourcing requirement imposed after planning and permitting has commenced. Agreements for the procurement of pipe may thus be entered into well in advance of construction. The lead time for obtaining materials for constructing any sizable pipeline project is measured in years. Thus, it is common for new projects that are still not under construction to have already purchased pipeline and other materials that will be used for constructing the pipeline. Some of these materials may have iron and steel not manufactured in the U.S. Likewise, owners of existing pipelines may have already procured stores of pipe, valves, fittings and other components that were not produced in the U.S that are used to maintain, retrofit and repair existing pipelines on an on-going basis.

If an operator is required to re-order line pipe or equipment for a project, this would likely delay the in-service date for the pipeline, negatively impacting customers, and increase project costs. Purchasing pipe or equipment twice for a project would substantially impact the economics of that project and could even cause some projects to be stopped. Furthermore, the re-ordered line pipe or equipment would likely arrive later than what was originally ordered, which would delay construction. As a result, customers would not be able to utilize the pipeline capacity when expected, impacting oil and gas producers, end users, and the people they employ. Furthermore, there are potential contractual obligations to other service providers who cannot complete their work until certain pipe or equipment has arrived. Construction crews are scheduled to be available when the pipe is delivered to begin field welding, testing and laying the pipe. Standby charges for the equipment and crew may be accrued while waiting on the pipe and longer delays could lead to rebidding construction contracts.

Consider potential impacts to maintenance activities and reliability of existing pipelines

Pipeline operators should be able to take advantage of all available sources for pipeline-quality material and equipment in order to ensure uninterrupted service of critical energy products to communities throughout the country. For projects involving existing pipelines, including repair and replacement projects, there are important maintenance and service reliability considerations that should influence Commerce's plan to increase domestic sourcing for pipeline projects. Operators frequently inspect and assess their pipeline systems to identify potential integrity issues. Based on the results of these inspections and assessments, operators need to be able to respond in a timely fashion to repair and replace segments. Based on inspection and assessment results, industry standards and the Code of Federal Regulations establish specific timelines for repairing and replacing pipe segments. If operators are unable to purchase the specific line pipe and steel/iron equipment necessary to make repairs and replacements within the allowed timeframe, it may be necessary to shut down or reduce the pressure on a pipeline until the work can be completed, impacting customer service reliability in the interim. Commerce's plan for increasing domestic sourcing for pipeline projects should consider impacts to safety-related work that must be completed within a short timeframe.

Consider unintended consequences to pipe mills, equipment manufacturers, and distributors

A decrease in the availability, or increase in cost, of imported steel products could impact the production capabilities and economics of domestic pipe mills, which could ultimately impact the steelworkers employed at these domestic facilities. Commerce's plan to increase domestic sourcing for pipeline projects should consider impacts to domestic line pipe mills and steel/iron equipment manufacturers. As illustrated in Section II of these comments, there are many steps in the manufacturing process for line pipe and steel/iron equipment. In many cases, especially for domestic manufacturers, the manufacturing process is not vertically integrated; different manufacturing steps may take place at different facilities owned by different companies. As such, many domestic line pipe mills rely on imported steel slabs, plate, coil, blooms, or billets.

Domestic pipe mills have expressed concern regarding limitations on imported pipeline-quality hot rolled steel during previous International Trade Administration proceedings.¹⁸ As noted in Section III, more than half of the steel slab, plate, and coil currently used in manufacturing large diameter line pipe at U.S. pipe mills is imported. For certain grades and wall thicknesses (e.g., grade X70 above .750-inch thickness), all of the slab, plate, and coil used in domestic line pipe production is currently imported.

Furthermore, as discussed in Section III, for many valves, fittings, and flanges, initial forgings are imported for finishing at U.S. manufacturers. Also, U.S. steel fitting manufacturers may utilize steel line pipe as an input; therefore, fitting manufacturers may be impacted similarly as line pipe manufacturers. Again, Commerce's plan should evaluate the impacts to availability and costs for U.S. manufacturers of line pipe and equipment, in order to avoid unintended negative consequences to existing U.S. manufacturers and their employees.

Pipe distributors currently have inventories from both domestic and foreign pipe producers. In developing its plan, Commerce should consider the impacts on distributors with this existing inventory.

A phase-in period would allow pipeline operators, domestic mills, and distributors some ability to prepare for these requirements and bring additional production capacity online. This would also minimize the impacts on companies with existing inventory.

Impacts of a domestic content requirement could extend well outside of the pipeline industry

The economic impacts of a domestic content requirement for pipelines could extend well outside of the pipeline industry and inhibit production of American energy as well as other segments of American manufacturing. For example, oil country tubular goods (OCTG) is a family of seamless and welded rolled products consisting of drill pipe, casing and tubing subjected to loading conditions according to their specific application.

- Drill pipe is heavy seamless tube that rotates the drill bit and circulates drilling fluid.
- Casing is pipe that lines the borehole and is used as a structural retainer for the walls of a drilled hole.

¹⁸ See cases 701-TA-545-547 and 731-TA-1291-1297, 701-TA-560-561, 731-TA-1317-1328

- Tubing is pipe through which the oil or gas may be transported from the wellbore. Tubing segments are generally around 30 ft. long with a threaded connection on each end.

Many of the same manufacturing facilities that provide line pipe and pipeline-quality steel provide OCTG and its steel inputs. OCTG market demand is directly correlated to the rig count. Rig counts have continued to increase signaling forward demand for OCTG. During the crude oil price downturn, distributors of OCTG pipe did not replenish inventory. On the ground inventory is low and ‘critically’ low for oft-used pipe in key producing regions, like the Permian basin. Sizes 13-3/8” Carbon, 9-5/8” Carbon & alloy, 5-1/2” alloy are not available, unless ordered months ago.

OCTG demand is increasing as rig count continues to rise. Rig count is up 71% from February 2016 to February 2017. Drilling Operator consumption is up 21% from December 2016 to February 2017. As such, OCTG inventories have been depleted requiring mill run quantities to be ordered. Imported OCTG increased about 10% between January and February and is looking to increase 55% in March; prices have increased as well. Domestic capacity is increasing as companies hire to increase production. Several older mills are coming back online after being shut in for a long period of time.

Furthermore, the vast majority of existing domestic production capacity for steel products is not utilized to support energy industry projects, but rather other, larger U.S. industries, like the automotive industry. Pipeline-quality steel and line pipe can be among the slowest, most expensive products for domestic mills to produce. As discussed in Section II, specific equipment, technologies, and skilled labor is required to manufacture pipeline-quality steel, line pipe, and steel/iron equipment. Pipe mills may have a preference for producing products with historically higher margins, like OCTG and automotive steel, instead of pipeline-quality line pipe.

It may be challenging for the development of sufficient domestic capacity to materialize, given the relatively small percentage of overall consumption represented by pipeline projects, and the cyclical, project-driven demand for line pipe and steel/iron equipment. In order to increase domestic production capability, substantial capital investment will be required. This is particularly true for the more niche products – high grade line pipe with large diameters and wall thicknesses, line pipe with service requirements beyond API 5L, etc.

Higher strength grades (*e.g.*, X70 and X80) are control rolled and are therefore unlike other products, such as structural steel and steel in automotive manufacturing. One of the key aspects of high-strength X70 line pipe for a large project that sets it apart is the exceedingly large temporary demand for control-rolled steel. Historically, that control rolled capacity does not exist domestically when automotive steel is in high demand. Control rolled X70 or X80 steel is a product that is generally slower to produce on a rolling mills. None of the domestic sources of plate have a mill designed to optimize capacity for control rolled plates. Some of the international sources of plates specialize in control-rolling of line pipe grades and have plate mills specifically designed to optimized control rolling throughput.

Would mills and manufacturers choose to make facility investments?

The Associations are concerned that mills and manufacturers may not elect to make sufficient facility investments in order to allow for domestic sourcing of all necessary materials and equipment. While pipeline projects will continue to have significant economic impact, growth going forward is uncertain and may not be as robust as the industry has experienced in recent years – this may impact whether steel, pipe, and equipment manufacturers choose to invest in additional capacity and capabilities moving forward. As discussed, without sufficient domestic supply, domestic sourcing requirements could substantially drive up the cost of purchasing the necessary materials and equipment to construct new infrastructure, potentially discouraging development.

Commerce should consider these impacts outside of the pipeline industry in developing its plan; these impacts may include higher costs and longer steel lead times for domestic energy exploration and production projects as well as for automakers. As infrastructure project development increases outside of the oil and gas industry, the demand for steel will tighten and there will be upward pressure on prices. The demand for steel may well be greater than the availability of domestic steel for pipeline projects, OCTG, or steel projects outside of the oil and gas industry; the economic impacts of a domestic content requirement for pipelines would extend beyond pipeline projects.

V. Permitting of Pipeline Construction Projects¹⁹ (FRN Question 7)

Table 2 outlines the required permits, authorizations and notifications for pipeline construction or repair activities. Additional state specific requirements are not listed.

¹⁹ Note: Section V is intended to address Question 7 of the Commerce’s request for comments

Table 2: Required Permits, Authorizations and Notifications for Pipeline Construction or Repair

Permit, Authorization or Notification	Responsible Agency	Description	Time to Obtain
Presidential Permit for trans-border pipelines.	Dept. of State (oil pipelines); Federal Energy Regulatory Commission (FERC) (natural gas pipelines)	Required for the construction, operation, and maintenance of pipelines that cross international borders into Canada or Mexico. Secretary of State must make finding that oil pipeline “would serve the national interest.” (Executive Order 13337 (Apr. 30, 2004) FERC must make finding that natural gas pipeline is “consistent with the public interest.” (15 U.S.C. § 717b)	Approximately 6 months when no NEPA review triggered; approximately 2-6 years when NEPA review involved. ²⁰
Certificate of Public Convenience and Necessity for interstate natural gas pipelines	Federal Energy Regulatory Commission (FERC)	Mandatory for the construction, extension or acquisition of an interstate natural gas pipeline facility. Triggers NEPA review. Certificate generally authorizes future inspection, testing repair and other routine maintenance. (15 U.S.C. § 717f(c))	According to a 2013 analysis from the Government Accountability Office, the average time from pre-filing to certification was 558 days (18.6 months); the average time from filing to certification was 225 days (7.5 months) for smaller project that skipped pre-filing and began at the application phase (GAO 2013). ²¹ According to one operator, however, the current average time from filing to certification for smaller projects that skip pre-filing is now approximately 12-14 months.
PHMSA Special Permit	Pipeline and Hazardous Materials Safety Administration (Dept. of Transportation) (PHMSA)	Required when proposed pipeline project employs an alternative construction, design or testing method not authorized under PHMSA regulations; PHMSA must find that permitting is “not inconsistent with pipeline safety.” (49 U.S.C. § 60118)	Of the 12 special permits issued between 2013 and 2016, the average processing time was 7.2 months (PHMSA). ²²

²⁰The time estimates for the permits generally include the time required to complete any necessary NEPA review, which in most cases will be an Environmental Impact Statement (EIS) or an environmental assessment (EA). In some cases, such as pipeline maintenance activities with minimal impacts, a categorical exclusion may be applicable, in which case no NEPA review would be undertaken.

²¹ Government Accountability Office, *Pipeline Permitting: Interstate and Intrastate Natural Gas Permitting Processes Include Multiple Steps, and Time Frames Vary* (Feb. 2013), <http://www.gao.gov/assets/660/652225.pdf>.

²² Pipeline and Hazardous Materials Safety Administration, *Special Permits List*, <https://www.phmsa.dot.gov/pipeline/regs/special-permits/list>.

Permit, Authorization or Notification	Responsible Agency	Description	Time to Obtain
National Pollutant Discharge Elimination System (NPDES) Permit (Clean Water Act)	Environmental Protection Agency (EPA)	Required when certain activities related to pipeline construction (e.g., hydrostatic test discharge permit) result in discharge of pollutants into “waters of the U.S.” (33 U.S.C. § 1342).	Time frame varies depending on the type of discharge and the permitting authority involved; often issued by state with delegated authority under a “general permit” within 2-3 months.
Dredge or Fill Permit (Clean Water Act Section 404)	Army Corps of Engineers (Dept. of Defense) / Environmental Protection Agency (EPA)	Under Section 404 of the Clean Water Act, permit required for any discharge of dredged or fill material into the “waters of the U.S.” during pipeline construction. (33 U.S.C. § 1344) The application for an individual Section 404 permit triggers NEPA review.	Nationwide permits (general permits) do not require separate NEPA review and can be issued in approximately 4-10 months; Individual permits require NEPA review and can take from 6 months to 2 years (or more for large, complex projects), depending on the scope of NEPA review involved and the complexity of the project. ²³
State/Tribal Water Quality Certification (Clean Water Act Section 401)	State and tribal environmental agencies	Under Section 401 of the Clean Water Act, required as a prerequisite before issuance of EPA NPDES permit or Army Corps of Engineers Section 404 permit. (33 U.S.C. § 1341(a)(1)) The state or tribal authority with jurisdiction over the site of the discharge must grant/waive water quality certification in order for the federal permitting process to proceed.	Required before a NPDES or Section 404 permit can issue, and the time to obtain is incorporated into the NPDES/Section 404 timelines discussed above. One operator reports that individual water quality certifications can take up to 1 year per statute in some states.
Section 10 Permit (Rivers and Harbors Act)	Army Corps of Engineers (Dept. of Defense)	Under Section 10 of the Rivers and Harbors Act, permit required for structures that obstruct “the navigable capacity” of waters of the U.S. (33 U.S.C. § 403) The application for a Section 10 permit may trigger NEPA review.	Some Section 10 permits are nationwide permits which could be issued in approximately 6 months; Individual permits: approximately 2 years on average.
Title 30 Corps Right-of-Way (Army Corps of Engineers-owned lands)	Army Corps of Engineers (Dept. of Defense)	Required by Mineral Leasing Act when proposed pipeline will cross Corps-owned lands. Project proponent must apply for and obtain an easement to build through Corps-owned lands. (30 U.S.C. § 185). Triggers NEPA review.	Approximate average of 2 years, inclusive of NEPA process.

²³ See, e.g., David Sunding & David Zilberman, *The Economics of Environmental Regulation by Licensing: An Assessment of Recent Changes to Wetland Permitting Process*, 42 Nat. Resources J. 59, 76 (2002) (reporting that it took on average 313 days to prepare and obtain an NWP versus 788 days for an individual permit).

Permit, Authorization or Notification	Responsible Agency	Description	Time to Obtain
Federal Levee Right-of-Way	Army Corps of Engineers (Dept. of Defense)	Under Section 14 of Rivers and Harbors Act, Corps review and approval required before pipeline construction that modifies part of the federal levee system. (33 U.S.C. § 408)	Approximate average of 2 years, inclusive of NEPA process.
“Incidental Take” Permits (Endangered Species Act Section 10)	Fish and Wildlife Service (Dept. of Interior) (FWS)	For private projects not covered by Section 7 consultations (discussed below under consultations), applicant must obtain an “incidental take” permit if the construction or operation of the pipeline will “take” (harm) a protected species. (16 U.S.C. § 1538). Triggers NEPA review.	Approximately 1-3 years, including the development of a habitat conservation plan, NEPA review, and the issuance of an incidental take permit.
Bald and Golden Eagle Protection Act Permits	Fish and Wildlife Service (Dept. of Interior) (FWS)	Required when pipeline construction will require the removal of an eagle nest (Nest Take Permit) or the incidental “take” of a bald or golden eagle or eagle egg (Non-Purposeful Take Permit). (16 U.S.C. § 668-668d).	Nest take permit can be issued within a matter of months. Eagle incidental take permit could take from 6-12 months depending on the scope of impacts.
FWS Right-of-Way (National Wildlife Refuge System)	Fish and Wildlife Service (Dept. of Interior) (FWS)	Required when proposed pipeline will cross any portion of the National Wildlife Refuge System. Project proponent must apply for and obtain an easement to build through FWS-managed lands. (16 U.S.C. § 668dd). Triggers NEPA review.	Timeline varies depending on the scope of NEPA review. If EIS or major EA required, approximate average is 2 years.
BLM Right-of-Way (federal lands)	Bureau of Land Management (Dept. of Interior) (BLM)	Required by Mineral Leasing Act when proposed pipeline will cross public lands administered by the Secretary of the Interior or by two or more federal agencies. Project proponent must apply for and obtain an easement from Secretary of Interior. (30 U.S.C. § 185). Triggers NEPA review.	Approximate average of 2 years, inclusive of NEPA process.
BIA Right-of-Way (Tribal Lands)	Bureau of Indian Affairs (Dept. of Interior) (BIA)	Required when proposed pipeline will cross tribal lands. Secretary of Interior is empowered to grant “right-of-way in the nature of an easement for the construction, operation, and maintenance of pipe lines” on certain tribal lands held in trust by BIA. (25 U.S.C. § 321). May trigger NEPA.	Timeline varies depending on the number of tracts and tribes/landowners involved, as well the scope of NEPA review. Approximate average is 2 years.

Permit, Authorization or Notification	Responsible Agency	Description	Time to Obtain
USFS Special Use Permit	U.S. Forest Service (Dept. of Agriculture) (USFS)	Required when proposed pipeline will cross National Forest System land. (30 U.S.C. § 185; 43 U.S.C. § 1761). May trigger NEPA review.	Approximate average of 2 years when NEPA is triggered.
USDA-held easements	Natural Resources Conservation Service (Dept. of Agriculture)	USDA holds easements on privately-owned land under several different programs. If the proposed pipeline will cross private property encumbered by a USDA easement, the proponent must obtain USDA approval. May trigger NEPA review.	Approximate average of 2 years, if NEPA is triggered and EIS is required.
Bureau of Reclamation Use Authorization	Bureau of Reclamation (Dept. of Interior) (USBR)	Required when proposed pipeline will cross Bureau of Reclamation-owned land. (43 U.S.C. § 373). May trigger NEPA review.	Approximate average of 2 years, inclusive of NEPA process.
Coastal Zone Management Act Consistency Determination	National Oceanic and Atmospheric Administration (Dept. of Commerce) (NOAA), state coastal management programs, and lead agencies	Under Coastal Zone Management Act, project within or affecting a State's coastal zone must obtain CZMA consistency determination. (16 U.S.C. § 1456(c)(3)(A)).	Under CZMA section 307, a State must furnish CZMA certification within six months "after receipt of its copy of the applicant's certification". However, the six-month certification period does not begin to run until the State has received "necessary data and information", so the state can delay CZMA review on the basis that necessary data is missing. The State and an applicant may also extend the six month review period by mutual agreement. The process may take well over a year, particularly with administrative appeals.
Outer Continental Shelf Pipeline Authorizations	Bureau of Safety and Environmental Enforcement (Dept. of Interior) (BSEE)	Lease Term Pipeline Authorization required if proposed offshore pipeline will cross own lease on Outer Continental Shelf; Right-of-Way Pipeline Grant required if proposed offshore pipeline will cross other leases on Outer Continental Shelf. (43 U.S.C. § 1334). Triggers NEPA review.	
Prime Farmland/Soil Conservation Review	Natural Resources Conservation Service (Dept. of Agriculture)	The Farmland Protection Policy Act of 1981 (7 U.S.C. 4201 et seq.) requires review for potential impacts to prime farmland. USDA/NRCS regulations contained at 7 CFR Part 658; USDA	

Permit, Authorization or Notification	Responsible Agency	Description	Time to Obtain
		Natural Resources Conservation Service's (NRCS) Web Soil Survey.	

Federal Consultation Requirements that May Be Triggered by the Permits/Approvals Listed Above²⁴

National Environmental Policy Act (NEPA) Review	Lead agency (regulations promulgated by Council on Environmental Quality (CEQ))	Required for any “major federal action significantly affecting the quality of human development.” (42 U.S.C. § 4331). Environmental Impact Statement (EIS) required if the proposed action will have significant environmental effects. If significant environmental effects are not anticipated, an environmental assessment (EA) may suffice. In some cases, such as maintenance activities with minimal impacts, a categorical exclusion may be applicable, in which case no NEPA review would be undertaken.	Pipeline-specific data is not available. However, the Dept. of Energy reported that average completion time for an Environmental Impact Statement (EIS) (for all project types) in 2015 was 4.1 years (DOE) ²⁵ ; GAO reported the average completion time for an EIS (for all project types) in 2012 was 4.6 years from the notice of intent to prepare an EIS through the issuance of the record of decision (GAO). ²⁶
National Historic Preservation Act (NHPA) Consultation	Lead agency, State Historic Preservation Officers (SHPOs), and Advisory Council on Historic Presentation (ACHP)	Under NHPA Section 106, permitting agencies must consult with ACHP and SHPOs in order to assess and mitigate a proposed pipeline pipeline’s impact on historic properties (historic structures and artifacts). (54 U.S.C. § 306107-108)	Generally runs concurrently with NEPA process, although Section 106 requirements may extend beyond the NEPA Record of Decision, particularly if a programmatic agreement or MOA required.
Endangered Species Act (ESA) Section 7 Consultation	Lead agencies consult with Fish and Wildlife Service (FWS) for terrestrial and freshwater species, and National Oceanic and Atmospheric Administration (NOAA) for marine species.	Under ESA, federal agencies must ensure that permitting actions do not jeopardize existence of endangered or threatened species or harm critical habitats. Lead agencies offering pipeline construction- or repair-related permits must consult with FWS (terrestrial and freshwater species) or NOAA (marine species) (16 U.S.C. § 1536)	Varies depending on the number of species involved and the complexity of the biological survey requirements, but ESA consultation process can range from 3 months up to several years if tied with the lead agency’s NEPA process.

²⁴ When triggered, these consultation processes must be completed before the applicable federal permit or approval can be issued. Therefore, the time frames for these consultation processes are generally included in the time estimates for the permit/approval decisions listed above.

²⁵ U.S. Department of Energy, *Quarterly Report: NEPA Lessons Learned* (March 2016), <https://energy.gov/sites/prod/files/2016/03/f30/LLQR-March-2016.pdf>.

²⁶ Government Accountability Office, *National Environmental Policy Act: Little Information Exists on NEPA Analysis* (April 2014), <http://www.gao.gov/assets/670/662546.pdf>.

Migratory Bird Treaty Act (MBTA) Consultation	Fish and Wildlife Service (Dept. of Interior) (FWS) with lead agencies	Permitting agencies must also consult with FWS to ensure project will not negatively affect migratory birds. (16 U.S.C. § 703)	Generally runs concurrently with ESA consultation process.
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VI. Recommendations and Conclusion

Throughout these comments, the Associations have highlighted important considerations for the Department of Commerce when developing the plan to increase domestic sourcing for pipe and equipment that is required by the president’s Memorandum. The Associations have outlined the various factors that impact sourcing decision-making for pipeline operators and production decision-making for steel and pipe mills and equipment manufacturers. A summary of these considerations and additional recommendations follows.

A supply-side approach would address present barriers to U.S. manufacturers while minimizing unintended consequences.

Commerce should address *supply-side* barriers in order to promote fair, free trade. Intervening in the market by imposing a domestic sourcing requirement would be a *demand-side* approach. Without a requisite increase in supply, increased demand would drive prices up on a global basis. Domestic steel manufacturers might increase prices knowing that the pipeline companies have limited sourcing alternatives, and global providers could benchmark against those prices for sales into the U.S. In this instance, costs to consumers would rise before supply expands. Higher costs could result in unintended consequences – reducing or delaying investment, and consequently reducing jobs, in the U.S. energy industry and in pipeline infrastructure projects. Domestic sourcing requirements do not currently exist for any infrastructure projects funded with private capital.

A better approach is to focus on any regulatory, tax or trade policies that currently present barriers to U.S. companies developing steel, pipe, and equipment production capacity and competing for pipeline manufacturing projects; this would be a *supply-side* approach. As those barriers are identified and appropriately addressed, U.S. steel, pipe, and equipment production should be in a better position to supply the demands of the pipeline sector. It is important to understand that pipeline companies, like other manufacturers, value shorter supply chains over longer ones. If it were possible to source all materials and equipment within the borders of the U.S. at a competitive cost, policy intervention would not be necessary because the market would favor domestic content over imported content.

Recognize the limitations imbedded in existing “Buy America” programs

The Presidential Memorandum implicitly recognizes limits on domestic sourcing requirements, and thus directs Commerce to implement these requirements “to the maximum extent possible.” The Associations urge Commerce to review reasonable and measured exceptions of the sort adopted by Congress and federal agencies that implement existing statutory “Buy America” requirements. Such requirements include, for example, domestic source requirements attached to

projects that use federal funds granted by certain DOT agencies for airports, rail and transit facilities, and highways.²⁷

Notably, the domestic sourcing requirements imposed by DOT agencies contain important exceptions. The Secretary of Transportation, for example, is permitted to waive Buy America requirements in the following situations: (1) where it is determined that the Buy America requirement is inconsistent with the public interest; (2) where steel or other materials subject to domestic content requirements are not produced in the United States in sufficient and reasonably available amounts or are not of a satisfactory quality; or (3) where the inclusion of domestic material would increase the cost of the overall project by a certain percentage.²⁸

For projects involving existing pipelines, including repair and replacement projects, there are important maintenance and service reliability considerations that should influence Commerce's plan. As discussed in Section IV, operators need to be able to respond in a timely fashion to repair and replace segments, when necessary. If operators are unable to purchase the specific line pipe and steel/iron equipment necessary to make repairs and replacements within the allowed timeframe, it may be necessary to shut down or reduce the pressure of a pipeline until the work can be completed, impacting customer service reliability in the interim. Commerce's plan should consider whether these potential impacts to maintenance activities and reliability of existing pipelines are consistent with the public interest.

The Commerce plan should exclude any pipeline project where domestic line pipe and steel/iron equipment cannot be procured in adequate quantities and to the necessary technical specifications, along with the other key factors in purchasing decisions - price, product lead time, warranties, and flexibility. Domestic steel, line pipe, and steel/iron equipment manufacturers might not always have the capacity to manufacture pipe to the specifications required for a particular project. This may include pipe of a particular diameter, wall thickness, or material, as outlined in Section III (as previously discussed, certain line pipe and steel/iron equipment is currently not possible to source domestically). Where an international manufacturer may be the only facility that is properly equipped to produce a company's required specifications so as to allow a U.S. pipeline project to proceed, a domestic content requirement should not stand in the way of the project and its potential benefit to Americans.

²⁷ Specifically, the Buy America Act refers to a series of statutes that apply to DOT agencies, such as the Federal Highway Administration, the Federal Aviation Administration, and the Federal Railroad Administration. *See, e.g.*, 23 U.S.C. § 313 (prohibiting the use of federal funds for a highway project unless it is constructed out of products produced in the United States); 49 U.S.C. § 50101 (prohibiting the use of federal funds for airport projects unless such project will be constructed out of products produced in the United States); 49 U.S.C. § 24405(a) (requiring that federally-funded intercity and high-speed rail projects be constructed out of U.S.-made products).

²⁸ *See, e.g.*, 23 U.S.C. § 313(b).

Precedent has been set through exemptions to existing anti-dumping rules to allow operators to source line pipe for certain heavy wall, large diameter, high strength applications from foreign pipe mills.²⁹

The Commerce plan should ensure that pipeline projects do not become prohibitively expensive to undertake due to domestic sourcing requirements. While construction costs for pipelines vary project-to-project, new construction and replacement costs generally amount to millions of dollars per mile of pipe. Larger pipeline projects that are several hundreds of miles long and span several states accordingly can cost several billion dollars to construct. It is therefore imperative that the overall increase in project cost, including costs from construction delays, resulting from any domestic sourcing requirements be considered in Commerce's plan.

Implement a Phase-In Period and Exclude Ongoing Projects

To prevent disruption to ongoing pipeline construction projects and the construction jobs supported by these projects, Commerce should consider excluding pipeline projects that already have shipper commitments and/or pending or issued federal or state permits. This exclusion would apply to interstate projects with a pending or issued FERC certificate, to intrastate transmission and distribution pipelines projects that have been approved by the responsible state agency, and projects that are subject to federal or state agency siting or permitting review.

Additionally, Commerce's plan should consider a phase-in period that would allow pipeline operators, domestic mills, and distributors some ability to prepare for changes and bring additional production capacity online. Domestic steel and pipeline manufacturing industries would need time to boost their capability to meet the unique demand and support the continued growth of America's energy pipeline infrastructure. The companies that currently supply the U.S. pipeline industry have spent considerable time and resources perfecting their processes. New entrants would need to consider these costs relative to the size of the niche market for pipeline materials and equipment. A phase-in period could help reduce unintended consequences to American workers constructing pipeline projects and employed at domestic mills.

The Presidential Memorandum Appears to Recognize Potential Legal Constraints

By asking Commerce to develop a plan for a possible pipeline domestic content requirement "to the extent permitted by law," the Presidential Memorandum appears to recognize potential legal constraints on such a requirement. The nature and scope of potential legal limitations will depend on several factors, including the terms of any content requirement itself as well as the source of the requirement—whether through an exercise of claimed inherent presidential authority, through a federal agency acting under statutory authority to be granted by Congress, or by some other government instrumentality acting pursuant to other asserted legal authority. Neither the Presidential Memorandum, nor the Federal Register Notice, nor any other information available at this time, provides sufficient guidance on how a domestic content requirement might be implemented, or identifies the legal authority that would support such a requirement. Because the

²⁹ Certain Welded Large Diameter Line Pipe from Japan Investigation No 731-TA0919 (Second Review) Publication 4427, September 2013, US International Trade Commission".

Presidential Memorandum recognizes that any domestic content requirement should be implemented “to the extent permitted by law,” the Associations believe it is important that the plan address potential legal constraints. The Associations therefore respectfully request that interested stakeholders be provided a meaningful opportunity to provide advance comment on any possible domestic content requirement, including comments on possible legal limitations and ramifications.

Conclusion

The Associations support President Trump’s objective to grow domestic jobs and boost the U.S. economy by reinvigorating American manufacturing. Members of the Associations already employ a large American workforce to design, construct, operate and maintain their privately owned and financed pipelines and associated facilities. As a result of current hiring practices for labor and current sourcing practices for materials and equipment, approximately *70 percent* of spending for today’s oil and gas pipeline projects ends up in the pockets of American workers and business owners.

However, a number of hurdles unique to pipeline-grade steel and pipe manufacturing must be overcome to expand domestic pipeline production and manufacturing. If these hurdles are not overcome, government action to increase domestic steel and pipe production could have the unintended result of reducing or significantly delaying new pipeline projects, limiting U.S. pipeline job growth, and hurting American consumers. Fewer new pipeline projects would run counter to the Trump administration’s goal of expanding U.S. energy production and infrastructure to support the economy, job growth, and national security. The plan to be developed by Commerce should recognize that global sourcing of steel is currently essential for the continued growth of America’s energy pipeline infrastructure and the U.S. economy overall. The Associations believe that these comments will assist Commerce in identifying and addressing these hurdles.

While the Presidential Memorandum raises a number of challenges, the companies represented by the five trade associations commit to engaging with the appropriate executive branch officials, project regulators, and other vital partners, particularly steel manufacturers, to forge solutions that will promote job growth and affordable energy in America.