

An aerial photograph of a landscape with various colored lines overlaid, representing different pipeline routes or property boundaries. The colors include yellow, orange, and magenta. The lines are irregular and follow the contours of the land, with some crossing each other. The background is a grayscale aerial view showing terrain, roads, and some structures.

# NAVIGATING

## A PIPELINE REROUTE

A guide to understanding and effectively managing the concerns

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In the process of negotiating property rights along a proposed pipeline route, right of way professionals are routinely asked to consider alternative routing options. Determining which reroutes to approve and implementing measures to anticipate routing concerns is a major component of any large pipeline project.

Beyond the clichéd request to “route it on my neighbor,” landowners may offer an alternate route across their land that, from their perspective, is more favorable. For example, a suggested reroute might avoid disturbing some envisioned future land use or a treasured resource, or it may simply align the route more logically with an existing property line. Pipeline companies have learned to anticipate these kinds of commonplace discussions, and in many cases, the feedback can actually be

helpful in fine-tuning a pipeline’s final design. Recognizing that some reroutes are unavoidable and may even serve the overall project routing objectives, it’s a mistake to take a blanket ‘no reroutes’ position. After all, landowner buy in to a project’s proposed route and purpose will benefit the project as it moves forward. And stakeholder participation is mandated by regulatory agencies.

Understanding the project routing choices will equip the right of way negotiator with an ability to discuss options with landowners from a more informed perspective. Quantifying their concerns, valuing impacts and communicating options are all part of an effective negotiator’s normal process. Understanding the comparative impact of a reroute to the original route should be just

as intuitive. We can't avoid the reality that too many reroutes (or mismanaged ones) can potentially have an adverse effect on a project's schedule and budget.

### Market Demand

Before individual reroute evaluations can be effectively considered and communicated to a stakeholder, an agent should have a basic understanding of the general routing drivers behind all pipeline projects.

Pipelines are needed in response to a commercial market demand for the product they deliver. In general terms, their origin is dictated by access to that product at the source, and a terminus is dictated by specific customer demand or a need to get this product to a specific region or transmission network. Essentially, it is the market that drives where a route begins and ends. This point is best illustrated when multiple companies are competing for the same demand. While each company may show a divergent origin based on its market access to the product, they will have the same or similar terminus due to the unique customer demand for which they are all competing.

Equally important to the commercial component of any project is the "in service" date. These dates are generally fixed based on a contractual commitment to the pipeline's customer and can carry substantial penalties if missed. This is relevant to routing in that all major changes will be weighed against their final impact to the viability of the project's commercial commitments. A project's beginning, end and time allotted for completion are driven by the commercial interest for which the project is being designed. Even if a project has multiple end users with laterals along the main route and branches that extend to serve those market commitments, each party will have agreed on the in service date, and one of those customers will be at the project's terminus.

### Regulatory Considerations

Pipeline construction falls under multiple state and/or federal regulatory authorities ranging from individual Public Utility Commissions to the Federal Energy Regulatory Commission (FERC). When crossing international boundaries, as in the case of the Keystone Pipeline project, the U.S. Department of State is also involved.

Whether interstate or intrastate, the product transported and its route can affect jurisdiction on a given project. There are also permitting concerns associated with crossing state or federal lands, native American sovereign lands, navigable waterways, as well as Clean Water Act and Clean Air Act implications that can and will affect routing. Some agencies may even require a pipeline to investigate a "go around" option and its potential impacts prior to granting a permit to cross their lands.

On pipeline projects desiring FERC certification, stakeholder input on route selection is an integral and required component of the process. FERC regulation, 18 CFR Section 380.15(b), Siting and Maintenance Requirements, states:

**Landowner consideration.** The desires of landowners should be taken into account in the planning, locating, clearing, and maintenance of rights of way and the construction of facilities on their property, so long as the result is consistent with applicable requirements of law, including laws relating to land use and any requirements imposed by the Commission.

Finally, regulatory requirements to co-locate along existing utility corridors and avoid culturally significant or environmentally sensitive areas may even result in competing entities proposing very similar alignments along portions of their separately proposed routes.

“...to anticipate routing concerns is a major component of any large pipeline project.”

### Cost to Construct

Knowing that pipelines are built based on a competitive market demand for the product they can deliver, it is reasonable that the cost to construct would be a major factor in developing a competitive proposal and its associated routing. Therefore, it is logical that the shortest distance from source to market, at least from a construction standpoint, would be the least expensive option.

A pipeline construction report published in 2012 by Underground Construction Magazine referenced a review of 120 pipelines constructed over the past decade using the most commonly expressed terms of dollars per inch-mile. The report stated, "The average estimated shale gas pipeline rose in 2011 to almost \$200,000 per inch-mile (the cost per pipeline diameter inch per mile)." This pricing scheme would place the cost of a 20-inch shale region pipeline at around \$4 million per mile (20" x \$200,000). This is an all-inclusive cost. The same report indicated a typical 120-mile long, 24 to 36 inch pipeline trending in the \$500 million range (\$4 million+ per mile).

In 2009, the Pipeline & Gas Journal published an article that referenced natural gas pipeline costs at \$1,000 per

inch-mile, forecasting through 2030 using data compiled by FERC from 1993 to 2004 (see chart below). This study found that “the cost of pipeline construction is divided roughly equally between materials, labor and miscellaneous. Costs for right of way account for 8 to 9 percent of total construction costs.”

Of course, the pricing will fluctuate with demand for construction services, project location, material type and availability, as well as overall costs. However, these numbers are provided for the purpose of perspective and to aid in better understanding that routing has a direct impact on overall project costs.

## Before the Project Begins

Before a proposed project ever hits the ground, right of way, environmental, engineering, regulatory and construction specialists will have already invested considerable time and effort in evaluating potential routes and ruling out failed options. Within their respective criterion, factors such as constructability, access, safety and maintainability are coupled with efforts to minimize project impacts to potential stakeholders while meeting

routing guidelines typically required by the applicable regulatory authorities. This level of detailed route proofing is not optional.

Regulatory agencies that oversee pipeline certifications and/or authorizations mandate an exhaustive review and justification for routing choices. A company proposing a major interstate pipeline project will make diligent efforts to quantify its costs by developing budgets and schedules based on this detailed evaluation. Additionally, a risk analysis matrix is typically used to anticipate potential failures and their respective impacts to the project scope. And while this article will not address the specific costs associated with these early studies, it is important to note that the cost can be significant in terms of resources expended to get to a preliminary route for project kick-off.

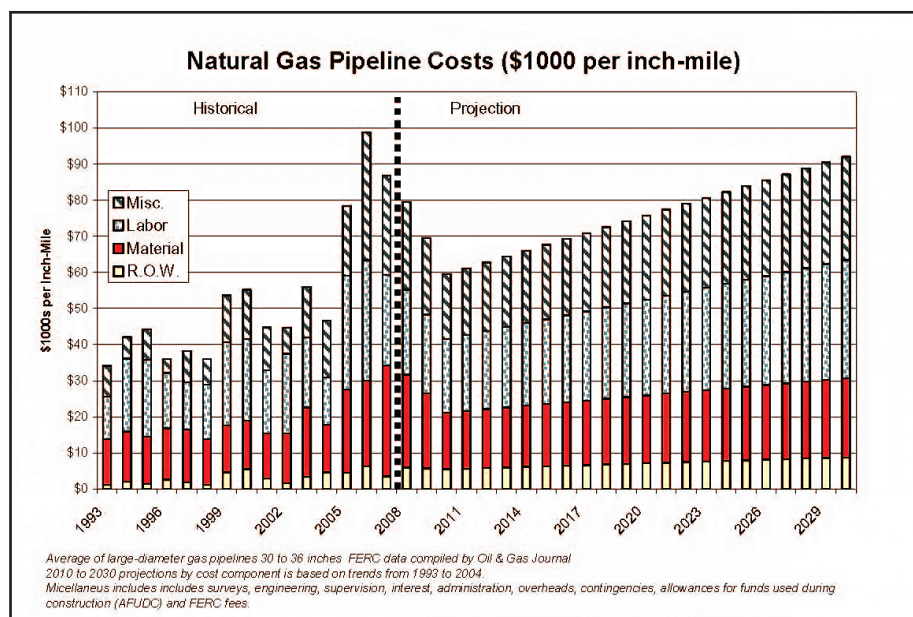
## Preliminary or Proposed Route

Referring to a route as preliminary or proposed acknowledges that it is not final and that it is subject to review, verification and/or approval by a regulatory agency. Once a preliminary or proposed route is introduced, the work of fine-tuning the centerline begins with an actual “on the

ground” investigation of routing concerns. Interstate pipeline projects typically establish a study corridor extending several hundred feet on each side of the proposed centerline. A 600-foot wide corridor with 300 feet on each side of the proposed centerline is not uncommon on projects requiring FERC certification. Liquids or product lines subject to individual state jurisdictions may have a smaller corridor, but regardless of the width, the concerns are similar.

Right of way agents will acquire survey permissions to allow civil, environmental and cultural surveys of the lands within the study corridor. In a best-case scenario, these agents will liaise with property owners through face-to-face contact in support of the various survey efforts. While centerline discussions are typically discouraged at this early stage (and possibly removed from public exhibits), landowners will begin to see the corridor’s placement on their property and will commonly bring relevant concerns, like future building or development plans, to an agent’s attention.

Agents will be tasked with personally polling landowners to identify factors that might not be readily apparent to the various study teams whose site visits tend to be non-intrusive. New factors that will be identified and located at this stage can include wells, springs, septic tanks, underground storage tanks, drain tiles, leach fields, irrigation systems and graves, any of which could potentially cause a change in the proposed routing. Many companies have incorporated these concerns into standardized forms for use during the survey permitting process so that an agent can carefully review an itemized list with the owner and document the particulars of each concern. The content of these forms is captured and incorporated into the overall design schema and project regulatory applications/resource reports as applicable. Since specific centerline exhibits were never made available for review or part of these discussions, any routing centerline changes that result from these initial investigations may never be known to the landowner.



Source: Pipeline & Gas Journal



## Not Just About Right of Way

It should be noted that right of way is only one of many disciplines working together to bring a pipeline project successfully to market. As such, our goal is not just to acquire right of way. We are engaged to work with a team of industry professionals across multiple disciplines to complete a series of complex goals, all critical to a project's success and all bound to the same timeline. Our right of way assignments are critically and inextricably linked to the larger project scope. The following cross-discipline concerns can be directly affected by routing decisions made in the field.

**Final design for bid packages:** Every project will have a Notice to Proceed (NTP) for construction. That date is the official start for a pre-selected pipeline construction company to begin work. Before a company can be selected to construct a pipeline, final bid documents must be made available to prospective bidders. These documents will include engineering and procurement's best estimates for all quantities required for the construction process. Interested bidders will develop their proposals based on these quantities and contingencies for additions (change orders) as required. Change orders and move arounds (moving an active construction team from one location to another further down the line, leaving a construction gap) are extremely expensive. Design will work hard to minimize these events and provide a bidder with as complete a bid package as possible. Unresolved routing issues can result in a bid package with built in contingencies that will directly affect bid pricing and cause increases in construction costs—the largest single budget component in most projects.

**Procurement of pipe, valves, meters, compression or pumping equipment:** Components needed for large diameter pipeline projects are typically not off-the-shelf items. Procurement will work directly with manufacturers to secure the best pricing for all items required for the project's completion. The biggest challenge will be working against backlog schedules to ensure



During the preliminary routing phase, agents will liaise with property owners to identify potential issues and concerns.

the items ordered will get delivered on time for construction. Many of these items, such as the pipe itself, may take months or even a year to manufacture.

One example of a procurement item being affected by routing is the count of main line valves on a natural gas pipeline. Their count and spacing along a route is predetermined, with marginal flexibility, by regulatory requirements associated with pipe classification. Adding length because of a reroute can easily add to the number of valves needed, as well as result in the realignment of previously purchased valve sites. This would not only increase the overall cost of materials, but it would also require the renegotiation of new valve locations. While the procurement specialists work to anticipate such events, it does not negate the impact to pricing and overall project cost.

**Permits and development of Environmental Impact Statement or Environmental Assessment:** Permitting continues to be an increasingly complex component of major pipeline projects. The data required to complete an Environmental Impact Statement (EIS) or Environmental Assessment (EA), which most major pipeline projects require, is exhaustive. Right of way professionals will work closely together with environmental and cultural specialists to compile and assemble field data required for the various

applications and reports. And since these compliance components are associated with regulatory filings, they are directly linked to a completion and submission date associated with that filing.

Route changes will have a direct effect on the information in these documents. In an ideal scenario, any reroutes would occur within the study corridor and would have already been cleared with respect to environmental and/or cultural concerns. Route refinements made outside the study corridor have the potential to adversely affect budgets and completion targets for these applications as they will result in additional studies, along with the costs and time associated with those efforts. Since the new areas outside the corridor have not been studied, there is a possibility that some environmental or cultural concern could be discovered, requiring additional route considerations to avoid or mitigate. The cascade effect on the project schedule could result in a delayed filing, which could cause a delayed approval and therefore adversely impact a project's programmed construction schedule and in-service date.

**Survey exhibit/plat preparation:** Any changes in the route will require a new survey of the proposed alternative. This includes staking the new centerline, updating digital design files and revising acquisition documents for right of way. The

new documentation will require review and approval prior to moving forward with acquisition. If the new route is outside the study corridor, the surveying group may require supplemental title research in support of their efforts.

**Submission of regulatory filings (FERC filings and PUC requirements):** Regulatory agencies are entrusted by the public with ensuring that projects subject to their review, authorization and/or oversight are planned and implemented in compliance with all applicable statutes and accepted best practices for the industry. A project's regulatory filings have their own timelines which cannot be advanced by the commercial interest of a project. Routing of a project is a major component of these filings. Items such as co-location along existing utility corridors and avoidance of cultural or environmental concerns have already been mentioned. Some agencies even require submission of multiple route alternatives with a company's supporting defense for their selected route. Deviations in a proposed route can result in the delay of a filing or an application for a variance where a project has already been approved. While some reroutes are seen as in the public's best interest, such as when construction ditching unearths a significant archeological site, these agencies will want to know that the new route has been reviewed as thoroughly as the previously approved route. Filing submission delays and/or variance applications typically translate into additional project costs.

## Managing the Reroute Review Process

Pipeline companies are well aware of the potential and cumulative impact of reroutes on a project's scope, schedule and costs. This is one reason why many companies now commonly institute a formal reroute review process to track and manage individual requests. Another reason is because regulatory agencies often require a company to document its consideration of landowner routing concerns (18 CFR Section 380.15(b), Siting and Maintenance Requirements, previously cited with respect to FERC projects) as a part of their overall route approval process. In this process, companies will engage engineering, construction,



If construction ditching unearths a significant archeological site, the environmental or cultural concern of each new route has a cascading effect on the cost, schedule and in-service date.

environmental and right of way in the review of each reroute request.

A formal approach affords all disciplines the opportunity to evaluate the cost and schedule ramifications with respect to their specific area of expertise. It also informs each discipline of all issues associated with the reroute and the panel's decision. Ultimately, the right of way agent will be able to communicate the results of the review more effectively to the impacted owners.

There are paperless software options for electronic review and tracking, however some companies may still use standardized forms or a combination of both. Either process will likely include these basic components:

- Issue date
- Requestor
- Reroute
- Tract numbers affected
- Beginning and end point
- Reroute description
- Reroute rationale
- Comparative matrix
- Support points
- Final decision

## The Takeaway

A prudent right of way professional will recognize that the issue of reroutes goes beyond a simple cost comparison scenario. Pipeline companies will be neighbors with these landowners for years and will clearly

benefit from maintaining positive and cooperative relationships that may span decades. There is certainly a cost threshold to be considered, but it may not be as simple as the cost of pipe versus the cost of land. Understanding the basics of pipeline routing and some of the simple cost implications associated with reroutes will aid the skilled negotiator in intelligently discussing these options with landowners. It can also add value to counteroffers as they are contrasted against the added time and cost ramifications of exploring an alternative route. ★

## References

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