

# **ALTERNATIVES**

## **CHAPTER 4**

## **4.0 ALTERNATIVES**

Several project alternatives have been identified and evaluated to determine if they would be reasonable and provide environmental benefits when compared to the proposed action. The range of alternatives includes the No Action Alternative, System Alternatives, Route Alternatives, Route Variations, and Aboveground Facility Location Alternatives.

The evaluation criteria used for developing and reviewing alternatives were:

- technical feasibility and practicality;
- significant environmental advantage over the proposed action; and
- ability to meet the project's stated objective of transporting natural gas from supply basins in the central Rocky Mountains to interstate shippers at Wamsutter, Wyoming, who would carry the gas to markets in both the western and central U.S.

The development and analysis of alternatives were shaped by the public and agency interactions that occurred during the scoping portion of the FERC's NEPA Pre-filing Process. WIC established a preliminary pipeline centerline prior to initiating the Pre-filing Process. This was followed by scoping meetings and agency field reviews to obtain feedback on the proposed routing. WIC developed new route segments to respond to specific issues, and then followed up with landowners and agencies to confirm proposed changes. The route alignment that WIC filed on January 24, 2005, represents the proposed action analyzed in this EIS.

The alternatives that are carried forward in this analysis are those that:

- offer potential environmental impact reduction benefits relative to the proposed action; and
- represent deviations from an existing pipeline corridor where we believe the potential environmental costs/benefits favor locating the proposed pipeline segment outside the corridor. Several short route variations have already been evaluated and the preferred variations have been incorporated into the WIC proposed action. The reasons for incorporating these route variations are explained in WIC's Resource Report 10 (available on the FERC website), and therefore, are not further discussed here.

### **4.1 No Action**

The actions triggering this environmental review were WIC's applications to the FERC for a Certificate and to the BLM for new or amended ROW grants across public (federal) lands. The FERC and the BLM have three courses of action in processing these applications. They may:

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1. grant the approvals with conditions;
2. grant the approvals without conditions; or
3. deny the approvals.

If the FERC and the BLM deny WIC's applications, the environmental impacts identified in this EIS would not occur and the stated objectives of WIC's proposal would not be met. Specifically, customers in the western and central U.S. would not have access to the 350 Dthd (341 MMcfd) of natural gas that would be transported by the Piceance Project. Additionally, producers in the Piceance and neighboring production basins (as well as the Central Rocky Mountains supply region) would be denied up to 350 Dthd of new regional transportation capacity.

If the Entrega Project were approved and constructed, the capacity of this new 36-inch-diameter pipeline could be sufficient to transport WIC gas volumes to WIC's interconnections with the interstate pipeline system at Wamsutter, Wyoming over the short term (estimated to be less than 5 years). Entrega proposes to initially convey about 750 MMcfd out of a capacity of 1,500 MMcfd from the Piceance Basin to Wamsutter. However, as Entrega's shippers increase volumes through the Entrega pipeline, the WIC volumes would likely be displaced. As a consequence of this displacement, an alternate gas transportation system, or modifications of the Entrega Project system (e.g., additional compression) would be required to accommodate the WIC gas volumes (see section 4.2, System Alternatives).

As gas production increases in the Piceance Basin and surrounding gas supply basins, the need for a new pipeline that provides a similar level of service as the WIC system also would increase. If other natural gas pipelines and associated facilities are constructed in the future instead of the proposed Piceance Project, each future project would result in its own specific impacts that could be less or greater than the Piceance Project.

Alternative energy sources (e.g., solar, hydroelectric, geothermal, fuel cells) are not physically or commercially available in the market area to meet project objectives.

Denying authorization of the proposed project also could result in more expensive and less reliable natural gas supplies for the end-users and/or greater reliance on alternative fossil fuels, such as coal or fuel oil. Increased use of alternative fossil fuels would likely result in greater emissions of SO<sub>2</sub>, NO<sub>x</sub>, and PM<sub>10</sub> compared to other fossil fuels (**table 4.1-1**). If coal were used in lieu of natural gas (assuming 341 MMcfd for 365 days), annual emissions of SO<sub>2</sub>, NO<sub>x</sub>, and PM<sub>10</sub> would be 10,800, 8,795 and 400 tons higher, respectively.

### 4.2 System Alternatives

System alternatives are those that use other pipeline systems to achieve the objectives of the proposed action. A system alternative would make it unnecessary to construct all or part of the Piceance Project. One type of system alternative would require modifications or additions to another existing pipeline system in order to increase its capacity. Another type of system alternative would require that a new pipeline system be constructed. Such modifications or additions would result in some measure of environmental impact; the

impact could be less than, similar to, or greater than that associated with construction of the proposed project.

**Table 4.1-1  
Comparison of Controlled Emission of Criteria Pollutants for Three Boiler Types  
(Tons Per Year)**

Boiler Type	SO <sub>2</sub> <sup>1</sup>	NO <sub>x</sub> <sup>2</sup>	PM <sub>10</sub>
Coal-fired	10,800	8,800	400
Oil-fired <sup>3</sup>	7,000	7,100	1,800
Natural Gas-fired	0	4.6	100

Assumptions:

- <sup>1</sup> Assumes 1.2 percent sulfur coal, 1 percent sulfur oil, pipeline quality gas.
- <sup>2</sup> Assumes low NO<sub>x</sub> burners on all units, which is the standard burner design for new installations.
- <sup>3</sup> Fuel oil-fired boiler assumes Number 5 oil, tangentially fired.

Source: Calculated from EPA Compilation of Air Pollutant Emission Factors AP42 Fifth Edition based on typical standard configurations and assumptions. Individual boiler performance may be different from this example.

**4.2.1 Other Existing Pipeline Systems**

The major interstate pipelines that pass through the Greasewood Hub are the Williams' Northwest Pipeline Corporation (Northwest Pipeline) 26-inch-diameter pipeline (including a 10-inch-diameter lateral pipeline between the Piceance Basin and Rangely, Colorado), the CIG Uinta Basin Lateral 20-inch-diameter pipeline, Questar's Dragon Trail 14-inch-diameter line, and Kinder Morgan's TransColorado 22-inch-diameter pipeline. Entrega and WIC provided estimates of the subscribed capacity of these pipelines in relation to actual volumes transported. **Table 4.2-1** summarizes this investigation.

**Table 4.2-1  
Capacity and Subscription Status of Existing Interstate Pipelines Serving the Piceance Basin**

Pipeline	Capacity (MMcfd)	Recent Gas Flow (MMcfd)	Firm Subscriptions (MMcfd)
CIG Uinta Basin Lateral	222	198	222
CIG to Northwest Pipeline	290	190	290 <sup>1</sup>
Northwest Pipeline Lateral	40	26	4.7
Questar Dragon Trail	120	40	120
TransColorado	385	338	385
Total	1,057	792	1,021.7

<sup>1</sup> WIC's and Entrega's estimates based on best available information.

In addition to capacity, **table 4.2-1** provides the recent gas flow and firm subscriptions for these existing systems. Information in **table 4.2-1** was compiled and extrapolated from interstate pipeline public websites, contacts with pipeline personnel, and recent industry presentations on the subject matter. The table includes

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a “CIG to Northwest Pipeline” category because CIG delivers significant quantities of gas to Northwest Pipeline at this point. However, since the Northwest Pipeline system transports gas from Utah’s Uinta Basin, not all of the capacity or flows shown are necessarily from the Piceance Basin. This observation also generally applies to the CIG Uinta Basin Lateral, which transports gas from both the Uinta and Piceance Basins.

Assuming that these pipelines continue to carry the gas volumes recently transported (rather than their firm subscription volumes) for the immediate future, the combined existing systems would accommodate about 76 percent of WIC’s proposed volumes. Given the diameters of these existing pipelines (the largest is the Northwest Pipeline at 26 inches), transport of WIC’s remaining volumes would require either:

- a) additional looping and additional compression on multiple systems or
- b) looping one system in its entirety.

While option (a) might disperse the associated environmental impacts, it is unlikely that this option would substantially reduce impacts when compared to the Piceance Project. Furthermore, the use of multiple pipeline systems would not meet the Piceance Project’s objective of gas deliveries to Wamsutter.

The fact that both WIC and Entrega have signed agreements with new shippers sufficient to finance and construct entirely new, large-diameter pipelines (24 and 36 inches in diameter, respectively) indicates that the amount of capacity needed exceeds that which could be obtained economically by adding looping and/or compression to the existing pipeline systems. In other words, we assume that at least one existing system would have to be completely looped to accommodate the proposed WIC volumes. This, in effect, is what WIC proposes (i.e., to loop CIG’s 20-inch-diameter Uinta Basin Lateral between the Piceance Basin and Wamsutter). Given that the impacts associated with looping an entire pipeline system between the Piceance Basin and Wamsutter would be essentially equivalent to those associated with WIC’s proposal, the use of existing systems would not provide a significant environmental advantage over the proposed action. Therefore, this alternative was eliminated from further consideration.

### 4.2.2 Proposed Pipeline Systems

Entrega’s Project represents a new pipeline system that could potentially convey WIC’s gas to Wamsutter by interconnecting with the Piceance Project’s supplier at the proposed Meeker Hub, increasing the diameter of its pipeline, and/or adding compression.

Several commentors requested that we examine the alternative of transporting the Piceance Project’s gas and the Entrega Project’s gas in a single pipeline between the Piceance Basin and Wamsutter. **Table 4.2-2** presents the facilities proposed by WIC and Entrega individually, as well as the facilities required by a “one-pipe” alternative sized to carry the combined gas volumes (i.e., 1,850 MMcfd) to Wamsutter by either Entrega or WIC.

**Table 4.2-2  
Comparison of Facilities Required by Entrega and WIC  
Proposed Actions and “One-Pipe” Alternative<sup>1</sup>**

Facilities and Location	WIC Piceance Project Proposed Action	Entrega Project Proposed Action	WIC “One-Pipe” Alternative	Entrega “One-Pipe” Alternative
<u>Pipeline (miles @ diameter)</u>				
Pipeline to Wamsutter	141.8 @ 24”	136 @ 36”	141.8 @ 42” <sup>2</sup>	136 @ 36” <sup>2</sup>
<u>Compression (horsepower)</u>				
Meeker Hub	---	15,400 (ISO) <sup>3</sup>	15,400 (ISO) <sup>4</sup>	31,150 (ISO) <sup>5</sup> (15,400 + 15,750)
CIG Greasewood Hub	2,820 (ISO)	---	28,120 (ISO) (2,820 + 25,300)	---
TransColorado North Expansion	4,670 (ISO)	---	4,670 (ISO)	---
Bighole	---	30,000 (ISO) <sup>3</sup>	---	65,850 (ISO) (30,000 + 35,850)
<b>Total Compression</b>	<b>7,490 (ISO)</b>	<b>45,020 (ISO)</b>	<b>48,190 (ISO)</b>	<b>97,000 (ISO)</b>
<u>Metering and Pressure Regulation Requirements</u>				
Meeker Hub	---	one receipt meter	---	one receipt meter
CIG Greasewood Hub	one receipt meter	---	one receipt meter	one receipt meter
Wamsutter	two delivery meters	two receipt/delivery meters	two receipt/delivery meters	two receipt/delivery meters
Pressure Regulation	---	---	one/two regulators	one/two regulators

<sup>1</sup> Facilities needed to deliver Piceance Project and Entrega Project proposed gas volumes from the Piceance Basin to Wamsutter, Wyoming. Additional compression required by Entrega to transport gas to the Cheyenne Hub is not included.

<sup>2</sup> This mileage does not account for a “linking” pipeline between the Greasewood and Meeker Hubs. Delivery of WIC’s 341 MMcf/d to Entrega’s proposed Meeker Hub Compressor Station would require about 7 miles of 24-inch-diameter pipeline. Delivery of Entrega’s 1,500 MMcf/d to WIC at the Greasewood Hub would require about 7 miles of 36-inch-diameter pipeline.

<sup>3</sup> Entrega’s estimate of ISO horsepower. Entrega will finalize compression requirements after price negotiations are completed in mid-2005.

<sup>4</sup> This figure represents total compression available at the Meeker Hub, which is designed to transport gas over a distance of approximately 76 miles. Less compression would be required to transport gas over a distance of 7 miles from the Meeker Hub to the Greasewood Hub.

<sup>5</sup> Includes 12,600 (ISO) horsepower required to bring gas received from WIC up to Entrega’s system inlet pressure requirements (1,280 psig).

Each company approached the one-pipe alternative differently. Entrega would increase compression at its proposed Meeker Hub and Bighole Compressor Stations, but would leave the pipeline diameter at 36 inches. As a consequence, Entrega’s total horsepower (97,000 ISO) for transporting gas for both projects would be 44,490 horsepower more than if the two projects were constructed independently. WIC would increase the diameter of the shared pipeline to 42 inches, and the estimated total horsepower (48,190 ISO)

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would be 4,320 horsepower less than if the two projects were constructed independently. Based on these design differences, WIC's one-pipe alternative approach would reduce environmental impacts since the surface disturbance requirements between construction of a 36-inch and a 42-inch-diameter would be nearly the same, but the compressor operational emissions for the WIC alternative would be about half as much as Entrega's, based on the relatively smaller horsepower requirements.

While attractive in concept, this alternative would present a number of challenges. From an engineering standpoint, both companies plan on receiving natural gas from different producers at different delivery pressures. Also, WIC and Entrega have commitments with their shippers to deliver volumes at different pressures at their respective interconnections. While not impossible, melding the various factors and requirements together into a common system would be extremely difficult. As evidence of this fact, we note that Entrega and WIC attempted to resolve these differences and negotiate a common pipeline for several months before deciding to go forward as individual pipelines. For these reasons, we eliminated the one-pipe system alternative from further consideration. However, in recognition that a single pipeline would significantly reduce the surface disturbance caused by construction of two pipelines, we developed and analyzed a "Collocation Alternative" that examines the options for collocating the two projects in the same ROW to the extent technically feasible. This alternative is presented in section 4.3.2.

### **4.3 Route Alternatives**

A route alternative is defined as a route deviation that extends over several miles and is designed to address a single major environmental constraint, or multiple environmental issues, associated with the proposed action. In examining route alternatives, we assumed the point of origin and the terminus would be the same as the proposed project. Route alternatives for the Piceance Project considered public and agency scoping input, as well as impacts to sensitive environmental resources.

In our evaluation of the Piceance Project route, we considered routing options (via other utility corridors) that would reduce overall environmental impacts associated with the proposed pipeline route between the Greasewood Hub and Wamsutter. These routing options would avoid or reduce environmentally sensitive resources such as waterbodies, wetlands, SWAs, and upland wildlife habitat. Wamsutter lies directly north of the Piceance Basin; existing pipelines have established the shortest routes with the least topographic constraints between these two points. Routing proposed pipelines with other utility corridors is generally preferred by land management agencies, land use planners, and other regulatory agencies and has several inherent engineering and environmental advantages. Perhaps the most important of the environmental advantages is that new land disturbance is minimized. By overlapping a proposed construction ROW with other previously disturbed existing ROWs, the amount of new land disturbance can be reduced significantly. This is particularly important in arid environments where revegetation is slow and where the evidence of construction impacts often persists for years. Because of these advantages, routes that deviate from the existing ROW are often driven by issues such as engineering constraints that make remaining adjacent to the existing ROW impractical and/or result in increased environmental impact.

For these reasons, the location where WIC has proposed a route deviation from the existing Uinta Basin Lateral between MP 105.1 and the CIG Greasewood Compressor Station is examined below in

section 4.3.1. In addition, route alignment alternatives that would limit the overall disturbance of both the Piceance and Entrega Projects also were examined (section 4.3.2).

#### **4.3.1 Uinta Basin Lateral Route Alternatives**

Several route alternatives were considered along the final 36.7 miles of the Piceance Project where the proposed pipeline route deviates from the Uinta Basin Lateral. These route alternatives were considered because they could disturb less upland wildlife habitat and would parallel more miles of existing pipeline corridors. We examined existing pipeline corridors that extend northward or westward from the Greasewood Hub that could make further use of the existing Uinta Basin Lateral ROW south of MP 105.1. Because the proposed Entrega Project route makes use of the Uinta Basin Lateral ROW, our analysis also included a review of the proposed Entrega Project route along this same segment (**figure 4.3-1**). Three possible existing pipeline corridors were identified (Pipeline Segments A, F, and D) as route alternatives to the Piceance Project proposed action (Pipeline Segment G).

1. We concluded that Segment A would not be a feasible route because it would cross the BLM Dudley Bluffs ACEC and new surface disturbance in this designated area would not likely be approved by BLM if other route alternatives were available.
2. Segment F currently includes the 20-inch-diameter CIG Uinta Basin Lateral pipeline and the Northwest 10-inch-diameter natural gas pipeline. Aside from its descent down a steep slope into Greasewood Gulch, there are no apparent major physical constraints for routing an additional pipeline in this corridor. This route segment north to MP 105.1 has been designated the Uinta Basin Lateral Route Alternative A. This alternative route essentially follows the existing Uinta Basin Lateral between the Greasewood Hub and MP 105.1 (about 33.2 miles). This alternative also would parallel the Entrega Project proposed route over a distance of approximately 25 miles.
3. Segment D currently includes three 8- to 12-inch-diameter pipelines that were used by American Soda as water and soda ash slurry pipelines. These pipelines were purchased by EnCana and will be used for natural gas liquids or produced water service. We did not identify any major physical constraints that would preclude the use of this existing pipeline corridor for an additional pipeline. This route segment, plus the proposed Entrega Project route north to MP 105.1 (including in part pipeline segment F) has been designated the Uinta Basin Lateral Route Alternative B. From Greasewood, this route alternative follows the EnCana pipelines for about 5.5 miles, the Entrega Project route for about 7 miles, and then follows the existing Uinta Basin Lateral for about 25 miles (which also is followed by the Entrega Project route).

**Figure 4.3-2** illustrates the geographical relationships of the Uinta Basin Lateral Route Alternatives. The results of our analysis are presented in **table 4.3-1**.

# Non-Internet Public

FINAL ENVIRONMENTAL IMPACT STATEMENT  
FOR THE PICEANCE BASIN EXPANSION PROJECT

Docket Nos. CP05-54-000

Pages 4-8 and 4-9  
Figures 4.3-1 and 4.3-2

Public access for the above information is available only through the Public Reference Room, or by e-mail at [public.referenceroom@ferc.gov](mailto:public.referenceroom@ferc.gov).

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**Table 4.3-1  
Comparison of Resources Crossed by WIC's Proposed Action  
(MP 105.1 to MP 141.7) and the Uinta Basin Lateral Route Alternatives**

<b>Resource</b>	<b>Analysis Parameter</b>	<b>Piceance Project Proposed Action</b>	<b>Uinta Basin Lateral Route Alternative A</b>	<b>Uinta Basin Lateral Route Alternative B</b>
<b>Miles Crossed (total miles per route alternative)</b>		36.7	33.2	37.5
Utilities	Parallel to Existing Utilities (e.g., roads, pipelines, transmission lines).	11.1	33.2	37.5 <sup>1</sup>
Geology/ Soil	Slopes >15 percent	2.3	1.8	1.9
	Potential Subsidence/Landslide Hazards	None	Yes	Yes
Wetlands	Wetlands Crossed <sup>2</sup>	0.3	0.8	2.6
Vegetation	Sagebrush scrub-shrub	18.1	12.8	10.4
	Salt Desert scrub-shrub	0	9.1	11.6
	Foothill scrub-shrub	3.4	0	0
	Pinyon-Juniper Woodland <sup>3</sup>	2.8	9.2	8.1
Wildlife	Critical Big Game Winter Habitat	15.8	21.7	19.2
	Sage Grouse Winter Range	1.7	1.1	0.8
Agriculture	Pasture and Hayland	5.7	2.1	7.5
Special Management Areas	CDO State Wildlife Areas	3.3	1.9	5.6
Sensitive Species	Bald Eagle Nesting Site (within 1 mile)	3.6	0	0
	Bald Eagle Roost Site (within 0.5 mile)	5.7	2.3	2.3
<b>Number of Crossings</b>				
Surface water	Piceance Creek Crossings	0	4	10
	Dry Fork Piceance Creek	1	0	0
	White River	1	1	1
	Listed Fish Critical Habitat (White River)	0	1	1

<sup>1</sup> This analysis assumes that the Piceance Project pipeline would parallel the Entrega Project pipeline in the Piceance Creek valley, while recognizing that the Entrega Project has not yet been approved for construction.

<sup>2</sup> Wetland crossings based on field delineations provided by project proponents.

<sup>3</sup> Approximately 6.7 miles of pinyon-juniper woodland along the Piceance Project proposed route were destroyed by fire. Because this habitat is not likely to regenerate within the lifetime of this project, the destroyed area was not included with the pinyon-juniper woodlands along the Piceance Project proposed route in this comparison.

The following are the most important environmental impact differences between the two alternative routes:

- The Uinta Basin Lateral Route Alternative A is approximately 4 miles shorter than the corresponding segment of the Piceance Project route; Uinta Basin Lateral Route Alternative B is approximately 1 mile longer than the corresponding segment of the Piceance Project route. As a consequence, surface disturbance for the alternatives would be nearly equal to, or less than the Proposed Action. The two alternative pipelines would be located within existing pipeline corridors throughout their entire length; the proposed action would not be located adjacent to existing pipeline or electrical transmission utilities over a distance of approximately 25.6 miles. The greater degree of utility collocation for the alternatives generally indicates better construction access and reduced requirements for temporary roadways as compared to the corresponding segment of the proposed Piceance Project route.
- The Uinta Basin Lateral Route Alternatives A and B would cross about 0.5 more mile of scrub-shrub (sagebrush, salt desert and foothill) vegetation than the corresponding segment of the Piceance Project; approximately 5 to 8 miles more sagebrush and 9 and 12 miles salt desert scrub-shrub, respectively, with no foothills scrub-shrub. The proposed line crosses approximately 3 miles of foothills scrub-shrub and no salt desert scrub-shrub. In addition, the alternative routes would cross 5 to 6 fewer miles of unburned pinyon-juniper woodlands than the corresponding segment of the Piceance Project. Despite the difference in amounts of pinyon-juniper woodlands, the long-term wildlife support functions of these shrubland and woodland communities would be similar when comparing the alternatives to the proposed action. However, the alternative routes would cross 4 to 6 more miles of big game critical winter range (as defined by the CDOW) and would cross 0.6 to 0.9 less miles of sage grouse winter range as compared to 1.7 miles crossed by the corresponding segment of the proposed Piceance Project route.
- The Uinta Basin Lateral Route Alternative A and B would cross Piceance Creek 4 and 10 times, respectively, compared with no crossings for the corresponding segment of the proposed Piceance Project route. The alternatives would cross 0.5 to 2.3 more miles of wetlands (consisting primarily of hay meadows and emergent wetlands). The Uinta Basin Lateral Route Alternative B would cross 2.3 more miles and the Uinta Basin Lateral Route Alternative A 1.4 less miles of CDOW SWA land as compared to the corresponding segment of the proposed Piceance Project route. Both alternative routes would cross the White River within Critical Habitat for FWS-listed fish; the corresponding segment of the proposed Piceance Project route would cross upstream of this Critical Habitat. The White River would, however, be directionally drilled, regardless of the crossing location.
- Both alternative routes would be located in an existing multiple pipeline corridor. In some locations where this corridor crosses steep terrain, there is limited width for construction of additional pipelines because of steep side slopes requiring cut-and-fill for the construction ROW (1.7 miles in the Piceance Creek drainage and 1.0 mile on Colorow Mountain north of the White River). Entrega modified its proposed Entrega Project route to avoid or reduce some of these topographic constraints, and it is expected that WIC would need do the same if either of these two alternative routes were followed by the Piceance Project route. The Uinta Basin Lateral Route Alternatives would cross an area of incised drainages, sinkholes, and local landslides in the Deep Channel Creek drainage (MP 105 to MP 115). The corresponding segment of the proposed Piceance Project proposed route would avoid these

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known topographic constraint areas and geologic hazards. The proposed route, however, would cross steep side slopes of the Dry Fork of Piceance Creek and Hay Gulch. The total length of steep slopes (greater than 15 percent) is slightly greater along the proposed route than the alternatives (0.4 to 0.5 mile).

In summary, the Uinta Basin Lateral Route Alternative A appears to reduce some environmental impact when compared to the corresponding segment of the proposed route because of: 1) less overall surface disturbance; 2) less disturbance of sage grouse winter range (a locally important issue); 3) less disturbance in CDOW state wildlife management areas; and 4) more miles parallel to existing pipelines. WIC, the operator of the Uinta Basin Lateral,<sup>22</sup> is very familiar with both the construction and operational history of this pipeline, which was constructed in 1993. In its filing to the FERC, WIC acknowledged that the Uinta Basin Lateral alignment represented the shortest distance to Wamsutter. WIC then stated that the Uinta Basin Lateral route “posed serious engineering and environmental problems through Piceance Creek and from the area north of the White River through Deception Creek Canyon. These problems included endangered fishes at the White River crossing, extreme erodible slopes and wetlands in the Piceance Creek drainage.” Based on these identified concerns, WIC proposed to construct its Piceance Project along an alignment that is entirely different from the existing pipeline corridor through the Piceance Basin along Piceance Creek. The proposed route is consequently different from the Entrega Project, which does parallel the Uinta Basin Lateral pipeline from the Piceance Creek drainage to Wamsutter.

We observe that the endangered fish issue at the White River crossing has largely been mitigated by WIC’s proposal to cross the White River using HDD method, and thereby avoid channel disturbance effects. There are other pipelines that have already been constructed parallel to the Uinta Basin Lateral through the areas considered to be major topographic constraints. We note that Entrega has modified its route in these constraint areas to meet its construction requirements; however, these constraints would further limit any additional pipeline alignments. Likewise, potential impacts to critical big game winter habitat could be avoided by the adhering to the proposed construction schedule.

In response to our inquiries, WIC identified areas of local geologic hazards (sinkholes, landslides) that have affected the Uinta Basin Lateral and required repairs. This information has been considered by Entrega in its proposed project design. Pipeline construction across wetlands, irrigated pastures, and streams is routinely required and best environmental practices would be applied to these crossings, consistent with WIC’s Procedures and other measures included in the project’s POD. Application of best management practices for soil management, stream crossings, and grading disturbed areas to maintain existing irrigation flow patterns would ensure that sediment increases in Piceance Creek (crossed multiple times by the alternatives) would be very short term, and that vegetation productivity in irrigated pasturelands could be restored in 1 to 2 years. However, we also recognize the regional importance of the Piceance Creek floodplain for livestock grazing, winter use by big game, and Piceance Creek instream aquatic resources.

We also recognize that the Entrega and Piceance Projects would be constructed in the same season and therefore, if both projects were to be constructed across the same steep terrain (e.g., Colorow Mountain), additional coordination would be required between the two projects so that construction spreads could pass

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<sup>22</sup> The Uinta Basin Lateral is owned by CIG (an affiliate of WIC).

each other in the same steep terrain. Because both projects propose late season construction, the separation of the two projects in the southern portion of the project may allow both projects to achieve their construction goals with the least amount of interference.

Because of its familiarity with the Uinta Basin Lateral and knowledge of Entrega's proposed route, WIC made the decision to propose a new route alignment that would not parallel the Uinta Basin Lateral. We understand from filing statements that WIC made this decision based on construction and operational considerations, as well as their belief that an upland route that avoided the Piceance Creek wetlands would be more environmentally acceptable. Based on our preliminary analysis in the draft EIS, we concluded that the specific construction and operational constraints that WIC anticipates had not been adequately explained to justify the decision to route the proposed pipeline in a new alignment between MP 105.1 and the Greasewood Hub. Therefore, in the draft EIS, we recommended that WIC provide an updated rationale for selecting its proposed route between MP 105.1 and the Greasewood Hub. We asked that WIC include site-specific areas of construction and operational concerns and an engineering and environmental analysis of following the Uinta Basin Lateral between MP 105.1 and the Greasewood Hub. We further recommended that the additional engineering and environmental information should include potential route variations that would avoid conflicts with the Entrega Project where the two projects would be parallel to each other if WIC were to follow the Uinta Basin Lateral in its entirety.

In its comments on the draft EIS, WIC provided additional details regarding the constraints associated with collocating their pipeline with the Uinta Basin Lateral. WIC states that the hay pastures in the Piceance Creek Valley are very susceptible to subsidence, which has affected the flow irrigation in the fields along the Uinta Basin Lateral, and which required 2 to 3 years of post-construction mitigation. WIC further cited the Colorow Gulch area as a particular constraint area along the Uinta Basin Lateral due to extreme topography. WIC maintains that, due to extreme terrain and soil conditions, this alignment would not likely provide additional suitable construction locations. This is particularly true since the Entrega Project pipeline is collocated with the Uinta Basin Lateral, further reducing potential pipeline routing and work area. WIC asserts that adequate room would be lacking to allow installation of a third pipeline through the Colorow Gulch area.

WIC also contacted the CDOW requesting their preferred routing for this segment of the Piceance Project. The CDOW indicated that it would be willing to permit one new pipeline across its lands in the Little Hills Wildlife Management Area through the Piceance Creek Valley, but strongly prefers that there not be two (i.e., both Entrega's and WIC's pipelines). Furthermore, WIC states that the CDOW would allow the Piceance Project pipeline to cross parts of the Little Hills Wildlife Management Area that are not in the Piceance Creek Valley along WIC's currently proposed route.

Additionally, in their comments on the draft EIS, the BLM has indicated that their initial conclusion supports separating the proposed WIC and Entrega pipelines along different routes. The BLM listed several factors that would support WIC's proposed route, rather than collocation with the Uinta Basin Lateral route, including: minimizing impacts to riparian, wetland, and agricultural lands along Piceance Creek; the high likelihood that the alignment would have to be moved west of the existing corridor due to lack of constructible space across Colorow Gulch; the presence of highly erosive soils prone to undercutting and

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slumping in Indian Valley; and the new route would create a new utility corridor that could provide collocation opportunities for future linear projects in the area.

In addition to our analysis provided in **table 4.3-1**, we also have visited the alternative routes in the field and concur with the agencies' preferences and conclusions. Therefore, for all of the reasons listed above, we do not recommend use of either of the Uinta Basin Lateral Route Alternatives.

### 4.3.2 Collocation Alternative

WIC proposes to construct and operate its Piceance Project along an alignment that would closely parallel the Entrega Project route over the majority of the distance between the Piceance Project origin at Wamsutter, Wyoming and the CIG Greasewood Compressor Station. The Piceance and Entrega Project routes converge at MP 105.1 and follow similar routes adjacent to the Uinta Basin Lateral to Wamsutter. Rather than constructing both pipelines as separate and discrete facilities within a broader utility corridor, we considered a collocation alternative along this segment (termed the Danforth Hills North study area).<sup>23</sup> The collocation alternative examined the potential surface disturbance reduction advantages that could be obtained by collocating the Entrega and Piceance Project pipelines within overlapping construction ROWs (to the extent practical, considering technical and topographical constraints).

For purposes of this analysis, "collocation" is defined as constructing the two pipeline projects in the same construction ROW, with an offset of 25 to 50 feet from each other, and from other parallel pipelines. For the purpose of this analysis, we assumed that both projects could be constructed within the same 150-foot-wide construction ROW. As proposed by both WIC and Entrega, the pipelines would typically be within 90 feet of each other and the construction ROWs would be within a 300-foot-wide corridor, except in areas where precluded by terrain and other construction constraints. Where possible, the proposed pipeline would be constructed 40 feet east of the existing Uinta Basin Lateral in an 85-foot-wide ROW and the Entrega Project pipeline would typically be constructed 40 feet west of the existing Uinta Basin Lateral in a 100-foot-wide ROW.

The Danforth Hills North study area collocation analysis extends from Piceance Project MP 105.1 north to the Wamsutter, Wyoming, where the Piceance Project pipeline originates at the existing CIG Wamsutter Compressor Station at MP 0. North of the Danforth Hills in Moffat County, Colorado, the Entrega Project and Piceance Project pipelines are proposed for construction generally parallel to each other, but in separate ROWs adjacent to the existing CIG Uinta Basin Lateral and Rocky Mountain Natural Gas (a subsidiary of Kinder Morgan) pipelines.

The proposed Piceance and Entrega Projects would cross about 29 miles of important sage grouse breeding and brooding areas (as defined by the CDOW and WGFD) north of the Yampa River, where the proposed routes would be constructed in separate ROWs (see **table 4.3-2**). We received several comments during public scoping concerning sage grouse population effects from loss of sagebrush habitat, and sage grouse habitat fragmentation because of utility corridor expansion. We examined options for reducing the

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<sup>23</sup> In addition to our analysis of alternatives south of MP 105.1 (Uinta Basin Lateral Alternatives in section 4.3.1), we note that several collocation alternatives along this segment were analyzed in the Entrega Project EIS which are not repeated here.

surface disturbance of important sage grouse breeding and brooding habitats by consolidating the two projects into a common construction ROW that was assumed to be 150 feet wide. The analysis was conducted as follows:

**Table 4.3-2**  
**Piceance Project Milepost Intervals Considered for Additional Piceance and Entrega**  
**Collocation to Reduce Sage Grouse Breeding and Brooding Habitat Impacts**

Milepost Interval	Miles
MP 26 to MP 35	9
MP 55 to MP 69	14
MP 73 to MP 79	6
<b>Total</b>	<b>29</b>

1. The areas where the two pipelines already share a common construction ROW that is approximately 150 feet wide and are offset from each other and adjacent pipelines by about 40 to 50 feet (i.e., collocated) include a 9-mile segment on private and state lands south of the Yampa River and a 6-mile segment north of the Yampa River on Colorado state lands (“Pipeline Segment within 50’ of Entrega Pipeline” in the legend of **figure 4.3-3**).
2. Pipeline segments where new pipelines may not be easily constructed adjacent to each other because of steep sideslopes and narrow ridgelines were identified. These segments represent about 10 miles of this overall route segment (“Pipeline Segment where Collocation is Infeasible” in the legend of **figure 4.3-3**).
3. Pipeline segments (milepost intervals) that overlap with known sage grouse breeding and brooding areas (within a 2-mile radius of historic sage grouse leks) along the proposed Piceance Project alignment were identified in **table 4.3-2**. The Entrega Project proposed alignment includes approximately 2.2 additional miles of sage grouse habitat in an area where the two pipelines are not within the same corridor. The corresponding segment of the Piceance Project, as proposed, is not within sage grouse habitat, and is therefore not include in **table 4.3-2**. (Sage grouse habitat is within three of the segments indicated as “Pipeline Segment with Potential for Collocated Pipelines” in the legend of **figure 4.3-3**).
4. In the remaining pipeline segments (“Proposed Action Alignments” in the legend of **figure 4.3-3**), the Piceance and Entrega Projects would be located along their proposed alignments, which are generally on opposite sides of the existing Uinta Basin Lateral and Kinder Morgan pipelines that currently share the existing corridor. The cumulative permanent ROW width after construction of the two additional pipelines is expected to range from 150 to 200 feet.

Our analysis of the collocation alternative is limited to the three segments identified in **table 4.3-2**. By constructing the two projects together in the same 150-foot-wide construction ROW in the sensitive sage grouse habitat areas wherever possible along these segments, we expect that impacts to sage grouse habitat could be reduced. Ideally, this alternative could reduce impacts to sage grouse habitat by 264 acres

# Non-Internet Public

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Figure 4.3-3

Public access for the above information is available only through the Public Reference Room, or by e-mail at [public.referenceroom@ferc.gov](mailto:public.referenceroom@ferc.gov).

or about 33 percent as compared to constructing the two projects along their currently proposed alignments. Sagebrush shrubs (on which the sage grouse depends) recover very slowly (15 to 50 years). Fragmentation of sage grouse habitat from multiple pipelines in the same utility corridor may adversely affect reproductive success and survival of this species over the long term. To continue our evaluation of the feasibility of collocating the two proposed pipelines within 40 to 50 feet of each other, where the two projects would cross up to 29 miles of sage grouse breeding and brooding habitat (areas along the Piceance Project proposed alignment where both projects either could potentially or are already planning construction within the same ROW), we requested additional information from WIC in the draft EIS. We recognize that collocation would require one or both projects to adjust their current alignments to achieve this result. We also recognize that other factors (e.g., cultural resource sites, local terrain, other pipelines in the corridor, and construction of both projects in the same construction season) exert a significant influence on the practicality of collocation in the intervals identified in **table 4.3-2**.

In its comments on the draft EIS, WIC provided an updated engineering and environmental analysis of collocating the proposed Piceance Project with the proposed Entrega Project pipeline north of the Yampa River (MP 87.6) to minimize impacts to sage grouse breeding and brooding habitat. WIC states in its analysis that collocating the pipeline with Entrega in the areas north of the Yampa River (as identified in **table 4.3.2**) is feasible in some areas but requires pull outs in selected areas or is not recommended in other areas. WIC asserts that swapping sides of a corridor or leaving the corridor for a new one as a result of the Collocation Alternative can lead to confusion in the field as to the identity and location of the pipelines. WIC identified the following constraints for the collocation alternative:

- Collocating with the Entrega pipeline in these areas would require two crossings of the pipeline corridor at each of the locations shown in **table 4.3-2** requiring over 20 separate pipeline crossings and adding over 36 crew days to the construction schedule;
- Depending on the actual time of construction and when the contractor's equipment gets to the area, the additional collocated areas could cause severe scheduling conflicts and would require skips and move backs for one contractor or both;
- If WIC were to construct in these areas first (a strong possibility for MP 55 to MP 69 and MP 73 to MP 79), Entrega would be caught between the corridor and the WIC Piceance Project pipeline. Constructing on the west side of the corridor places the construction side of WIC's ROW on the west side of Entrega's proposed line. This would require WIC's centerline to be offset 55 feet from the proposed Entrega pipeline. Assuming a 5-foot safety buffer from each line, this would reduce Entrega's construction ROW from 100 feet to 85 feet;
- WIC's alignment would have to pull out from Entrega's alignment between MP 27.6 to MP 28.3, between MP 33.2 to MP 33.5, between MP 55.6 to MP 56.2, and between MP 64.7 to MP 65.0 due to various crossings of severe washes;

## 4.0 ALTERNATIVES

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- Beginning at MP 65.3 to MP 74.3, Entrega's alignment leaves the Uinta Basin Lateral corridor and follows a Kinder Morgan Pipeline. At MP 69, the lines are approximately 1 mile apart. This would require one mile of new disturbance to return to WIC's alignment;
- The lines are in separate corridors from MP 73 to MP 74.3 and would require 2,000 feet of new disturbance at MP 73. Additionally, the lines could not be collocated between MP 76.9 to MP 77.6 because of the undulating route of Spring Creek in this area; and
- WIC has already acquired ROW agreements from the private landowners in these areas. Moving the line will require renegotiation of these agreements before work could proceed. Similarly, Entrega would have to renegotiate their agreements in order to collocate along WIC's route.

Based on the engineering and environmental constraints associated with this alternative, we do not recommend use of the Collocation Alternative along the three segments identified in **table 4.3-2**. Although the Collocation Alternative would reduce impact to sage grouse habitat by 264 acres over the proposed route, the pipeline construction and operational constraints associated with this alternative do not warrant the use of this alternative. Furthermore, we note that WIC has committed to sagebrush habitat protection and restoration measures that include reducing the construction ROW to 75 feet in width where the ROW passes within 0.25 mile of a lek, reseeding the construction ROW with sagebrush in sage grouse habitat, and transplanting sagebrush to screen the ROW in the vicinity of leks. We also note that WIC has committed to reduce its pipeline offset from 50 feet to 40 feet in sage grouse habitat whenever practical (approximately 23 miles; approximately 6 miles of habitat occurs in areas where WIC cannot commit to an offset of 40 feet primarily due to geographical or engineering constraints) where it parallels an existing pipeline, further reducing the amount of disturbance to soils, vegetation and wildlife habitat by an additional 28 acres.

### 4.4 Route Variations

Route variations differ from system alternatives or major route alternatives in that they are identified to avoid or reduce impacts to site-specific resources or to resolve localized issues. Site-specific resources include cultural resource sites, wetland areas, and severe terrain conditions. Localized issues might include landowner requests. While route variations may be a number of miles long, most are short and are located in relative proximity to the proposed route. There are no currently unresolved location issues associated with the WIC centerline that require a detailed variation analysis. The Piceance Project proposed centerline incorporates several minor route alternatives which were modified during the planning process to minimize environmental impacts and landowner concerns. After publication of the draft EIS, WIC has incorporated eight minor realignments and route variations to address landowner concerns, avoid natural features, and avoid sensitive cultural resources. We have reviewed these realignments and route variations as part of the proposed project analyzed in chapter 3.0.

### 4.5 Alternative Locations for Aboveground Facilities

Since WIC would install the proposed additional compression at the existing CIG Greasewood Compressor Station, no compressor station alternatives were evaluated. Additional aboveground facilities for the

proposed project include the installation of two communication towers, pigging and metering facilities, MLVs, and interconnections. As proposed, WIC would install two pigging facilities, four metering facilities, and two MLVs, at existing compressor station sites at either end of the pipeline, limiting consideration of alternative siting options. Since these facilities are proposed at or immediately adjacent to the existing, fenced and graveled CIG Wamsutter and CIG Greasewood Compressor Stations, environmental impacts would be minimized and no alternative locations were evaluated.

The remaining seven MLVs and one pigging facility are proposed at locations that satisfy engineering design requirements and meet DOT regulations (e.g., valve spacing requirements per CFR Part 192). Likewise, the proposed locations for these minor facilities consider ease of access for maintenance activities. As such, the MLVs for the proposed action are currently sited along the pipeline and next to existing roads, minimizing potential impacts associated with additional access roads. With the exception of one MLV, no environmental issues were identified for the MLV locations or for the combined pigging facility and MLV at County Road 4. One MLV at MP 19.7 was located within 0.25 mile of the Overland Trail. Since the proposed MLV would be collocated with an existing MLV on the adjacent Uinta Basin Lateral pipeline, we considered the location of the MLV to have minimal environmental impact. Consequently, no alternative locations were considered for the placement of these minor aboveground facilities.

No alternative locations were considered for the installation of the proposed two communication towers for the Piceance Project. The communication towers would be installed at the existing Magnetic Mountain and Juniper Mountain communication tower sites on previously disturbed land with existing road access. As such, environmental impacts would be minimal.