

## PROGRAMMATIC MARKETING CAMPAIGN

Proposal Number	3	Rank
Name	Seth Ryan	<div style="border: 1px solid black; border-radius: 15px; padding: 10px; text-align: center;"> <b>#1</b>  <b>(8.2/10)</b> </div>
Company	Maser Consulting	
Email	sryan@maserconsulting.com	
Study Sponsor	Seth Ryan	
Steering Committee	Marty Jorgensen, Michael Ballenger, Victor Flores, Trey Shaffer, Martin Fingerhut, Andy Morcraft, Seth Ryan, and the PP&C Committee	
Oversight	Public Policy & Communication Committee	
Proposed Effort	Workshop, Report, and Guideline	

**Comments:**

- Concern that differing drivers from Operators make consensus on a meaningful campaign for the high anticipated cost
- I like the general direction but am unclear about what we will get and how we will get it. I think this is important but needs some clarity to really consider.
- need to communicate the high public need for natural gas, that it is the best available fuel for power generation and heating.

The fossil fuel industry has a compelling story to share regarding the unmatched quality of life we enable in North America. Unfortunately, fossil fuel opponents have developed an emotional narrative that has caught the attention of uninformed stakeholders and the general public, including the “younger” generations. In 2019, the INGAA Foundation and other industry trade organizations are focusing efforts on research and collaborative work sessions. The research initiative is focused on developing an understanding of how critical groups/audiences react to a broad array of energy messages. The industry organization collaborative workshops will utilize the research data to identify the most effective & sustainable communications campaign strategies. For 2020, we propose to continue the efforts to develop and ultimately launch an effective & sustainable INGAA Foundation and/or industry collaborative communications campaign. This proposal will incorporate multiple suggestions that were derived during the Spring 2019 Meeting including:

- Industry collaboration
  - Develop a single voice with industry groups (supporting efforts such as the Joint Trades Summit on Industry Coordination and Communication)
- Improve public engagement
- Engage the “younger” generation and school outreach
- Effective use of digital/social media and other communication platforms
- Convey the benefits and necessity of energy, emphasis on natural gas
- 21<sup>st</sup>-century energy makeup – the coexistence of fossil fuels & renewables

A strong collaborative marketing campaign is imperative to improve the industry’s image and provide a foundation that supports other PP&C Campaigns, such as the Routing and Landowner Engagement and Workforce Recruitment initiatives.

**Benefit to Membership:** Industry Organization Collaborative Workshop Benefits:

- Shared perspective on opportunities and challenges faced by the energy industry heading into the 2020 campaign season

- A set of themes and messages to draw upon when communicating with stakeholders by all foundation members with specific audience messaging.
- Understanding of social media trends, polling data, and other relevant information available to organizations for integrated advocacy efforts
- Improved relationships and collaboration among energy organizations.
  - The main goal would be for the Foundation to lead the messaging for a “single voice” with the following organizations: IPIECA (International Petroleum Industry Environmental Conservation Association), OGCI (Oil & Gas Climate Initiative), WBCSD (World Business Council For Sustainable Development), API (American Petroleum Institute), SGA (Southern Gas Association), AGA (American Gas Association), FNGA (Florida Natural Gas Association), Marcellus Shale Coalition (MSC), etc.

**Marketing Campaign Benefits:**

Public opinion has proven to hold significant power in energy infrastructure permitting, with localized opposition now able to frustrate a project to the point of inviability. Helping member companies educate the public about the benefits of diverse energy, specifically pipelines and natural gas, using data-driven messages creates a unified voice and could help improve prospects for the development of pipeline projects benefitting all Foundation members.

**Possible Contractors:** Capital Results with strategic guidance from Park Street Strategies and the University of Houston

**Desired Completion:** Annual Renewal

**Estimated Cost:** \$100,000

## FERC 201 ANNUAL WORKSHOPS: WORKSHOP #9

Proposal Number	9	Rank
Name	Gina Dorsey	<div>#2 (8.2/10)</div>
Company	Kinder Morgan	
Email	gina_dorsey@kindermorgan.com	
Study Sponsor	INGAA EHS Committee Construction Task Force. Co-Chair – Gina Dorsey (Kinder Morgan)	
Steering Committee	Gina Dorsey (Kinder Morgan), Ernie Ladkani (TC Energy); and other FERC 201 Steering Committee Members	
Oversight	Environmental Committee	
Proposed Effort	Workshop	
<b>Comments:</b> <ul style="list-style-type: none"><li>- Because Tom said to give 10</li><li>- Consider conducting this workshop every other year.</li></ul>		

Federal agencies, pipeline companies, and service providers have benefited from the opportunities to discuss permitting/construction challenges and trends, regulatory obligations and drivers, experiences, and lessons learned in the form of the educational roundtables at the FERC 201 Workshops during 2014-2018. The FERC 201 Steering Committee has identified several action items or discussion topics that need to be addressed in order to achieve the goals and objectives of the permit synchronization and process improvement initiatives. Similar to the proposal for the 2019 workshop, the purpose of this proposal is to request the continuation of the workshop series during 2020 and annually thereafter to achieve the goals of the additional topic areas as well as ongoing agency collaboration.

For background, eight FERC 201 workshops were previously conducted and/or scheduled:

- #1 – FERC Pre-filing and Environmental Reporting, November 2014
- #2 – Working with Other Federal Agencies, March 2015
- #3 – Construction Challenges, July 2015
- #4 – Post Construction & Minor Projects, May 2016
- #5 – Permit Synchronization and Process Improvements, August 2016
- #6 – Permit Synchronization and Process Improvements (Part II), August 2017
- #7 – Continuation of Permit Synchronization and Process Improvements, August 2018
- #8 – Continuation of Permit Synchronization and Process Improvements, August 2019

Several priority topic areas and action items were identified and agreed to by the agencies and industry during prior workshops. These topic areas are prioritized for considerations for future workshops. Based on the prioritization results during 2018, the proposed 2019 workshop will focus on the topic areas that ranked the highest overall and for the agency participants, specifically the One Federal Decision policy and the Clean Water Act Section 401 Water Quality Certification process. Similarly, the 2020 workshop agenda will be based on priorities requested by the agencies and industry participants during the 2019 workshop.

**Outreach:** The FERC 201 Steering Committee will lead the efforts to plan the agenda, presentation, and facilitators for the workshop. The development effort will be similar to the efforts completed for prior workshops. There will be several tasks that will need to be completed prior to the workshop. For example, Steering Committee members may need to engage the applicable agencies to initiate development or to obtain input for particular topic areas.

Prior workshops included agencies, industry, and service providers. Agency participants have or will include representatives from: Federal Energy Regulatory Commission (FERC), Bureau of Land Management (BLM), US Army Corps of Engineers, (USACE), US Fish and Wildlife (USFWS), US Forest Service (USFS), National Park Service (NPS), National Marine Fisheries Service (NMFS), Advisory Council on Historic Preservation (ACHP), US Coast Guard (USCG), Natural Resources Conservation Service (NRCS), and Council of Environmental Quality (CEQ). All of the non-agency attendees are INGAA and/or INGAA Foundation members including pipeline companies and environmental/engineering service providers. The proposed 2020 workshop would have a similar invitation list and audience as prior workshops.

**Benefit to Membership:** The agencies that participated in the previous workshops indicated a clear willingness to continue discussions, and ongoing workshops will build on the established relationships and understanding. Completion of the action items will ultimately benefit agencies, industry, and INGAA Foundation members as permit synchronization process improvements, such as the development of guidance documents, workshops notes, and other similar tools. These tools will aid pipeline companies to achieve on time and on budget project permitting as well as provide service companies with insights to enhance support for more efficient project permitting. An additional key benefit for continuing the workshops annually is to promote interactive dialogue with federal agencies on new permitting and construction challenges, regulatory obligations and drivers, experiences, trends, and lessons learned on an ongoing basis. This proposal also aligns with the INGAA Board priorities regarding agency engagement on permitting consistency and concurrent reviews.

**Possible Contractors:** Power Engineers to work under the direction of the Steering Committee.

**Desired Completion:** 3Q 2020

**Estimated Cost:** \$45,000

## INTEGRATING RENEWABLE POWER INTO NATURAL GAS PIPELINE OPERATIONS

<b>Proposal Number</b>	<b>10</b>	<b>Rank</b>
<b>Name</b>	Paul Doucette	<div style="border: 1px solid black; border-radius: 10px; padding: 10px; text-align: center;"> <b>#3</b>  <b>(7.9/10)</b> </div>
<b>Company</b>	Baker Hughes/GE	
<b>Email</b>	Paul.doucette@bhge.com	
<b>Study Sponsor</b>	Paul Doucette	
<b>Steering Committee</b>	TBD	
<b>Oversight</b>	Environmental	
<b>Proposed Effort</b>	Report	

### Comments:

- Support moving to "out of cycle" to accelerate work and results. Jugular that we are seen as embracing renewables
- I would like to join the steering committee. It should also be funded out of cycle.
- Support out of cycle funding
- support immediate off-cycle start
- Advance start to 2019. Need this to improve our image and environmental care.
- Recommend getting EXCO approval for 2019 funding.
- Fund early
- We support adding this study to 2019 for off-cycle funding
- Recommend this be funded out of cycle in 2019, please add Enbridge as committee member participant
- Recommending out of cycle sequencing to get started immediately.
- Consider getting LEED certification for corporate, operations and maintenance facilities. Take some credit for doing the right things.

Cost-effective, prudent business practices require minimizing product losses and reducing energy costs along the supply chain. Market forces and public demand for clean energy are compelling the oil and gas industry to move quickly to improve operations. The rapid decline in the price of clean energy technologies enables the business case for clean energy technologies that reduce the impact on the environment, increase operational efficiencies, and conserve oil and gas resources for the marketplace.

To meet this need, JISEA has established a collaborative program for the identification, development, modeling & analysis, and potential demonstration of clean power technologies for oil and gas operations. Specifically, this program:

- supports the identification, development, and adaptation of highly **reliable, cost-effective** clean energy solutions for oil and gas operations;
- performs **techno-economic analysis** and **site-specific optimization** of combinations of renewable and conventional generation, energy storage, dispatchable technologies, and energy conservation measures; and
- plans deployment (with the collaboration of industry partners) of the most promising technologies for validation of performance in a variety of field environments, while simultaneously analyzing optimization scenarios to determine **return on investment** and **impact on environmental and social issues**.

With industry-provided data and additional financial resources, one to two of the case study sites chosen for analysis could include a pipeline and typical compressor station in location(s) to be decided based on the available data. Specifically, the energy needs of the site would be analyzed, including electricity, fuels, and heat. Then, using NREL's REopt model and other tools, technology options would be assessed from an economic, environmental, and feasibility perspective. These could include electrification of pumps, integration of renewable power sources, waste heat to power, energy storage,

microgrids, fuel cells, and other possible innovations. This would result in a set of possible designs for clean and reliable pipelines and compressors that would optimize the delivery of gas to the market.

**Outreach:** NREL's Joint Institute for Strategic Energy Analysis (JISEA) is conducting data collection and site-specific modeling of highly reliable, affordable, clean power technologies for oil & gas operations. We propose that one or two of the detailed case studies be a pipeline and compressor station to identify low-emission reliable power for pumps, compressors, and other energy demands of midstream oil and gas operations. Sponsor will provide data on typical energy requirements of mid-stream operations.

JISEA conducts analysis and manages programs at the intersection of renewable energy and traditional energy for consortiums of industry partners. JISEA is co-located at the National Renewable Energy Laboratory, enabling access to engineers, scientists, and business managers across the entire spectrum of energy technologies. In collaboration with industry partners, JISEA will provide management and technical support for this program. Industry partners will also participate as part of a Program Steering Committee.

**Benefit to Membership:** This project would leverage the work in the larger program of study on clean power for oil and gas operations. Participants will provide funding for the program as Program Sponsors, participate in the Program Steering Committee, and have the option to take part in future field tests of technologies. Results will be shared among Program Sponsors, and Program findings will ultimately be published by JISEA.

Expected Outcomes:

- Incorporation of mid-stream oil and gas operations into the reports produced for the JISEA clean power for oil & gas program, including life-cycle energy analysis and case studies
- One to two detailed case studies to model and optimize energy sources for compressor stations and pipelines
- Identification of potential pilot demonstrations or research programs to be considered

**Possible Contractors:** US DOE National Renewable Energy Laboratory

**Desired Completion:** TBD

**Estimated Cost:** \$75,000

## DESIGN GUIDELINES FOR AVOIDING PIPELINE SLIPS ON HILLSIDES

Proposal Number	14	Rank
Name	Sonya Kirby	<div style="border: 2px solid black; border-radius: 15px; padding: 10px; text-align: center;"> <b>#4</b> (7.5/10)         </div>
Company	TC Energy	
Email	<a href="mailto:sonya_kirby@transcanada.com">sonya_kirby@transcanada.com</a>	
Study Sponsor	Sonya Kirby (TC Energy), INGAA Foundation Quality & Integrity Committee	
Steering Committee	TBD	
Oversight	Quality & Integrity Committee	
Proposed Effort	Best Practice Guideline	

**Comments:**

- Need this and other design improvement topics!
- Can you leverage AOPL and highway design expertise?

- In some areas, avoidance of geohazards should take precedence over other routing criteria such as easiest ROW to acquire. Use routing BMPs such as LiDAR hillshade analysis, soil and rock surveys and analysis. Combine with proposal #2?

The year 2018 was the wettest on record in the Appalachian Region. Many slips occurred in which pipelines came out of the ground. Some caught fire. Most of the instances were in mountainous areas involving steep slopes. The intent is to produce a “Best Practices Document” that showcases pipeline installations in difficult terrain.

**Background:** Natural gas transmission pipeline operators have standards in place that allow for the safe construction and operation of their systems. These safe construction practices have resulted in decades of safe pipeline operation with a minimum of pipeline ruptures.

Sadly, the past few years have witnessed anomalies in which public awareness and aversion has increased due to spectacular occurrences. These occurrences have prompted more governmental review, pipeline shut-downs, and possible increases in added compliance regulations. For example, these additional compliance regulations have included: 1) additional local government construction review, permitting and construction inspectors; 2) increased stipulation of leak detection systems; 3) additional requirements by local fire and police departments; and 4) an increased project timeline resulting in delays and total project costs.

**Benefits to Membership:** Agreement by members on best practices will establish recommended standards that should result in fewer pipeline occurrences for the industry.

**Suggested Items to Investigate:**

1. Maximum allowable slope for pipeline installation by soil type
2. Proximity of adjacent pipelines and overlap of rights-of-way
3. Geotech considerations
4. How best to install river and stream crossings
5. When and how frequently should trench breaks be used?
6. When should pipelines be incased in concrete?
7. Permanent sheet piling should be used in which instances?
8. Maximum allowable pipeline radial and axial stresses
9. Pipeline wall thickness recommendation for mechanical stress in addition to hoop stress
10. Pipeline movement due to earthquakes, longwall mining, etc.

**Suggested Procedure:** A sub-committee should be assigned to oversee the project. The sub-committee would:

- Develop a survey form to be completed by INGAA Members
- Interview Subject Matter Experts of INGAA Members
- Interview Pipeline Contractors
- Determine what existing documents may already apply from within INGAA and other industry-related organizations. These other organizations would include PRCI, API, AGA, DOT, etc.
- Compile results in a report of approximately 100 pages or less
- Hire a consultant, if necessary

**Desired Completion:** 4Q 2021. It is anticipated that this project will take 2 years to complete.

**Estimated Cost:** \$50,000

## INSTRUCTIONAL CONSTRUCTION VIDEO SERIES: STRESS-FREE TIE-INS

Proposal Number	15	Rank
Name	Kimberly Tarr	<div>#5 (7.2/10)</div>
Company	Boardwalk Pipelines	
Email	<a href="mailto:kimberly.tarr@bwpmlp.com">kimberly.tarr@bwpmlp.com</a>	
Study Sponsor	Kimberly Tarr	
Steering Committee	TBD	
Oversight	Quality & Integrity Committee	
Proposed Effort	Instructional Videos and Companion Guides	
Comments:		
- An important topic, but question true value of translation of video to actual tie-in work in the field. Also limited applicability to the broader foundation.		

Despite efforts of the INGAA Foundation and other Industry groups, incidents related to new construction activities continue to occur. According to the December 17, 2018 INGAA Report, “Analysis and Evaluation Of Incident Data Onshore Natural Gas Transmission Pipelines 2010 Through 2017” there is an “apparent increasing trend in construction, installation or fabrication-related incidents since 2004.” The Ad-Hoc INGAA Foundation Council on Quality challenged the Quality & Integrity Committee to identify tangible actions to prevent these incidents.

**Background:** As stated in the above-referenced report, “construction and fabrication failures have and will continue to be an area of focus in INGAA and the INGAA Foundations. The organizations have produced guidelines for conducting construction tasks as well as inspection of construction. Both organizations will continue to hold Lessons Learned Workshops and Roundtables to address construction-related incidents and work to prevent their recurrence.” However, additional efforts to build knowledge and capability in those personnel directly responsible for actual construction are needed in order to achieve quality workmanship and prevent incidents originating from construction-related defects. Best Practice documents, construction specifications, and inspector certification can only go so far in educating the personnel on the ground as to “what does good look like.”

**Benefits to INGAA Membership:** By building the knowledge of construction supervision and inspection personnel to understand the quality standards to which pipelines must be constructed to ensure the long-term integrity of the system, we improve the likelihood that the systems will be built to this standard. In addition, greater awareness of hazards that can result in defects will improve construction personnel’s ability to change tactics to reduce the exposure to these hazards.

**Items for Consideration:** Execution of this proposed project would result in a series of instructional videos focused on critical construction activities. Each video would utilize actual videography of pipeline construction in action which demonstrates the best practices involved in the construction activity and would highlight hazards to be aware of which could jeopardize the long-term integrity of the final work product. The final project work product will be succinct, digestible videos which visually illustrate “what does good look like” and can be viewed by construction and inspection personnel prior to arrival on a job to build awareness of the proper techniques and potential problem areas related to each construction activity. The primary audience for the videos would be Construction Foremen and Inspection personnel

The project will focus on and prioritize critical construction activities that have lead to pipeline failures, especially cracked girth weld. Focus areas could include:

1. Lowering-in and Stress-free tie-ins (2020 development)

2. Girth weld coating and jeepling (future)
3. Padding, backfilling and restoration to prevent damage to the pipeline (future)

**Suggested Procedure:** A sub-committee should be assigned to oversee the project. The sub-committee would:

- Develop the key points to be covered by the instructional video including identification of hazards to be avoided
- Identify and hire a firm to produce the videography and/or develop the animation of the construction activities.
- Identify actual construction events that will be used as the basis of video capture.
- Guide the drafting of the video script.
- Approve the final production.

**Desired Completion:** 4Q 2020

**Estimated Cost:** \$20,000

### REDUCTION OF SERIOUS INJURIES AND FATALITIES (SIF)

Proposal Number	5	Rank
Name	Mike Anderson	<div style="border: 1px solid black; border-radius: 10px; padding: 10px; display: inline-block;"> <b>#6</b> (7.0/10) </div>
Company	National Fuel Gas	
Email	AndersonM@natfuel.com	
Study Sponsor	INGAA Foundation Safety Committee	
Steering Committee	TBD	
Oversight	Safety Committee	
Proposed Effort	Report	

**Comments:**

- Lots out there already
- should be a top priority for all. Make safety a priority over speed. Includes tools to make safety a part of company culture.

The traditional approach to safety asserts that efforts to reduce the frequency of smaller injuries will lead to a similar reduction in serious injuries or fatalities (SIFs). Recent research by safety professional suggests this assumption is not necessarily true. While U.S. private-sector non-fatal occupational injury rates have declined by about 60% since the early 1990s, fatal injury rates have declined only about 40%.

Research suggests organizations that follow traditional safety models, focusing resources on the reduction of all injuries, could be missing opportunities to identify and prevent SIF events. Not all injuries have SIF potential, therefore utilizing a safety system adept at identifying and responding to SIF precursors is important for organizations to reduce SIF incidents.

The INGAA Foundation Safety Committee proposes a safety study for 2020 to help members develop and implement safety strategies and systems that identify precursor data from accidents, injuries, and near misses for the purpose of reducing exposure to serious injuries or fatalities in our industry.

**Possible Contractors:** TBD

**Desired Completion:** 3Q 2020

**Estimated Cost:** \$10,000



## LEADING SAFETY INDICATORS (CS-G-08) IMPLEMENTATION CASE STUDIES AND NEXT STEPS WORKSHOP

Proposal Number	7	Rank
Name	Brad MacLean (Facilitator & original Task Team Chair for CS-G-08)	<div style="border: 1px solid black; border-radius: 15px; padding: 10px; display: inline-block;"> <b>#7</b>  <b>(6.9/10)</b> </div>
Company	Wolfcreek Group	
Email	bmaclean@wolfcreek.com	
Study Sponsor	INGAA Foundation Safety Committee	
Steering Committee	Kevin Parker, Safety Committee Member-at-Large (Mears)	
Oversight	Safety Committee	
Proposed Effort	Workshop, Summary Report	
<b>Comments:</b> - Important to industry. Feel next big regulatory push will be P/CSMS		

In May 2019, a new Construction Safety & Quality Consensus Guideline “CS-G-08 – Leading Safety Indicators” was issued to the member companies.

Since this Guideline has been circulated, there are numerous member companies that have implemented Leading Safety Indicator programs in alignment with the principles outlined in the Guideline. After a refresher on Leading Safety Indicator Best Practices from Dr. Matt Hallowell, the **primary goal** of the workshop will be to profile in detail several case studies of member company leading safety indicator programs, answering such questions as, but not limited to:

- Where were you starting from?
- What were your goals and objectives?
- What were your barriers and how did you overcome them?
- Where are you now and what advice do you have for other members?

It is anticipated that 4-5 in-depth case studies can be profiled in a morning session.

A secondary goal is to workshop ideas on how the principles from “CS-G-08 – Leading Safety Indicators” are best operationalized in Operator Contractor Safety Management Programs. A summary will be compiled and would be valuable feedstock to another Safety Guideline being contemplated for 2021. Namely, the follow-up is a Guideline for operators’ integration of Leading Safety Indicators into their Contractor Safety Management Programs.

**Outreach:** The Facilitator and Coordinator will, in collaboration with the INGAA Foundation Safety Committee and the PCSR, reach out to potential case study presenters. For the Operator Contractor Safety Management Program workshop, similar outreach will be conducted but the participants may be weighted towards operators with robust Contractor Safety Management Programs.

**Benefit to Membership:** Member companies will gain invaluable insights into the challenges and opportunities that present themselves when implementing Leading Safety Indicator Programs. Furthermore, feedback collected from participants will be valuable input to future planned work to create a companion Guidance to “CS-G-08 – Leading Safety Indicators” focused on the integration of Leading Safety Indicators into Operator Contractor Safety Management Programs.

**Possible Contractors:** Dr. Matt Hallowell

**Desired Completion:** Q2/Q3 2020

**Estimated Cost:** \$27,000 (\$12,000 Speaker fees, admin support; \$15,000 Workshop expenses)

## FATIGUE MANAGEMENT WORKSHOP

<b>Proposal Number</b>	6	<b>Rank</b>
<b>Name</b>	Chris Rhudy	<div style="border: 1px solid black; border-radius: 15px; padding: 10px; text-align: center;"> <b>#8</b>  <b>(6.8/10)</b> </div>
<b>Company</b>	Southland Safety	
<b>Email</b>	crhudy@southlandsafety.com	
<b>Study Sponsor</b>	INGAA Safety Committee	
<b>Steering Committee</b>	TBD	
<b>Oversight</b>	Safety Committee	
<b>Proposed Effort</b>	Workshop	

**Comments:**

- Lots out there already
- Include worker travel times to and from the job site. Make allowances in the construction footprint for workers who use campers to be close to the job site.

At the February PCSR Workshop, Mitch Cowart with CAT Solutions gave a presentation on Fatigue Management. The presentation highlighted the need for comprehensive Fatigue Management programs across the industry.

Mr. Cowart provided statistics to show that sleep deprivation can be just as dangerous as intoxication because the brain uses cerebrospinal fluid to detox the brain during sleep. He also provided statistics to show the effects of chronic sleep deprivation over an extended time period (cumulative sleep debt). He articulated the need for protocols to report fatigue like we do illness. Mr. Cowart also provided the statistical data to show that slight adjustments in scheduling and other work practices can have a tremendous impact on the collective safety environment. Everybody is sleep deprived from time to time. We are all affected.

The ultimate objective would be to create the framework for an industry-specific and comprehensive Fatigue Management Program that addresses the complex issues inherent to ensuring that employees get enough sleep and are fit for duty. The Safety Committee believes all of the members of the Foundation could benefit from a more robust Fatigue Management program and would like to hold a workshop to identify the issues and common program gaps and deficiencies and determine what deliverable would be most beneficial to the member companies.

Some of the anticipated goals of the workshop include:

1. Identifies the risks of and contributing factors to fatigue—especially on the ROW
2. Provides a framework for a comprehensive Fatigue Management Program
3. Establishes tools to recognize fatigue potential and symptoms
4. Establishes employee training recommendations

**Benefit to Membership:** INGAA Foundation member companies will benefit from the opportunity to share experiences and lessons learned and develop best practices as well as training considerations for construction personnel. Workshop notes will be consolidated into a best practices/toolbox paper and made available to the INGAA Foundation after the workshop for distribution to Foundation members.

**Possible Contractors:** A third party workshop facilitator would be used to capture workshop notes and draft the best practices paper at the completion of the workshop.

**Desired Completion:** Q4 2020

**Estimated Cost:** \$20,000 (\$5,000 Speaker fees, administrative support; \$15,000 workshop expenses)

## INGAA FOUNDATION 2020 WORKFORCE TRAINING & RECRUITING WORKSHOP

<b>Proposal Number</b>	1	<b>Rank</b>
<b>Name</b>	Patrick Findle	<div style="border: 1px solid black; border-radius: 10px; padding: 10px; text-align: center;"> <b>#9</b>  <b>(6.7/10)</b> </div>
<b>Company</b>	Gas Technology Institute (GTI)	
<b>Email</b>	<a href="mailto:pfindle@gti.energy">pfindle@gti.energy</a>	
<b>Study Sponsor</b>	INGAA Foundation Public Policy & Communications Committee Bob Osborn – Michels Corporation	
<b>Steering Committee</b> (anticipated)	Tom Hutchins (Kinder Morgan); John Pustulka (National Fuel); Bob Osborne (Michels); Rob Riess (Henkels); Nick Ashcraft (AECOM); Frank Lloyd (Magnolia River); Tom Sexton (Universal Pegasus); Carla Picard (ERM); Rob Beamish (CEPA)	
<b>Oversight</b>	Public Policy & Communications Committee	
<b>Proposed Effort</b>	Workshop	
<b>Comments</b> <ul style="list-style-type: none"> <li>- Given the breadth of Foundation member services, I struggle to see how can achieve the goals such that they apply to all, like GTS and ESP</li> <li>- INGAA not a good forum for this</li> <li>- Training should include tools to build contacts within the industry to help workers find work after projects end.</li> </ul>		

Building a skilled, reliable workforce is recognized as a critical element for operators and contractors to ensure operational success, yet the pipeline industry is facing significant challenges in finding, training and retaining field employees. Because of demographic changes and the high level of gas infrastructure construction and maintenance activities, workforce development is an ongoing priority for INGAA Foundation members. Training field employees is of paramount importance. Overcoming negative industry perception, and advancing career awareness including reaching Tribal, Millennials, Veterans and other candidates is also integral to success.

A one-day Workforce Training & Recruiting Workshop is proposed to address, with INGAA Foundation members, natural gas pipeline industry workforce training and recruiting challenges. The purpose of this workshop is to generate specific action and solutions for workforce training and recruiting while identifying efforts that could leverage collaboration among Foundation members.

**Prior Workforce Activities:** This effort will leverage the INGAA Foundation Workforce Development Workshop conducted on October 10, 2018, by advancing learnings and identified action from this successful 100 participant event. The number of attendees and robust interaction at this workshop evidenced the high level of interest in workforce issues pervasive in the industry.

**Workshop Description:** It is anticipated the morning session will include one panel made up of INGAA Foundation members to discuss training challenges and solutions and another panel made up of targeted workforce segment experts (including tribal, millennials, veterans and other). The workforce segments panel will discuss recruiting but will have a special focus on training for these particular target segments. The afternoon will feature solution identification and development as well as discussion of how to best collaborate on next steps, then the workshop will conclude with mapping

out of a specific action. The format and implementation of the workshop will be informed and driven by the Steering Committee.

By focusing on effective training through the various stages of employee engagement as well as related recruiting considerations, it is anticipated this workshop will generate valuable information, recommendations, and ideas for best practices and program development including:

- Onboarding Training – The industry is facing significant turnover and onboarding training of new personnel is an issue that must be addressed effectively.
- Knowledge Retention – Retention and transfer of knowledge from retirement age experienced managers is important for younger managers and training betterment.
- Cooperative Training – Collaborative efforts will be considered to establish recommended training for pre-employment and entry-level field personnel for operator and contractor use. Special consideration will be given to reaching (awareness outreach) for tribal, millennial, veterans and other workforce candidates.

***Anticipated Workshop Outcomes:*** Content, direction, and results generated from the workshop will be driven by the INGAA Foundation members. Deliverables are anticipated to include:

- A successful workshop that aligns workforce challenges with actionable opportunities to generate solutions going forward.
- A report summarizing the highlights of the workshop.
- A plan for action going forward to sustain workforce training and recruiting activities.

**Outreach:** The proposed 2020 workshop would have a similar invitation list and audience as the prior workshops on workforce development. The workshop results, including highlights, and materials, with special emphasis on action and next steps, will be communicated to the INGAA Foundation and distributed to the members. Following the workshop, implementation of action identified will be pursued by engaged members.

**Benefit to Membership:** Members will benefit from leveraging their workforce development ideas, time and resources to positively impact safety, compliance and efficiency/costs. GTI will provide valuable workshop support and remain fully engaged to work with INGAA, the INGAA Foundation and their members to address workforce training issues going forward by implementing the action developed as a result of the workshop. This workshop will be a catalyst for members to implement specific actions to meet the workforce training and recruiting challenges through coordinated, collaborative and sustained activities that will enable members to successfully address the industry and their specific workforce challenges.

**Contractor:** It is proposed that The Gas Technology Institute (GTI) conduct this workshop. GTI is best positioned to continue workforce efforts by leveraging the prior workforce development workshop conducted in 2018. GTI has been an industry leader in research and education supporting the natural gas industry for over 75 years with world-class research capabilities and industry-recognized training programs ranging from professional to workforce development.

**Desired Completion:** 1<sup>ST</sup> or 2<sup>nd</sup> Quarter 2020

**Estimated Cost:** The total cost of the workshop is \$55,750 (\$38,500 GTI Professional Services for the workshop (development, implementation, and reporting); \$15,000 Workshop expenses; \$2,250 Speaker fees)

## BRIDGING PIPELINE ROUTING, COMMUNITY ENGAGEMENT, AND LANDOWNER INTERACTION: WORKSHOP AND BEST MANAGEMENT GUIDELINES

Proposal Number	2	Rank
Name	Jason Goldstein	<div style="border: 1px solid black; border-radius: 15px; padding: 10px; text-align: center;"> <b>#10</b>  <b>(6.6/10)</b> </div>
Company	Ecology & Environment, Inc.	
Email	JGoldstein@ene.com	
Study Sponsor	INGAA FDN Public Policy and Communications Committee	
Steering Committee	Routing & Landowner Engagement Campaign, Jason Goldstein (E&E), Leslie Hartz (Dominion), Tim Powell (Williams), Trent Oglesby (Percheron), Kent Strasser (Pivvot); Monique Roberts (TRC)	
Oversight	Public Policy & Communications Committee	
Proposed Effort	Workshop, Best Management Practices Guideline	

### Comments

- End product not well defined
- This may need third party support to ensure success. Concerned about potential delivery issues.
- FERC has stated they would like to see projects with a high percentage of ROW acquired before starting process, to limit the amount of condemnation.

Pipeline routing is an inherently complex endeavor, potentially involving numerous environmental, social, environmental justice, constructability, landowner preference, agency “best practice” guideline and cost considerations. Despite the best efforts of project sponsors to meld all these considerations into workable routes, opposition to pipeline development in traditional and social media forums as well as in local organizations has been increasing. From community engagement at the planning stages through landowner discussions with construction personnel, communications are critical to stemming negative perception.

Opposition often derives from feeling left out of the routing process and/or misunderstandings and erroneous conceptions about why a particular route was proposed. This can persist all the way through construction and thereafter. Throughout a project’s lifecycle, stakeholders, landowners, agencies, and local communities are increasingly requesting more dialogue and transparency from project sponsors. Consequently, there is an increasing need to develop better understandings of affected communities, to share knowledge across parties and to develop a framework of best practices to aid in explaining the route selection process.

Upfront planning is critical for any pipeline project. Understanding your social and environmental surroundings before the project is released to the public is now more important than ever. Utilizing data-driven processes to analyze and understand socioeconomics, environmental justice, social sentiment, and social vulnerability can be optimized by the project development team prior to community engagement. The data is available but understanding how to use the data can be complicated. Building a knowledge framework around what data to use and how to use it will be critical to project development.

There will always be individuals and organizations that misuse the information to fight pipeline development. However, effective communication strategies, utilized via a Best Management Guideline, throughout a project’s lifecycle can effectively turn this sentiment around. With proper case studies and turn-around experiences, the greater industry can project these success stories as part of advocacy and public relations campaigns in an effort to stem disinformation campaigns.

**Proposed Effort:** The Steering Committee proposes a workshop in Houston to gather members’ collective experiences with routing best practices, community characterization and engaging

stakeholders in the routing process. The Steering Committee collectively felt that a workshop format is the most effective way to share and capture this information. The discussion will focus on the successful management of multi-stakeholder input processes (e.g., Community Advisory Groups that include NGOs, landowners, stakeholders, and surrounding communities) and discussion about how best to develop and support the optimum route that lessens opposition, minimize environmental impacts and facilitates successful development of a project. The discussion will also include understanding what types of data can be used to help support the routing process from the early stages. This will allow members to better understand the potential social and environmental justice impacts before community engagement. In general terms, effective coalitions or stakeholder processes can concentrate the community's focus on a particular project area, create alliances among those who might not normally work together and keep the project development on track.

The work scope will begin with pre-workshop planning calls, including identifying a potential moderator to guide the agenda and panelists that can spark ideas and conversation among participants. The workshop will include a moderated discussion with the panelists (e.g., routing from their point of view), followed by break-out groups – facilitated by the panelists – to share and capture case studies illustrating effective practices and common hurdles. The workshop will conclude with a regrouping and abbreviated share back. Following the workshop, a guidance document/toolbox will be prepared and shared on community understanding and involvement and route selection best practices that incorporate multi-stakeholder priorities.

**Expected Audience:** The workshop will have a target attendance of up to 50-75 attendees composed of owner/operators (including in-house legal), service providers and select stakeholder groups. The panel for the workshop will be composed of owner/operators, service provider project representatives, industry legal counsel, stakeholder group representatives (e.g., Conservation Fund or Nature Conservancy), Federal Energy Regulatory Commission staff and industry/service provider public affairs representatives.

**Outreach:** The Steering Committee will develop a proposed workshop invitation list that targets INGAA Foundation members and select stakeholders as described in the Expected Audience section.

**Benefit to Membership:** INGAA Foundation member companies and stakeholders will benefit from the opportunity to discuss building effective coalitions to support better routing that reduces opposition and improves industry reputation. Emphasis will also be added to include concerns as related to NEPA considerations for environmental justice as well as training considerations for construction personnel engaging with communities and landowners. It will be an opportunity to share experiences and lessons learned and develop best practices. Workshop notes will be consolidated into a best practices/toolbox paper and made available to the INGAA Foundation after the workshop for distribution to Foundation members.

**Possible Contractors:** The Steering Committee did not identify a need for contractor assistance. The Steering Committee will lead the effort to plan the agenda, identify speakers and facilitators for the workshop and develop the outputs. The Steering Committee will work with the INGAA Foundation executive director to gain alignment on the selection of stakeholder participants. The Steering Committee will meet on a bi-weekly or monthly basis to coordinate initially then weekly prior to the workshop.

**Desired Completion:** 3Q 2020

**Estimated Cost:** The total cost of the workshop is \$18,000; (\$15,000 Workshop expenses; \$3,000 Speakers)

## BEST PRACTICES FOR TRIBAL ENGAGEMENT #3

Proposal Number	4	Rank
Name	Gina Dorsey	<div style="border: 1px solid black; border-radius: 10px; padding: 10px; text-align: center;"> <b>#11</b>  <b>(6.5/10)</b> </div>
Company	Kinder Morgan	
Email	gina_dorsey@kindermorgan.com	
Study Sponsor	Kinder Morgan (Gina Dorsey) & Dominion Energy (Lisa Beal)	
Steering Committee	Gina Dorsey (Kinder Morgan), Lisa Beal & Molly Plautz (Dominion), Ernie Ladkani (TC Energy), Erik Dilts (Enable), Lauren O'Donnell (TRC), Susan Knabe (Stantec), Scott Phillips (SWCA)	
Oversight	Public Policy & Communications Committee	
Proposed Effort	Workshop, Best Practice, Report	
<b>Comments:</b> <ul style="list-style-type: none"> <li>- Important area, but feel operators well advanced in dealing with their individual protocol</li> <li>- Consider conducting this workshop every other year.</li> <li>- Combine with proposal 2 (Pipeline Routing)?</li> </ul>		

Coordination with Indian tribes has evolved over the past few years due to recent project experiences, tribal interactions, stakeholder opposition, and agency actions. In general, these developments are re-shaping expectations for tribal engagement and consultation plans moving forward. Pipeline companies want meaningful and effective engagement strategies to establish outreach plans and to build long-term relationships. Effective tribal engagement can also improve the outcome of the consultation process required by Section 106 of the National Historic Preservation Act (NHPA), the National Environmental Policy Act (NEPA), and other federal or state agency requirements.

**Outreach:** This 2020 effort is proposed so that INGAA Foundation members may continue to gain knowledge of best practices to improve engagement and collaboration with tribes. There are several topics that need to be addressed in order to achieve the goals and objectives of tribal engagement strategies, such as:

- historical context and example tribal concerns
- legal framework per executive orders, regulations, and agency policies
- new expectations per recent agency rules/actions
- best practices for building ongoing and non-project specific relationships
- best practices for establishing a collaborative project-specific consultation process
- best practices for evaluating the need for tribal engagement

For background, the INGAA Foundation approved a 2018 study effort to include a workshop and best practices report on tribal engagement and consultations. During planning for the 2018 study effort, the steering committee categorized the topics into three main focus areas: Legal, Regulatory, and Relationships. The focus area identified for the 2018 workshop was Relationships, which was considered the key initial step to achieve ongoing collaboration with tribal organizations. The steering committee identified five main discussion topics to include on the 2018 agenda during plenary, panel, or break-out sessions:

- Fostering awareness of Native communities and issues
- Engaging in open and honest coordination with a meaningful opportunity for input
- Understanding and helping to overcome impediments to tribal participation
- Identifying areas of mutual development and Partnership
- Managing relationships for the long term

The 2019 workshop will be designed to build on the Relationships focus area while addressing the Legal and Regulatory aspects of the engagement and consultation process.

The 2020 workshop will be supported and moderated by an entity (legal or consulting firm, as appropriate) that has close ties with the tribal community and the ability to identify and attract tribal participation. The consultant chosen for this workshop will be expected to finalize the best practices document drafted over the past two workshops for participants to consider and discuss during the workshop session. Based on the discussion, the consultant will prepare a final report detailing the best practices for tribal engagement.

**Workshop Deliverables:**

- Workshop to refine preliminary best management practices
- A final report detailing best management practices

**Workshop Audience:**

- ACHP, SHPO, or THPO representatives
- tribal organization leaders/representatives
- tribal consultation experts/consultants
- INGAA Foundation member companies

**Benefit to Membership:** These best practices will help INGAA Foundation members manage the risk associated with evolving expectations for tribal engagement and consultation. Moreover, industry best practices provide a comprehensive response rather than relying on project-specific experiences. This proposal aligns with INGAA Board priorities to develop a collaborative consultation process with Indian tribes.

**Possible Contractors:** It is critical that the contractor supporting this effort has close ties to the tribal community and can demonstrate the ability to identify and attract tribal participation. In addition, the contractor will be expected to have a strong understanding of the natural gas pipeline industry, the Federal and State Section 106 NHPA consultation process, NEPA, and tribal engagement and communication strategies.

**Contractor Deliverables:**

- Project kick-off and planning calls
- Project schedule and bi-weekly status reports or calls as needed
- Pre-Workshop materials (i.e. background issue paper and suggested best practices to support workshop participation)
- One-day workshop (to be held in a location that promotes Tribal participation)
- Workshop handouts and meeting materials
- A post-workshop summary paper of best practices for tribal engagement and recommended next steps

The workshop location will be at a facility that promotes tribal interaction.

**Desired Completion:** 3Q 2020

**Estimated Cost:** \$80,000



## POST CONSTRUCTION ACCEPTANCE CRITERIA

Proposal Number	16	Rank
Name	Chuck Harris	<div>#12 (6.3/10)</div>
Company	T.D. Williamson	
Email	<a href="mailto:Chuck.Harris@tdwilliamson.com">Chuck.Harris@tdwilliamson.com</a>	
Study Sponsor		
Steering Committee	Quality and Integrity Committee Members	
Oversight	Quality & Integrity Committee	
Proposed Effort	Workshop	
Comments: <ul style="list-style-type: none"><li>- Seems redundant with PHMSA requirements</li><li>- Will help to emphasize quality over speed of construction.</li></ul>		

Extensive emphasis is placed on construction guidelines such as Steep Slope Construction, Trenching and Excavation Safety, etc. and industry standards such as API 1104 – Welding of Pipelines and Related Facilities, to improve new pipeline construction and rightly so. Even with these focused approaches incidents related to new construction activities continue to occur, and according to the December 17, 2018 INGAA Report, “Analysis and Evaluation Of Incident Data Onshore Natural Gas Transmission Pipelines 2010 Through 2017” there is an apparent increasing trend in construction, installation or fabrication-related incidents since 2004.

**Background:** While guidelines and recommended/standard practices have been developed for certain aspects of new construction, there has not been an organized effort to address post-construction acceptance criteria. According to the INGAA Report, “Analysis and Evaluation Of Incident Data Onshore Natural Gas Transmission Pipelines 2010 Through 2017” new construction incidents are trending upward, and cost pipeline operators on average \$3.4 million annually since 2010 – not to mention the negative impact on public perception. This means that with all the effort going into construction, there is more we can do to reverse and eliminate this trend.

Also according to the referenced report, construction and fabrication failures have and will continue to be an area of focus in INGAA and the INGAA Foundation. The organizations have produced guidelines for conducting construction tasks as well as inspection of construction. Both organizations will continue to hold Lessons Learned Workshops and Roundtables to address construction-related incidents and work to prevent their recurrence.

This proposed Workshop would follow the referenced recommendation by identifying what we are doing today, opportunities to improve acceptance criteria and suggestions for a future state.

**Benefits to INGAA Membership:** Identify improvements to post-construction acceptance criteria to ensure integrity at commissioning, and reverse the upward trend in new construction incidents.

### **Items for Consideration:**

1. Coating Assessment
2. Threats requiring identification at new construction
  - a. Dents
  - b. Mechanical damage
  - c. Cracks
  - d. Strain

3. Threat Detection
4. Material Confirmation
5. Documentation Packages

**Suggested Procedure:**

1. Conduct Workshop at the sponsor's office if possible
  - a. Host at hotel as an alternate
2. Panel Discussions:
  - a. Pipeline Operator and Construction Contractor Panel on the current state
  - b. Review and discussion Items for Consideration – do these apply, are there others
  - c. Identify opportunities to improve post-construction acceptance criteria
3. Report Out:
  - a. Outcomes delivered to INGAA Foundation and determination of next steps

**Desired Completion:** 2Q 2020**Estimated Cost:** \$15,000

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## SAFETY CULTURE WORKSHOP – A COMPARISON AND ANALYSIS OF 2019/2016/2013 SAFETY CULTURE SURVEY RESULTS

Proposal Number	8	Rank
Name	Brian Seaman	<div style="border: 1px solid black; border-radius: 10px; padding: 10px; text-align: center;"> <b>#13</b>  <b>(6.3/10)</b> </div>
Company	Kinder Morgan	
Email	brian_seaman@kindermorgan.com	
Study Sponsor	Tim Mason (Enable), Victor Flores (Enable), Brian Seaman (Kinder Morgan)	
Steering Committee	Brian Seaman, Victor Flores, Tim Mason and others "TBD"	
Oversight	Safety Committee	
Proposed Effort	Workshop	
<b>Comments:</b>		

Over the past six years, the INGAA Foundation funded numerous workshops that would advance the learning's from the 2013, 2016, and 2019 INGAA Safety Culture Surveys.

In 2020, INGAA and the Foundation will analyze the 2019 survey data and compare it with the results from 2013 and 2016 as a means to understand what influence the areas of focus developed from past workshops and company actions are having on the overall safety culture. Additionally, the 2016 survey results surprisingly indicted 25-30% of respondents said it is acceptable to take risks in order to get the job done. The 2020 workshop would review the actions taken by the operators and evaluate if those efforts resulted in increased positive responses to the questions in the 2019 survey. The workshop would also discuss what, if any, influence the 2015 publication of API RP 1173 (Pipeline Safety Management Systems) has had on the survey results. Furthermore, the workshop will review

actions taken that build on previous positive results to verify the 2019 results continue to show the actions that have helped achieve a strong safety culture.

**Workshop:** The workshop will also provide an opportunity for members to share best practices, as many have implemented various initiatives and activities resulting from the past two surveys. Finally, it will address areas that require further attention and discuss strategies to improve our safety culture.

**Outreach:** Results would emphasize the importance of utilizing periodic safety culture surveys to understand how employees of a company feel about the safety culture of an organization. Additionally, openly sharing the initiatives that other companies have implemented to improve their Safety Culture would provide added value to INGAA and INGAA Foundation Members who have determined the need to affect change within their organization.

**Benefits to the Foundation Membership:** The workshop will be instrumental in determining if past workshops, sharing of Best Practices and individual company initiatives to improve their Safety Culture have been effective and sustainable. Additionally, utilizing quantitative data from the three completed INGAA Safety Culture Surveys will demonstrate INGAA and its membership's commitment to INGAA's Five Guiding Principles for Pipeline Safety.

**Possible Contractors:** P-PIC as they facilitate the survey and have facilitated the previous workshops.

**Estimated Cost:** \$35,000

**Desired Completion Date:** Q3 2020

## INSPECTOR CERTIFICATION SUCCESS METRICS

Proposal Number	13	Rank
Name	Michael Istre	<div style="border: 1px solid black; border-radius: 10px; padding: 10px; text-align: center;"> <b>#14</b>  <b>(6.3/10)</b> </div>
Company	INGAA Foundation	
Email	mistre@ingaa.org	
Study Sponsor	TBD	
Steering Committee	TBD	
Oversight	Quality & Integrity Committee	
Proposed Effort	Workshop, Survey	

**Comments:**

- Metrics important to determine the effectiveness of the Certification process and ensure obtain the desired increase in Quality of installed pipeline
- Unsure how this can be implemented; consider for 2021 or 2022
- This one is going to be difficult to measure given the interference of craft skill set on the quality of work.

This proposal is based on feedback from a presentation of the newly developed Practical Guide for Facilities Inspectors at an API conference. There are currently no quantifiable metrics to determine the impact to construction quality from either the API 1169 or OQ certification programs. How can we show regulators and operators that these programs are having an impact on quality, safety, etc? How can operators determine the value of these programs?

Since its inception over 8,000 individuals have completed the API RP 1169 Pipeline Inspector Certification program. The INGAA Board of Directors has recently refreshed the "Commitments to Responsible Construction" and have reaffirmed the commitment to inspector certification:

“We employ qualified pipeline construction inspectors. In 2017, INGAA’s members committed to employ qualified construction inspectors and endorsed an advanced certification program (API 1169). That endorsement has yielded more than 8,000 certified inspectors to date and provides a mechanism to promote growth and education of the pipeline inspection workforce. INGAA’s members remain committed to an inspector certification program and will continue to employ a well-trained construction workforce.”

In addition, Operators inconsistently require Operator Qualifications for construction and inspection personnel on new construction. The project will explore the utilization and benefits of OQ on new construction in an effort to drive consistent use across the INGAA companies. The 2019 Pipeline Reauthorization Bill now includes OQ requirements for new construction with no current guidance from PHMSA on which tasks they deem critical.

This project will develop a methodology to analyze available data on pipeline construction and operation activities that utilize inspection staff to determine if there exists any correlation between certification and quality to allow operators to better define or come to a consensus on critical tasks that should be tracked.

**Outreach:** To maximize the data set, it is proposed that a survey of INGAA, INGAA Foundation, CEPA, CEPA Foundation, API and AOPL memberships is performed. A workshop will be held to generate additional discussion and identify what metrics can be of value and how companies could implement those tests.

**Benefit to Membership:** Pipeline incidents, while rare, now carry the added stigma from environmental groups promoting the elimination of all fossil fuels. The results of this study will hopefully provide quantifiable justification that the industry is making both safety and quality priorities when constructing pipelines.

**Possible Contractors:** TBD

**Desired Completion:** 4Q 2020

**Estimated Cost:** \$35,000

## PIPELINE RIGHT-OF-WAY MAINTENANCE: CURRENT TRENDS AND BEST MANAGEMENT PRACTICES

Proposal Number	12	Rank
Name	Erik Dilts	<div style="border: 2px solid black; border-radius: 15px; padding: 10px; text-align: center;"> <b>#15</b> (5.9/10) </div>
Company	Enable Midstream Partners	
Email	<a href="mailto:erik.dilts@enablemidstream.com">erik.dilts@enablemidstream.com</a>	
Study Sponsor	INGAA Foundation Environmental Standing Committee	
Steering Committee	Erik Dilts (Enable); and others	
Oversight	Environmental Committee	
Proposed Effort	Workshop, Report	

**Comments:**

- Need to support to ensure we can maximize our TIMP effectiveness

Maintenance and management of vegetation along pipeline rights-of-way promotes safe and efficient pipeline operations by enhancing pipeline integrity, promoting access and visibility during routine patrols and inspections, and providing for immediate access and prompt response in the event of a

pipeline emergency. Right-of-way vegetation maintenance practices and frequency must be conducted in compliance with applicable regulatory requirements that may sometime constrain practicable maintenance methods or result in less than desirable right-of-way conditions. For example, the frequency, scope, and/or seasonal timing of vegetation maintenance practices (e.g., mowing) along interstate pipelines may be subject to restrictions imposed by the Federal Energy Regulatory Commission. Similarly, it's becoming increasingly common for the occurrence of special status species (e.g., federally listed species, nesting migratory birds, etc.) and/or efforts to control invasive species to influence permissible right-of-way maintenance practices. At the same time, there is a growing trend for right-of-way maintenance practices to be conducted in such a way as to benefit or enhance wildlife and pollinator habitats (e.g., monarch butterfly conservation initiatives). Conducting pipeline right-of-way maintenance in a manner that meets all of these objectives in a cost-effective manner, while also meeting various pipeline safety and regulatory requirements, can prove challenging.

In an effort to meet these challenges, some pipeline operating companies have initiated integrated vegetation management (IVM) programs for right-of-way maintenance. IVM utilizes a variety of techniques, including mechanical and chemical (targeted herbicide application) control methods, to control tall-growing, incompatible tree and invasive plant species while favoring the growth of compatible herbaceous native plant species. In so doing, IVM can enhance and expand pollinator and wildlife habitats within maintained rights-of-way, provide improved landowner and stakeholder satisfaction, and deliver significant cost savings relative to use of routine mechanical mowing practices alone. Despite these benefits, IVM and chemical control programs can sometimes face landowner or stakeholder (both internal and external) opposition due to lack of understanding and/or misperceptions about the use of herbicides, as well as the desired outcome for the right-of-way (i.e., not a monoculture resembling a golf course fairway).

This study will identify current industry right-of-way management best practices, share lessons learned through review of operator case studies on the implementation of IVM programs, seek stakeholder input on wildlife and pollinator habitat enhancement opportunities and value, and identify opportunities for knowledge sharing and further learning. Opportunities for information sharing might include:

- IVM 101 – What is IVM?
- Cost considerations and challenges to implementing IVM programs;
- Resource agency approval and permitting, as well as contractor licensing requirements;
- Landowner notification obligations;
- Managing landowner concerns, questions, and misperceptions related to herbicides;
- Third-party endorsement of IVM programs (e.g., National Wild Turkey Federation Energy for Wildlife program); and
- IVM's connection to pollinator conservation (e.g., Monarch Candidate Conservation Agreement with Assurances).

Such a study may be best implemented in a workshop setting that also allows for a field site visit to facilitate comparison and contrast of rights-of-way where IVM and mechanical mowing alone have been implemented.

The Steering Committee will lead the efforts to plan the agenda, presentation, and facilitators for the workshop. The development effort will be similar to the efforts completed for prior INGAA Foundation-sponsored workshops.

**Participation and Benefit to Membership:** The workshop is ultimately anticipated to educate and benefit industry and INGAA Foundation members, both operating companies and service providers, as well as drive the current state of pipeline right-of-way maintenance forward through the

identification of best management practices and tools for implementing right-of-way maintenance in a more efficient and cost-effective manner. Anticipated participants in the workshop would include a diverse group consisting of pipeline companies (environmental, compliance, right-of-way/realty, and operations staff), service providers (environmental services, vegetation management, and related contractors), non-governmental organizations, and resource agencies. All workshop meeting materials, workshop notes, and a summary report will be made available to the INGAA Foundation after the workshop for distribution to Foundation members.

**Possible Contractors:** The INGAA Foundation would engage a contractor working under the direction of the Steering Committee. A contractor with experience developing and implementing right-of-way maintenance programs may be best situated to support such activity, and potential vendors include IVM Partners, Davey Resource Group, Progressive Solutions LLC, or other qualified INGAA Foundation service provider member companies.

**Desired Completion:** 3Q 2020

**Estimated Cost:** \$30,000

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## 401 WATER QUALITY CERTIFICATION REQUIREMENTS BY STATE FOR PIPELINE PROJECTS

Proposal Number	11	Rank
Name	Environmental Committee	WD
Company	Kinder Morgan	
Email	Jeff.benefiel@stantec.com	
Study Sponsor	Jeff Benefiel	
Steering Committee	TBD	
Oversight	Environmental Committee	
Proposed Effort	Report	
Notes		

401 Water Quality Certification (WQC) was granted to State regulatory agencies under the Clean Water Act (CWA). States can set their own review processes, requirements, and limits when reviewing permit applications. Depending on the permit venue being reviewed, 401 WQC can be an individual review, programmatic or waived (not needed). Each state has provided different conditions for granting WQC for CWA 404 permits applications including Nationwide Permits, which are commonly used for pipeline construction and maintenance project. Some states have recently begun denying WQC for natural gas pipeline projects in an apparent attempt to block the project. Other states have conditioned WQC under nationwide permits to the extent that an individual permit is likely the only option for pipeline projects.

This study proposes to generate a matrix of all lower 48 state requirements for 401 WQC related to pipeline projects. It would detail the requirements for individual permits, programmatic conditions for NWP 12 and any applicable regional general permits. The matrix could be useful to pipeline operators when looking at potential projects to quickly evaluate WQC application needs, timeframes, and potential critical issues. The study would look at publicly available data as well as draw data from recent pipeline projects.