NATURAL GAS IN THE DECARBONIZATION ERA

Evaluating the Role of a Debated “Bridge Fuel”

January 22-23, 2020
EUCI Conference Center
Plaza Tower One Conference Center
Denver, CO

POST-CONFERENCE WORKSHOP


THURSDAY, JANUARY 23, 2020
OVERVIEW

The use of natural gas for power generation has surged in the U.S. over the last few decades. Boasting the advantages of being the cleanest-burning fossil fuel (producing half the CO₂ emissions of a coal-fired plant), reliability, affordability and efficient deployment; natural gas has grown in popularity as a complementary source to renewable energy.

However, in an increasingly carbon-conscious world, natural gas is not without conflict, and debates evaluating the role of this fuel source have come to the forefront of energy industry discussions. Is natural gas only a “bridge fuel” until renewable and storage resources fully proliferate the grid? Or will higher renewable penetrations only make natural gas more necessary as a supporting resource? In the event of the latter, how will emerging state and local regulations – that limit or outright prohibit natural gas — impact an industry and infrastructure that may be necessary in the longer term to keep the lights on?

This conference will discuss the decarbonization and clean energy investment landscape across the country, focusing on evaluating the role of natural gas generation and infrastructure. It will address the increasingly controversial role of this fuel source, analyzing where gas generation makes sense in the short and long term in decarbonization plans, and debating whether natural gas will be a necessary fuel in a future clean energy grid or eventually become obsolete. Attendees will assess how to consider natural gas as it relates to investment decisions, resource planning, and asset management in the clean energy era. Other topics discussed include renewable natural gas opportunities to utilize existing infrastructure, and the relationship of electrification and power for gas demand.

LEARNING OUTCOMES

- Evaluate the role natural gas as a power plant fuel will play in the transition to a low-carbon economy
- Analyze the investment landscape for new natural gas power plants and pipelines, and their short and long-term economic life
- Review the economics of natural gas plants vs. renewable energy, storage and other new technologies
- Evaluate deep decarbonization pathways and research studies, and the role natural gas will play in the future generation mix
- Assess the changing regulatory and legal landscape impacting natural gas generation and infrastructure
- Describe electrification initiatives and what they mean for natural gas applications in the short and long term
- Discuss how state decarbonization goals could create needs for increased gas power and pipeline capacity
- Describe how natural gas is utilized as a supporting resource for increased renewable energy penetrations
- Examine how natural gas-fired microgrids and cogeneration could be a supporting resource for a clean energy grid
- Review how a natural gas utility is proactively engaging in decarbonization initiatives
- Assess best practices for gas resource planning for electric generation
- Participate in an expert Q&A panel
AGENDA

WEDNESDAY, JANUARY 22, 2020

8:00 – 8:30 am  Registration & Continental Breakfast

8:30 – 9:15 am  The Impact of Xcel Energy’s Decarbonization Plan on Resource Planning – Short & Long Term Projections for Natural Gas & Renewables
  • How Xcel Energy is setting an example in decarbonization
    o Successfully reduced carbon emissions so far 35% below 2005 levels
    o Reducing carbon footprint 60% by 2030
    o Achieving 100% carbon free electricity by 2050
  • Resource planning strategies for meeting decarbonization goals in 2030 and 2050
    o Overview of Xcel Energy’s current fuel mix - projections for how it will change in the short and long term
    o Transitioning to a nontraditional generation fleet while maintaining reliability and costs
    o Wind, battery and solar that are replacing existing coal generation
  • The role of natural gas in Xcel Energy’s resource mix now and in the future
    o How has natural gas helped Xcel Energy’s decarbonization initiatives so far?
    o What is the role of natural gas in the short and long term in Xcel Energy’s fuel mix?

Jonathan Adelman, Vice President – Strategic Resource & Business Planning, Xcel Energy

9:15 – 10:00 am  Outlook for Natural Gas – Investment, Economics, & Operations in a Clean Energy Future
Over the past 20 years, the United States has expanded natural gas use dramatically for electricity generation. With persistent low gas prices, the industry continues to plan new gas infrastructure, including both new power plants and new pipelines. But even as gas use has expanded, renewable technologies have improved and dropped precipitously in price, with new research showing that carbon-free resources – wind, solar, storage, demand side management – are now able to compete alongside natural gas on price, while providing the same grid reliability services. This session will evaluate findings from a pair of recently released reports by the Rocky Mountain Institute on this topic, discussing:
  • Overview of investment and development of new gas-fired power plant construction plans in the next 5 years
  • Economic analysis of proposed new natural gas generation capacity vs. carbon free resources
  • Risks of continued investment in natural gas power plants
    o New regulations prohibiting or restricting new natural gas generation
    o Stranded assets & cost risk
  • Operational aspects of natural gas and clean energy
    o Is natural gas needed to support higher renewable penetrations?
  • Where does investment in gas generation make sense in longer term?
  • Prospects for gas pipelines in the clean energy era – are building new pipelines a prosperous or necessary investment?

Mark Dyson, Principal, Rocky Mountain Institute (RMI)
Charles “Chaz” Teplin, Manager – Electricity Practice, Rocky Mountain Institute (RMI)

10:00 – 10:15 am  Morning Break
AGENDA

WEDNESDAY, JANUARY 22, 2020 (CONTINUED)

10:15 am – 12:00 pm Deep Decarbonization Pathways & The Outlook for The Future Generation Mix – Implications for Natural Gas

- Regulatory and policy mechanisms incentivizing decarbonization
- Projections on generation capacity penetrations in deep decarbonization scenarios
  - Renewables
  - Thermal fleet
  - Storage and other technologies
- Operational and reliability considerations and needs in decarbonization scenarios
  - Economical means of meeting peak demand
  - Increasing grid flexibility
  - Managing variability of renewable energy resources
  - Changing transmission flows
- Where does natural gas make sense in the short and long term under deep decarbonization scenarios?
  - Potential roles, requirements & regulations
  - Bridge fuel vs. necessary capacity?
  - Changing concepts and applications of ‘baseload’ support
    - Battery storage competitiveness with natural gas plants – now and in the future
- "Insurance" policies to keep natural gas capacity around for high renewable penetration scenarios

Moderator: Paul Hibbard, Principal, Analysis Group
Nick Schlag, Director, Energy+Environmental Economics (E3)
Thomas Carr, Attorney/Economist, Western Interstate Energy Board

12:00 – 1:00 pm Group Luncheon

1:00 – 2:30 pm The Changing Regulatory & Legal Landscape for Natural Gas

- Overview of general federal, state and local processes for facility permitting, safety inspections and market oversight
- Current federal regulations and possible future requirements for natural gas generation and pipeline compliance
  - Changing regulatory landscape for domestic energy infrastructure & LNG
  - How climate policy could impact approval process for pipeline certificates
- Government role in infrastructure funding
  - Infrastructure funding challenges to meet demand
- Renewable Natural Gas (RNG) emerging policies & development
  - California
  - Washington
  - Oregon
- Emerging state and local regulations impacting natural gas development and operations
  - Beneficial electrification
  - Fuel-switching
  - City code changes to limit natural gas applications
  - Local bans to developing new natural gas plants
- City of Boulder case study: building decarbonization & electrification
  - Beneficial electrification policies
  - Code changes to limit natural gas lines
  - Broader climate commitment planning – impacts for gas

Pamela Anderson, Partner, Perkins Coie LLP
Elizabeth Vasatka, Sustainability Coordinator, City of Boulder - Climate Initiatives
WEDNESDAY, JANUARY 22, 2020 (CONTINUED)

2:30 – 3:15 pm  Impacts of Decarbonization Goals on Electric Load & Natural Gas Capacity Demand in the Northeast
  • Update on northeastern state decarbonization, electrification & renewable energy mandates
    o New York, Virginia, Massachusetts, Maryland
  • How electrification goals will reshape the economy
    o Building decarbonization - electric heating
    o Transport decarbonization - electric vehicles
  • How decarbonization & electrification initiatives will radically shift the electricity sector
    o Massive increase in electricity demand
    o Shifting electric demand shape
  • Natural gas – where and how it will be needed under decarbonization scenarios
    o Early stages – gas and renewable generation mix
    o 10+ years – uncertainty
  • How can a region heavily reliant on gas-for-power successfully transition to a lower carbon economy while keeping the lights on, at lowest cost?
  • Addressing needs for sufficient gas power and pipeline capacity
    o Peaking infrastructure
    o Can you keep sufficient capacity around for reliability while industry revenue is disappearing?
    o Infrastructure issues: development bans & cost allocation issues
  • Evaluating the ‘natural gas as a bridge fuel’ argument – how wide is the bridge vs. how long?

*Paul Hibbard, Principal, Analysis Group*

3:15 – 3:30 pm  Afternoon Break

3:30 – 4:15 pm  MISO: Operational Aspects of Natural Gas & Renewable Energy
  • Overview of MISO generation capacity & resource planning process
    o Natural gas fired generation in MISO footprint
    o Increase of renewable penetrations
  • Ensuring enough generation is online and able to meet the real-time demands of grid to “keep the lights on”
    o Role of natural gas & peaking facilities in reliability
  • Gas & electric coordination processes in balancing operations & generation dispatch

*Representative, Midcontinent Independent System Operator (MISO) (invited)*

4:15 – 5:00 pm  Natural Gas-Fired Microgrids: A Supporting Resource for a Decarbonization Goals?
  • Overview of microgrids – operations & fuel sources
    o Installed capacity of microgrid by fuel source – natural gas, diesel, flywheels, fuel cells, energy storage, solar, wind, biogas, hydro
    o Hybrid microgrid applications
  • Natural gas in microgrids
    o Gas-fired engines
    o Cogeneration/Combined heat & power (CHP)
  • Benefits of natural gas-fired microgrids
    o Flexibility, resiliency and reliability
    o Lower emissions
    o Efficiency of gas-fired engines
  • Natural gas-fired microgrids – a supporting resource for decarbonization goals?
    o Support for higher renewable penetrations on the grid
    o Increasing thermal efficiency – less emissions
    o CHP as a means to reuse waste heat in buildings & lower building carbon footprint

*Gene Okun, President, Microgrid Energy*
THURSDAY, JANUARY 23, 2020

8:00 – 8:30 am  Continental Breakfast

8:30 – 9:45 am  Engaging as a Natural Gas Utility in Decarbonization Initiatives
- Cascade Natural Gas Corporation - company overview & strategy
- How natural gas as a resource can be a productive part of climate change initiatives
- Strategies to reduce and manage the carbon footprint of natural gas in utility operations
  - Energy efficiency, conservation and demand side management (DSM)
  - Elevating best practices & carbon reduction pathways
- Promoting environmentally friendly practices for natural gas while maintaining:
  - Stability and reliability
  - Affordability for customers
- Engaging as a natural gas utility in climate change & carbon reduction initiatives
  - Collaborating with cities on decarbonization goals
- Mechanisms of effective carbon reduction policy – consistent treatment of emissions, regardless of fuel source
  *Alyn Spector, Manager – Energy Conservation, Cascade Natural Gas Corporation*

9:45 – 10:00 am  Morning Break

10:00 – 10:45 am  Gas Resource Planning for Electric Generation
This session will discuss best practices for gas resource planning as it relates to electric generation, and how resource planning processes for this resource are changing due to emerging trends and new influences. The session will present a high-level overview on what's going on around the country with regard to gas for electric generation, discussing trends in various communities and state jurisdictions, and addressing how new policies (i.e. electrification) are impacting gas resource planning for electricity.
  *Ronald Amen, Director – Advisory & Planning, Black & Veatch*

10:45 – 11:45 am  Closing Panel: Moving Forward to Optimize the Role of Natural Gas on the Future Grid
*Moderator: Pamela Anderson, Partner, Perkins Coie LLP*
*Kelly Crandall, Director of Regulatory Affairs, Uplight*
*Mark Dyson, Principal, Rocky Mountain Institute (RMI)*
*Mark Repsher, Partner, PA Consulting*
POST-CONFERENCE WORKSHOP


THURSDAY, JANUARY 23, 2020

1:00 – 1:30 pm  Workshop Registration
1:30 – 5:00 pm  Workshop Timing

OVERVIEW

As the North American energy sector is engaged in rapid change, evolving interests are quickly changing the scope and approaches necessary for utilities to plan for natural gas electric generation and infrastructure. This workshop will discuss how gas resource planning has changed in recent years - and how these processes will continue to change as decarbonization efforts create opportunities and challenges for natural gas generation investment. While natural gas generation can support transitioning to a cleaner energy future, often seen as a bridge resource; opposition to any new carbon emitting resources is mounting quickly in many jurisdictions. This workshop will provide a discussion of the range of approaches to gas acquisition that can serve as best practices for optimal resource planning, identification of investment opportunities, and overall strategy. Attendees will analyze how an increasingly carbon-conscious landscape will impact the viability and applications of natural gas as a future fuel source in the short and long term, and subsequently impact their planning approaches and investment decisions. The workshop will address these topics as they are relevant to the industry in both vertically integrated and competitive energy markets.

LEARNING OUTCOMES

• Analyze how resource planning and consideration of investment are changing for natural gas power generation & infrastructure
• Determine how decarbonization and clean energy initiatives factor into resource planning strategies for natural gas assets
• Evaluate issues related to maintaining sufficient natural gas-fired power and pipeline capacity

WORKSHOP AGENDA

THURSDAY, JANUARY 23, 2020

1. Overview of traditional planning processes for natural gas resource & financial planning
   a. How they are changing and have changed in recent years
2. Understanding the changing landscape and its impact on planning approaches and overall strategy
   a. State politics and public policy
   b. Regional influences and fuel mix
   c. Growing demands from regulators and stakeholders
   d. Addressing emerging opportunities and threats
THURSDAY, JANUARY 23, 2020 (CONTINUED)

3. Key trends and outcomes of the decarbonization landscape impacting the role of natural gas for power
   a. Push for electrification
   b. Fuel-switching programs
   c. Clean energy mandates
   d. Gas and electricity coordination
   e. Peaking plants for baseload support

4. Case studies of a changing landscape
   a. Implications of emerging policies to set “moratoriums” on provision of new end-use natural gas service to customers due to capacity shortage and pressure for full electrification
   b. Regulatory prohibitions on new gas development
   c. Contrasting natural gas infrastructure growth initiatives of recent years
   d. Role of line extension policies

5. Natural gas resource planning strategy and analysis in the decarbonization era
   a. Analysis of utility management of pipeline and storage capacity and supply
   b. Determining 20 + year electric and gas demand forecasts
   c. Natural gas value chain evaluation in the U.S.
   d. Strategies for natural gas efficiency and direct end-use
   e. Shifting strategies for natural gas procurement

6. Maintaining sufficient natural gas for power and pipeline capacity

7. Successfully developing an IRP toolkit to incorporate changing factors, new influences and uncertainty

8. Engaging regulators and policymakers

9. Alternative ratemaking programs & gas utility infrastructure cost recovery

WORKSHOP INSTRUCTORS

Ronald J. Amen  
Director – Advisory & Planning, Black & Veatch

Ronald Amen has over 40 years of combined experience in utility management and consulting. He has advised gas and electric utility clients in regulatory policy, strategy and analysis; cost of service studies (embedded & marginal cost); rate design and pricing, including time-of-use rates, revenue decoupling, weather normalization and other cost tracking mechanisms; resource strategy, planning and financial analysis; and business process design, evaluation and organizational structures. Mr. Amen has provided expert testimony in numerous state and provincial regulatory agencies, and the FERC. He has provided natural gas resource planning strategy and analysis, including the evaluation of incremental inter- and intra-state pipeline capacity, underground storage and LNG facilities. He has compiled case studies for gas procurement and risk management practices, including identification of best practices across the industry and conducting reviews of the natural gas value chain in the U.S. He has performed due diligence related to U.S. pipeline mergers and acquisitions, involving market assessments related to customer/shipper contracts and their prospective alternatives. His utility management career included leading federal regulatory affairs for two gas and electric utilities, including representing their interests in pipeline rate proceedings before FERC; and management positions in state regulatory affairs, information systems, and distribution operations.
WORKSHOP INSTRUCTORS

John D. Taylor  
*Principal Consultant – Management Consulting, Black & Veatch*

John Taylor is a utility pricing expert with experience developing cost of service studies for both electric and gas utilities and transmission companies. He has deep experience with developing residential and commercial rates, analyzing midstream transportation and storage capacity resources, and assessing the relationship between price signals and the adoption of distributed generation assets. He has worked as the market monitor for New England ISO’s capacity market, supported the negotiation of PPAs, and supported feasibility and prudence studies of generation investments. He has advised clients in matters pertaining to line extension policies; revenue requirements and working capital studies; revenue decoupling and normalization adjustments; regulatory policy and strategy; mergers and acquisitions; litigation support; load research; and organizational and operations reviews. He has experience in asset and corporate valuation, the application of real options analysis, and various risk management techniques. He has filed expert testimony and reports on cost of service studies, affiliate transactions, return on equity, and statistical analysis for audit testing. He has served as a sell side advisor in the sale of generating assets, supporting due diligence efforts, financial analyses, and regulatory approval processes. He holds a master's degree in Economics from American University and a bachelor's degree in Environmental Economics from the University of North Carolina at Asheville.

George R. Pohndorf  
*Principal Consultant – Management Consulting, Black & Veatch*

George Pohndorf has over 28 years of diverse leadership experience in the private, public and consulting sectors. He has served as Senior Manager, Energy Services at Snohomish Public Utility District, leading its energy efficiency, electric vehicles, demand response, solar, and key accounts strategies and initiatives. Previously, he served in a number of executive-level positions at Puget Sound Energy, including leadership of state regulatory affairs, energy resource strategy, planning processes and design of energy resource acquisition programs. George also led PSE’s major accounts, community, business and external affairs programs. He has led corporate strategy development and resulting business, financial, policy and corporate and external affairs initiatives. George leads the Corporate Strategy program at the University of Idaho’s Utility Executive Program and teaches corporate finance at Willamette University’s Utility Management Program. He has also led the Northwest Energy Efficiency Alliance's Board of Directors in its most recent Strategic Planning process. Mr. Pohndorf holds an MBA in finance, summa cum laude, from the Simon School of Business and has completed executive programs at the Chicago Booth, Stanford and Kellogg graduate schools of business, and the Harvard Law School.
INSTRUCTIONAL METHODS

PowerPoint presentations and case studies will be used in program.

REQUIREMENTS FOR SUCCESSFUL COMPLETION

Participants must sign in/out each day and be in attendance for the entirety of the course to be eligible for continuing education credit.

IACET CREDITS

EUCI has been accredited as an Authorized Provider by the International Association for Continuing Education and Training (IACET). In obtaining this accreditation, EUCI has demonstrated that it complies with the ANSI/IACET Standard which is recognized internationally as a standard of good practice. As a result of their Authorized Provider status, EUCI is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standard.

EUCI is authorized by IACET to offer 1.0 CEUs for the conference and 0.3 CEUs for the workshop.

EVENT LOCATION

Plaza Tower One Conference Center
6400 S Fiddlers Green Cir.
Greenwood Village, CO 80111
The EUCI conference center is conveniently located adjacent to the Arapahoe at Village Center Light Rail Station, allowing easy access to and from DIA, Downtown, and Local Area Attractions.

NEARBY HOTELS

Each of these hotels offers a complimentary shuttle to and from the EUCI conference center.

Springhill Suites DTC
7900 East Peakview Ave.
Greenwood Village, CO 80111
303-721-3321
.3 miles away

Wingate by Wyndham
8000 E. Peakview Ave.
Greenwood Village, CO 80111
303-626-2641
.3 miles away

Hyatt Place DTC
8300 E. Crescent Pkwy
Greenwood Village, CO 80111
303-804-7000
2.1 miles away

Hyatt Regency Denver Tech Center
7800 E. Tufts Ave.
Denver, CO 80237
303-779-1234
2.8 miles away

Denver Marriott Tech Center
4900 S. Syracuse St.
Denver, CO 80237
303-779-1100
3.1 miles away

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WWW.EUCI.COM
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EVENT LOCATION

Plaza Tower One Conference Center
6400 S Fiddlers Green Cir.
Greenwood Village, CO 80111
Located on the same property as the EUCI Office

See nearby hotels on page 9

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NATURAL GAS IN THE DECARBONIZATION ERA CONFERENCE AND
POST-CONFERENCE WORKSHOP
JANUARY 22-23, 2020: US $1895
Early bird on or before January 10, 2020: US $1695

NATURAL GAS IN THE DECARBONIZATION ERA CONFERENCE ONLY
JANUARY 22-23, 2020: US $1495
Early bird on or before January 10, 2020: US $1295

POST-CONFERENCE WORKSHOP ONLY
THURSDAY, JANUARY 23, 2020: US $595
Early bird on or before January 10, 2020: US $495

How did you hear about this event? (direct e-mail, colleague, speaker(s), etc.)

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Substitutions & Cancellations
Your registration may be transferred to a member of your organization up to 24 hours in advance of the event. Cancellations must be received on or before December 20, 2019 in order to be refunded and will be subject to a US $195.00 processing fee per registrant. No refunds will be made after this date. Cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI event. This credit will be good for six months from the cancellation date. In the event of non-attendance, all registration fees will be forfeited. In case of course cancellation, EUCI’s liability is limited to refund of the event registration fee only. For more information regarding administrative policies, such as complaints and refunds, please contact our offices at 303-770-8800.

EUCI reserves the right to alter this program without prior notice.

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