Description
Evolving RTO markets, renewables, distributed resources, and calls for increased grid resiliency present power supply planners with significant challenges to ensure flexibility and reliability while remaining cost competitive. This conference will explore current trends, relevant projects and market perspectives to gain insight to this changing industry. A roundtable discussion will provide an invaluable opportunity for open dialogue regarding challenges and best practices in meeting these challenges.

Who Should Attend
Power supply system planners, corporate and plant engineers, project managers and vendors who have key stake shaping the generation portfolios and providing reliable power to electric customers. Non-technical professionals in consulting, HR, asset management and finance will also benefit greatly in gaining an understanding of the issues facing the power generation industry.

DATE, TIME, LOCATION
June 19-20, 2019
June 19 - Conference and Roundtable 
8:00 a.m. - 4:30 p.m.

June 20 – Conference
8:00 a.m. - 11:30 a.m.

Denver Marriott South
10345 Park Meadows Drive
Lone Tree, CO 80124
Phone: (303) 925-0004
Fax: (303) 925-0005

Directions
From I-25: Exit at Lincoln Avenue, exit #193. Turn west on to Lincoln. Turn right at next light, which is Park Meadows Drive. Hotel is on the right. Parking is complimentary.

BRING ROUNDTABLE TOPICS
You can also send topics ahead of time to jamessakamoto@rmel.org.
the ACE Rule, including the state’s implementation of important issues related to the presentation will discuss for existing units. Finally, improvements as the “best identification of efficiency judicial challenges to EPA’s that are likely to be raised in also discuss legal issues sources and of EPA’s 2018 framework for existing Clean Air Act’s regulatory it to individual sources. begin their eff orts to apply the ACE Rule and as states on issues that are likely to This presentation will focus timeline and process for state plan development, how states will identify available efficiency improvements and translate them into emission standards for individual units, what form standards may take, and what types of flexible compliance measures states may allow, among other issues.

9:15-10:00 a.m.  
**Thermal Hybrids (gas + storage)**

Turner Scholl, Project Manager, Wellhead Power Solutions
Adnan F. Zafar, Technical Leader, Energy Storage and Hybrid Controls, General Electric

This presentation will cover:
1. Explanation of what a thermal hybrid consists of – from Wellhead’s point of view.
2. Performance of co-optimizing gas and storage. Will discuss the performance capabilities and characteristics of a thermal hybrid and explain how the two resources complement one another.
3. Discussion of what problems thermal hybrids can help solve.
Review installation history, lessons learned, and look-back on 2+ years of commercial operation from the first two thermal hybrid installations.

10:00-10:15 a.m.  
**Networking Break**

10:15-11:00 a.m.  
**Lithium Ion Battery Market Update and Distribution Deferral Case Study**

Chris Ruckman, Energy Storage Director, Burns & McDonnell

Of the many currently available storage technologies, battery storage is the fastest growing segment of the storage market. This presentation examines current lithium ion storage technology and its predominant chemistries, integration challenges, project logistics, safety, and operational/maintenance requirements. This presentation also presents a case study for a storage project to be deployed for distribution deferral and the associated project economics.

11:00-11:45 a.m.  
**Variable Energy Grid Integration and Energy Storage Options**

Carl Mannheim, Sr. Hydraulic Engineer & PNW Hydropower Engineering Manager, HDR Engineering

This presentation will cover the challenges of integrating intermittent energy sources into the existing grid and the role pumped storage can play in providing the flexibility the grid needs to operate efficiently. The capabilities of pumped storage technology and its cost elements will be presented to show pumped storage as a valuable partner to balance variable energy sources on today’s grid.

11:45 a.m. - 1:00 p.m.  
**Networking Lunch**

1:00-2:15 p.m.  
**PANEL - How the Increase in Renewables is Affecting Planning**

Renewable penetration and carbon emission reduction in the generation market continues to accelerate. The intermittent nature of these carbon free but intermittent facilities, and the retirement of dispatchable generation require new approaches to planning, and also provides new opportunities to meet customer desires. Evolving reliability and affordability challenges must be addressed. This panel will present the perspectives of several utilities and an RTO on expectations for planning in the future.

**Planning for the Uncertain Renewable Future**
Colton Kennedy, Omaha Public Power District

Drastic cost reductions and emerging capabilities of renewables underlie the dynamic and uncertain future in which utilities find themselves. Meanwhile, modern resource optimization tools lack valuation of optionality while ignoring distinct reliability and resiliency tradeoffs. Consequently, solutions point toward over-investment in the status quo or toward a complete renewable transition without consideration to grid stability. This presentation will identify out-of-model considerations which should be made in a prudent planning process while also highlighting methods for stochastic risk analysis and the need for methods which identify efficient tradeoffs between emissions, cost, and reliability.
The Future of Resource Planning in SPP
Chris Haley, SPP
SPP’s region is blessed with high potential for development of renewable resources and has experienced tremendous growth of wind generation over the last decade. SPP continues to break wind penetration records for RTOs with the most recent record of 66.5% observed on April 21st. My presentation will explain how resource planning is effectuated in SPP. I will share trends and analyses demonstrating how renewable growth has impacted resources and resource planning in SPP. I will also highlight policy initiatives being considered in SPP to enable proper resource planning in the future as renewable resources continue to be added to the system.

PNM Resources Presentation
Bill Paiz, Engineer, Power Production 5, PNM Resources
2:15-3:00 p.m.
Modern Energy Solutions with NuScale’s Small Modular Reactor
Chris Colbert, Chief Strategy Officer, NuScale
NuScale Power is developing a new, modular light water reactor nuclear power plant to supply energy for district heating, desalination, and process heat applications. This groundbreaking small modular reactor (SMR) design features a fully factory fabricated NuScale Power Module capable of generating 60 MW of electricity using a safer, smaller, and scalable version of pressurized water reactor technology. The presentation will cover the basic technology behind the SMR, its many uses for clean energy solutions, and the current status of commercialization and deployment.

3:00-3:15 p.m.
Networking Break
3:15-3:30 p.m.
Attendee Announcements
Any registered attendee is invited to make a short announcement on their company, new products, technologies or informational updates. Announcements may include showing a product sample but not videos and power point slides. Please limit announcement to 5 minutes.

3:30-4:30 p.m.
Generation Vital Issues Roundtable
Bring roundtable topics for discussion and/or send topics ahead of time to jamessakamoto@rmel.org. Roundtables offer a unique forum for peer-to-peer sharing of experiences, critical issues and expertise. The roundtable is a discussion group, open only to RMEL members. Discussion is based on topics brought by attendees. Roundtables are focused on the open discussion period and provide each attendee the opportunity for participation and dialogue on their particular issue. Roundtables are held in conjunction with a conference and many topics presented at the conference are discussed further in the roundtable setting. The roundtable is a good opportunity to share experiences, troubleshoot problems and network with peers in a smaller, informal setting. Each participant is offered a chance to pose questions and share information. All attendees are encouraged to bring issues for discussion and materials for sharing.

4:30 p.m.
Networking Reception

Thursday, June 20, 2019
8:00-9:15 a.m.
PANEL: Utility of the Future
Fundamental changes to the power generation market have disrupted the traditional utility business model. Customers expect more flexibility and options for purchasing power. Technology provides new ways to interact with customers as well as manage assets. This panel will explore both utility and broader perspectives on what the “Utility of the Future” will look like.

Making Sense of the Future: OPPD’s Approach to Transformation
Courtney Kennedy, Omaha Public Power District
Technological innovation, decarbonization, and changing customer expectations are just some of the trends driving utilities to rethink their operations, finances, and business models. It can be challenging to decide which direction and how fast to move in this environment. This presentation will follow how the Omaha Public Power District is making sense of industry trends and the actions it is taking to undergo the transformation. By breaking down the broad industry trends relevant to the communities and people it serves, OPPD focuses on the most important needs for its customers while balancing its mission of providing affordable, reliable, and environmentally sensitive energy services. This presentation will discuss the actions OPPD undertook to develop its vision and the actions in motion to meet its customer’s needs.

Utility of the Future in a Distributed World
Joe Zhou, Black & Veatch
With distributed energy resources becoming more acceptable from both economical and social perspectives as well from across all customer segments, utilities are planning for their future in a much more distributed world of both supply and demand. Each utility will experience a different path forward, given various customer base and regulatory environments. However, there are fundamental shifts in both technology and business models that utilities will have to deal with in order to create a position to thrive in the new energy world. This conversation will provide insights and advice as to how a utility can be prepared for the future in a distributed world.

9:15-9:30 a.m.
Networking Break
9:30-10:15 a.m.
Energy Storage Technology Comparison: Lithium Ion and Flow Batteries
Mike Simpson, Sr. Technical Leader, Electric Power Research Institute (EPRI)
Batteries can enable utility-scale energy storage, but many storage technology options offer varying capabilities to provide multiple grid services. While consumer electronics and EV markets drove the maturity, accessibility, and affordability of lithium ion
battery technology, flow battery technology offers certain advantages in specific applications. Mike Simpson, EPRI Senior Technical Leader, will present a brief comparison of the cost and performance of these options.

10:15-11:00 a.m.  
**PNM’s Transition to 100% Carbon Free Generation By 2040**  
**Bill Paiz, Engineer, Power Production  5, PNM Resources**  
PNM will continue down the path of unprecedented collaboration, which aided in the passage of the Energy Transition Act. The San Juan Generating Station Replacement Power filing will demonstrate our commitment to transparency and open communication with stakeholders and the New Mexico Public Regulation Commission (PRC). We will conduct stakeholder conferences to provide direct communication with modelers and others in an open discussion format.

PNM will clearly outline multiple distinct pathways to replace energy as a result of the San Juan Generating Station shutdown. These plans will give customers and stakeholders continued transparency and the information they need to form their own insights into options for where, and how, the energy needed to power their homes and businesses is generated and how much it costs.

PNM will collaboratively identify and model several distinct paths. This will not only illustrate the least cost plan, as mandated by law, but also considered alternatives that will include options for geographic placement of renewable energy resources and choices between emissions-free technology and lower cost next generation natural gas. PNM wants stakeholders to have more information and understanding as we meet the Renewable Portfolio Standard requirements and transition to 100% emissions-free energy.

PNM will continue this collaborative work with customers, environmental organizations, businesses, and other stakeholders to form a long-term plan for our future as part of our 2020 Integrated Resource Plan (IRP). Public participation workshops for the next IRP will kick off in June 2019.

11:00-11:30 a.m.  
**Generation Vital Issues Roundtable**

The RMEL Generation Committee plans all RMEL Generation events. If you'd like to send information to the committee, email James Sakamoto at jamessakamoto@rmel.org.
POWER SUPPLY PLANNING FOR MODERN ENERGY SOLUTIONS CONFERENCE REGISTRATION

Your Personal Member ID#: __________________________________________ Name: _____________________________________________________________________

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First Name: __________________________________________________ Last Name: ________________________________________________

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Company Name: ___________________________________________________________________________________________________________

Company Address: _______________________________________________________________________________________________________

City: _________________________________________________________________________ State:  _____________________________ Zip:  ___________________________________

Phone: ______________________________________________________________________ Fax: _____________________________________________________________________________

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How To Register

ONLINE Register at www.RMEL.org

PHONE Call RMEL at (303) 865-5544

FAX your form to (303) 865-5548

MAIL Send form and payment to RMEL

6855 S. Havana St, Ste 430 ~ Centennial, CO 80112

Power Supply Planning for Modern Energy Solutions Conference - June 19-20, 2019

Registration Includes: Breakfast, breaks, lunch, training, course materials, attendee roster and, upon course completion, a continuing education certificate.

- Member full conference (includes roundtable) .............................................$345
- **Student Member full conference (includes roundtable) ........................$248
- Non-RMEL member full conference ............................................................$595

Payment

- Check (RMEL; 6855 S. Havana St, Ste 430; Centennial, CO 80112)
- Visa □ Master Card or □ American Express

Card#: __________________________________________________ Exp. Date: __________________________________

Signature: _____________________________________________________________________________________________

** To receive the student rate, you must be a full-time student at an RMEL member university. All student registrations must be faxed or called in, and a copy of your student ID and full-time class schedule are required.

Cancellation Policy: Fees are refundable if cancellation is received on or before 5 p.m. on June 9, 2019. If cancellation is received after that date, half of the registration fee will be refunded. Payments will be processed for those who do not attend or do not cancel by 5 p.m. the day before the event. To have someone take your place, please notify RMEL anytime before the event.