

SME

Society for
Mining, Metallurgy
& Exploration®



2021 ANNUAL REPORT



Building a better world through mining, metallurgy and underground construction.



SME serves the mining, resources and underground construction communities for a sustainable future.



- Safety
- Stewardship
- Innovation
- Ethics
- Inclusion
- Collaboration

Strategic Goals

1. INDUSTRY INNOVATION:

SME is the venue of first choice for disseminating research leading to innovation and encouraging its applications in mining and underground construction.

2. INDUSTRY WORKFORCE:

Mining, metallurgy, exploration and underground construction are careers of choice.

3. ENVIRONMENTAL STEWARDSHIP:

SME is recognized as the premier resource for information on responsible mining and underground construction.

4. ASSOCIATION GROWTH:

SME leads in uniting the community to build a better world.

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SME's mission is to serve the mining, resources and underground construction communities for a sustainable future. Conferences are one of the primary ways that this mission gets advanced. But 2021 was another challenging year for in-person events. Our annual MINEXCHANGE conference in late February was done virtually, with less than the typical attendance. During the year, many of what are normally face-to-face events were done virtually, via Zoom or Microsoft Teams. We did some in-person gatherings, including the June RETC conference in Las Vegas, NV, the September SME Mid-Year meeting in Las Vegas, held in conjunction with MINExpo, the November Cutting Edge conference in Dallas, TX, and the December Arizona Conference in Tucson, AZ. Many of the SME sections were affected by COVID as well, with some doing virtual conferences, and some proceeding with face-to-face events. There are pros and cons associated with each method, and as a Society, we are still learning how to provide the best value for our members. Despite the current ramp-up of new virus strains, we are looking forward to our in-person MINEXCHANGE 2022 SME Annual Conference & EXPO in Salt Lake City, UT in February.

In addition to the conferences, 2021 has been a busy year for our Strategic Committees:

- The Workforce Development Committee conducted a survey of employers to determine specific needs and interests to identify initiatives that SME could undertake to reduce the workforce leaving the industry and increase the number of new entrants. This work is still on going, and more information on future initiatives will be provided soon. A summary article in the December issue of *Mining Engineering*, provides the results of the survey.
- The Industry Innovation Committee has developed a plan for rejuvenating the Operators Forum, and re-organizing the Thrive Conference, which is one of the SME's major innovation initiatives.
- The Association Growth Committee has focused on international growth and developing partnerships with corporations. Also under review are tiered membership levels to better attract groups and professionals that may not be best served by the traditional membership model.
- The Responsible Mining and Underground Construction Committee has been focused on mine tailings, specifically in identifying methods to advance the education of



President 2021
William W. Edgerton
Principal, McMillen Jacobs Associates

geotechnical professionals as well as to support technical innovations over the next 5–10 years. In addition, the committee recommended a collaboration between the Coal and Energy and the Health and Safety Divisions to address new safety risks occurring as a result of a newly increased workforce. The committee also recommended that the Sustainable Development Committee consider a benchmarking study for various jurisdictions, organizations and initiatives geared toward standardizing Environmental/Social/Governance (ESG) standards.

Clearly, the Strategic Committees have done a lot of important work this year and are prepared to make a large impact to the benefit of our industry.

The mining industry is a global, culturally diverse industry. In recognition that the best possible solutions for our complex challenges will come through a diversity of ideas and the inclusion of different perspectives, the SME Board of Directors created a new standing committee on Inclusion and Diversity (I&D). This committee's mission is to provide structure, strategy and programming guidance to the SME organization to enable advancement of I&D in the mining community. This mission is an avenue through which the SME can achieve its strategic objectives. In approving this new committee SME has recognized that our Society can benefit from diverse perspectives and membership, where all members feel welcome, all are encouraged to participate, and all talents are utilized.

This past year was a big year in celebrating SME's historical roots in the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME). SME is one of four member societies, along with the Society of Petroleum Engineers (SPE), the Minerals, Metals and Materials Society (TMS), and the Association for Iron & Steel Technology (AIST). George

Luxbacher, the current AIME president, and 2008 SME president, has done a detailed historical journey through the legacy of AIME, in *Mining Engineering* magazine. Several in-person celebrations of AIME's 150th anniversary were held in Wilkes-Barre, PA and at Lehigh University in Bethlehem, PA during this past year. Stay tuned for the culmination of this 150th year celebration to take place in conjunction with SME's Annual Conference in Salt Lake City, UT.

As we look to the future, a number of factors will have a major effect upon our industry, and SME can and will play a major part in all of them. One clear example is the country's focus on various clean energy technologies that contribute to what's known as the "green economy." Our nation runs on energy and clean energy needs minerals. Economic growth and prosperity will be driven by environmentally sound and sustainable energy sources in the future. Access to mineral commodities is vital to the achievement of these goals and such minerals are essential to the manufacture of both traditional and renewable energy technologies. These technologies require minerals that differ profoundly from those fueled by traditional hydrocarbon resources; and sourcing such minerals will require increasing the capacity of U.S. mineral producers to meet this demand while reducing dependence on imports of these minerals from other nations. In many cases, increasing the capacity of domestic producers will require changes in regulatory policies and practices. SME will become a leader in identifying the barriers to the increased use of new technologies in mining and underground construction.

In order to have such a major impact, much of our work in the future will be devoted to changing the perception of mining. SME has several initiatives which will be implemented within the next year to provide information to regulatory bodies, academia, the media and the general public on how mining and underground construction practices contribute to a sustainable environment, form an attractive workplace, are at the forefront of innovation and are necessary to the health of our country. SME is poised to make major contributions to the advancement of our industry's health in the years to come.

In closing, this year I have enjoyed working with the excellent staff and volunteers in this Society. It has been one of the highlights of my career.

William Edgerton
SME President 2021

Dear SME Members,

Each year the SME President and I provide a summary of various activities within the Society for the Annual Report. Last year I started the update by stating that 2020 was a year not to be FORGOTTEN. Some things do not change as fast as we would hope and 2021 was another year not to be FORGOTTEN.

However, while managing the Society in 2021, I oversaw staff and volunteers working hard, accomplishing many goals, and creating some new opportunities for members. Obviously, we kept a sharp eye on our financial results since there has been major disruptions in SME's revenue for two years now. Overall, SME survived both 2020 and 2021 in very good shape. Although operational income declined because of the elimination of our in-person annual conference and other meetings, (SME receives about 55–60% of its revenue from meetings), the SME investments and a few government contributions shored up finances and allowed SME to retain all its programs, products, services and staff during the year.

As most know, SME is an outgrowth of the American Institute of Mining, Metallurgical and Petroleum Engineers (AIME). AIME just finished celebrating its 150th Anniversary in 2021. I was fortunate enough to attend the Penn Anthracite Local Section's celebration on May 16, 2021, (the actual founding day of AIME 150 years ago), along with a greater celebration in October 2021 at Lehigh University in Bethlehem, Pennsylvania. Both events reminded all attendees not only about the importance of mining, but of all the groups, activities and programs that were spun off between the 1871 founding of AIME and its 150th Anniversary.

I have always believed that Local Sections and Divisions are at the heart of the value SME members receive from the Society. Many Local Sections that had to curtail their activities during the pandemic are now restarting activities and programs. When the programs start in your geographical area, I encourage you to attend and participate in them. The SME Local Section leadership is working hard to provide events of value.

The SME Divisions (Mineral and Metallurgical Processing, Environmental, Mineral

Processing, Coal and Energy, Health and Safety, Industrial Minerals and Aggregates, Underground Construction Association (UCA), and WAAIME) all continue to achieve their objective to provide timely, accurate and valuable technical information for the mining and underground construction communities. In 2022, I also encourage you to become more involved in your Division activities.

The Society suffered a small reduction in membership this year due to the lingering effect of the pandemic. It restricted the participation of many members and their ability to attend in-person programs which directly correlates with a reduction in membership of about 5 percent. However, there were two bright spots; first, the UCA Division saw a small increase in membership, and second, during the last several months of the year, SME began to see an increase in membership. Both are positive trends for 2022.

It was a year of more digitization at SME. SME offered more webinars, online training, receptions and social gatherings than in any previous year. The SME Annual Conference was held as a virtual program in 2021 and it was certainly a great opportunity for staff to develop new skills and SME members to continue to interact and attend regular programs. The SME Awards program can still be found online at smenet.org/awardsrecognition, which will be remembered as one of the best awards programs followed by an online awards reception. If you missed it, take a look.

SME's Government and Public Affairs Committee (GPAC) continued to educate lawmakers and the public on the complex issues facing the industry through the publication of several technical briefing papers. It also provided technical assistance to other mining associations on many governmental initiatives. The October 2021 issue of *Mining Engineering* highlights the GPAC's work in greater detail.

The committee also participated directly through the submission of testimony and comments on other matters, including the following:

- Mining Law Reform – SME's statement before the Senate Energy & Natural Resources Committee urged careful



Secretary Ex-officio/Non-Voting
David L. Kanagy, CAE
Executive Director and CEO
Society for Mining, Metallurgy & Exploration

technical review of legislation on mineral royalties;

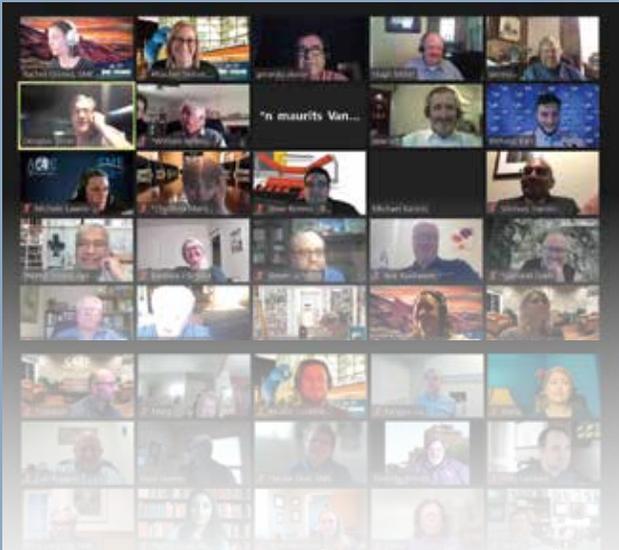
- Addressing Permitting Delays – SME comments provided guidance and support for procedures to expedite approval of mining projects under Fixing America's Transportation Act;
- Critical Minerals – SME urged the addition and retention of various minerals to the Draft Critical Minerals list published by the U.S. Geological Survey, identifying key supply chain challenges.

Finally, publications at the Society have done well during the year. Advertising sales continue to increase slightly, but mostly in our electronic sales area; unfortunately, print advertising will continue to be a challenge as our suppliers look to other electronic means to promote their services and products. Growth of the peer-reviewed *Mining Metallurgy and Exploration Journal* continues. This is a free product to all members and if you have not taken time to read this publication I encourage you to do so in the next year. It is outstanding.

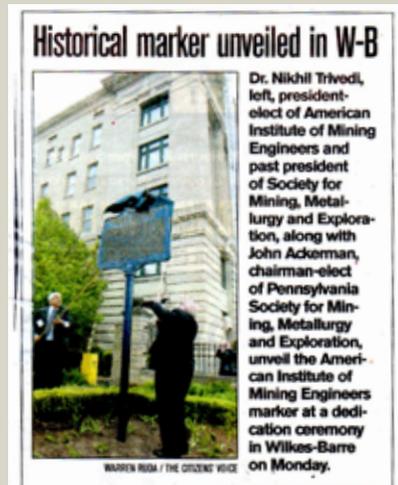
While there are many more activities taking place in the Society, this space does not allow me to comment on every one of them. I will close by reminding the membership that the organization has survived the pandemic very well. We continue to maintain our level of service and we will pursue excellence guided by the SME Strategic Plan.

David L. Kanagy, CAE
Executive Director and CEO, SME

SME 2021 HIGHLIGHTS



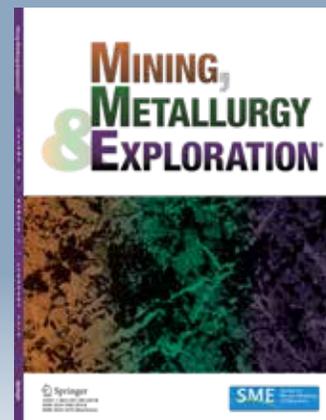
Over 1,300 attendees participated in the first ever Virtual SME Annual Conference & Expo



AIME's 150th Anniversary was celebrated with multiple events throughout the year, including in Wilkes-Barre, Pennsylvania.



Participated in **MINExpo**, reconnecting in-person with the mining community in September.



Mining, Metallurgy & Exploration journal increased impact factor to **1.413**, providing even more value to readers and authors.

SME 2021 HIGHLIGHTS

The Cutting Edge Conference broke attendance records, attracting **286 professionals** in Dallas, Texas, Nov. 15–17.



18 teams

took part in the inaugural SME Metallic Student Design Competition, representing 5 continents and 8 countries.



SME Foundation raffled a UTV, raising **\$23,000** for important program initiatives.

\$1.3M

in scholarships awarded to students through SME and SMEF



4 new

SME Student Chapters formed in 2021, as well as 1 new Local Section

Current Officers



President 2021
William W. Edgerton
Principal
McMillen Jacobs Associates



President-Elect 2021
Ronald L. Parratt
Principal
Parratt Geological Services, LLC



Past President 2021
Robert W. Schafer
Chief Executive
Eagle Mines Management



Secretary Ex-officio/Non-Voting
David L. Kanagy, CAE
Executive Director and CEO
Society for Mining, Metallurgy & Exploration

Directors-at-Large



Term 2019–2022
Robert P. Kudlawiec
Senior Project Manager
Tetra Tech, Inc.



Term 2019–2022
Tim J. Swendseid
Management Consultant



Term 2020–2023
John L. Uhrie, PE, PhD
Vice President, Exploration and Development, Doe Run Co.



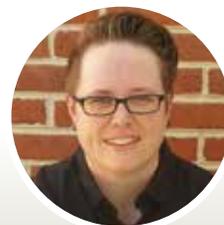
Term 2020–2023
Anne L. Williamson
Principal Scientist
Wood



Term 2021–2024
Jerry Gauntt
Business Development Manager
Brooks & Nelson LLC



Term 2021–2024
Catherine A. Joyner
Owner/Principal Consultant
Minetech USA



Term 2021–2023
Board Intern
Heather N. Lammers
Project Geological Engineer
Golder Associates, Inc.

Strategic Committees 2021-2022

Association Growth

Bob Kudlawiec	Chair
Kallen Konen	Member
JD Wientjes	Member
Genevieve Sutton	Member
Rusty Winn	Member
Abani Samal	Member
Leslie Watson	Member
Kathleen Tew	Young Leaders Rep (non-voting)
Sena Cicek	Young Leaders Rep (non-voting)
Laura Nelson	Staff Liaison (non-voting)

Industry Innovation

John Uhrie	Chair
Matt Furniss	Member
John W. Haynes III, PE	Member
Dan Rosenbach	Member
Steve Schafrik	Member
John Pickarts	Member
Mick McCaslin	Member
Amir Patel	Young Leaders Rep/Non-Voting
Jordon M. Rutledge	Young Leaders Rep/Non-Voting
Jordon Oxborrow	Young Leaders Rep/Non-Voting

Industry Workforce

Cat Joyner	Chair
Eric Lutz	Member
David Bieber	Member
Robert Gow	Member
Claudio Cossio	Member
Mike Roach	Member
David Crouse	Member
Tom Boundy	Young Leaders Rep (non-voting)
Riddhika Jain	Young Leaders Rep (non-voting)

Responsible Mining and Underground Construction

Anne Williamson	Chair
Steven Richards	Member
Kimberly Morrison	Member
Susan Moore	Member
Barbara Nielsen	Member
Katherine Arnold	Member
Kwame Awuah-Offei	Member
Mathew Ulizio	Young Leaders Rep (non-voting)
Bradly Meyer	Young Leaders Rep (non-voting)
Jackie Dorr	Staff Liaison (non-voting)



Members Connect Online in a Virtual World

Members rely on SME for information and knowledge, connections that matter and career advancement. SME members continued to adapt to the effects of COVID-19 in 2021, proving they are a resilient bunch. While many of us long for in-person events and face-to-face social contact, it seems that “virtual” is here to stay in 2021 and beyond.

- Quarterly virtual new member orientations helped SME’s newest members learn the ropes. Virtual Division Coffee Breaks engaged members in division activities and generated discussions in the SME Community around hot topics like workforce and how to attract more students to mining engineering careers. Dues renewal phone calls and an online campaign created connection with members and conveyed the value of SME membership in a tumultuous world.
- Sections and Student Chapters continued to offer virtual programming and hybrid events. Many Krumb lecturers offered virtual talks, extending their reach beyond an in-person event or two per year.
- The SME/NSSGA and Metallic Student Design Competitions were held virtually in February 2021, with student teams presenting via video to the judges. While the presentation format was different, the quality of students’ work was as amazing as it has always been.
- Despite COVID challenges, SME added a new Section and four new Student Chapters. And, the Student Membership Challenge resulted in 500 new or renewed student members, though many students were still learning remotely.



Sections

Local SME Sections continued to award scholarships to local university students and provide social and technical meetings around the world.

SME added a new Section in Ecuador in the fall of 2021. There is interest in forming Sections in several other countries that may come to fruition in 2022.

The Latin American Sections began collaborating to offer monthly virtual programs, with the Sections alternating providing the speakers. The talks have been popular with both professional and student members. In June, the India Section hosted “Khanitra – 2021”, a first-ever virtual geo-mining conference that gathered students and professionals to provide insights and futuristic thoughts about the mining industry.

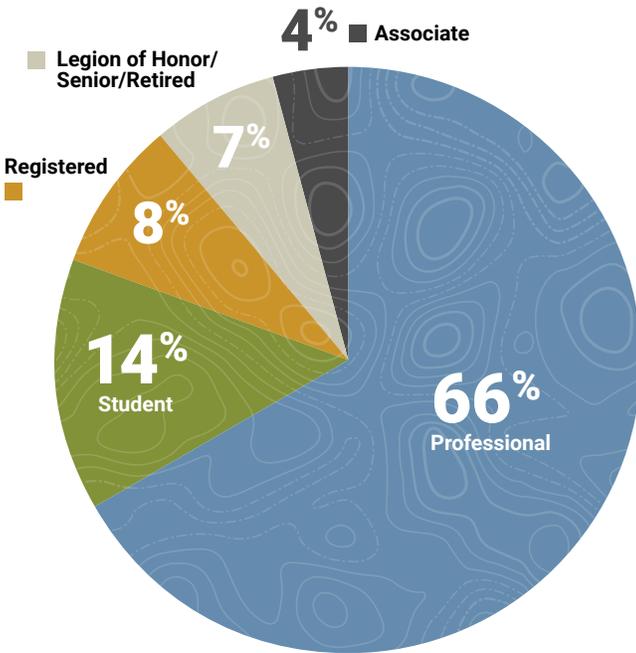


Number of Members

12,095

as of 12/31/2021

Members by Type



Members by Geography



Members by Division

Coal & Energy Division	1,046
Environmental Division	924
Health & Safety Division	407
Industrial Minerals & Aggregate Division	881
Mineral & Metallurgical Processing Division	1,831
Mining & Exploration Division	3,818
Underground Construction Association	1,463
WAIMME	626

Student Chapters

Four new student chapters were formed in 2021

- 1/6/21: Universidad Nacional de Loja, Ecuador
- 1/19/21: Universidad Tecnica Federico Santa Maria, Santiago, Chile
- 4/13/21: Universidad Nacional De Cajamarca
- 8/3/21: Birsa Institute of Technology, Sindri, India

The **Metallic Student Design Competition**, sponsored by Rio Tinto, was launched in the fall of 2020. Phase 2 presentations for both the SME/NSSGA and the Metallic Competition were held virtually in February 2021, allowing five international teams to participate in the metallic competition. Videos of the Phase 2 team presentations were produced for both events.

A group of South American SME Student Chapters put on the **2nd Annual Latin American Virtual Congress on Technology and Innovation in Mining** in November 2021, building on the success of the first Congress in June 2020.



Connecting During COVID

SME's flagship event is essential to the industry and the technical information exchanged during this conference was simply too valuable to skip a year.

SME held a successful MINEXCHANGE 2021 Virtual Annual Conference March 1–5, 2021. The virtual conference combined the same robust technical programming of an in-person event with the ability for attendees to login from anywhere in the world.

The five-day virtual event featured:

- A daily keynote session with live Q&A.
- Interactive virtual trade show featuring 180 exhibiting companies.
- Live networking breaks held via an electronic platform.
- Searchable electronic preprint proceedings.
- Virtual SME/AIME awards reception and multimedia awards presentation.

Supported by 33 sponsoring companies, MINEXCHANGE 2021 also allowed attendees access all recorded content for 60 days following the live virtual event. It was attended by more than 1,300 people.

MINEXCHANGE 2022 SME Annual Conference & Expo is planned for Feb. 27–March 2, 2022 in Salt Lake City, UT.

RETC 2021 was held in Las Vegas, NV June 13–16. Re-designed to accommodate local COVID-19 safety recommendations, the event was attended by more than 800 individuals. In addition to a short course and a preconference workshop, the technical program featured 77 presentations.

There were 107 exhibit booths and 26 sponsoring companies.

The Cutting Edge 2021 Conference attracted the highest number of attendees to date. With 286 registrants and 33 sponsoring companies, the event exceeded all attendance goals. Held Nov. 15–17 in Dallas, TX, the conference featured 29 technical presentations and a well-received field trip to the Mill Creek Drainage Relief Tunnel.

The SME 2021 Arizona Conference returned in Tucson, AZ, Dec. 4–5. With a focus on rich technical content, the conference had 28 technical sessions with a total attendance of more than 455 people. The conference was also supported by 31 sponsoring companies.



EVENTS CALENDAR 2021:

MINEXCHANGE 2021 SME Annual Conference & Expo
March 1–5; Virtual.

SME Minnesota Conference
April 13–15; Virtual.

Rapid Excavation & Tunneling Conference (RETC)
June 13–16; Las Vegas, NV.

International Conference on Ground Control in Mining
July 27–28; Virtual.

P.E. Exam Review Course
August 28–September 1; Denver, CO and Virtual.

SME Midyear Meeting
September 9–11; Las Vegas, NV.

UCA Cutting Edge Conference
November 15–17; Dallas, TX.

SME Arizona Conference
December 5–6; Tucson, AZ.

Publications Highlights

Mining Engineering expanded its digital footprint to provide members around the world with timely technical content and news. The *Mining Engineering* website publishes industry news on a daily basis and delivers each issue to members anywhere in the world as a pdf and in flipbook formats. Clients also have expanded digital advertising opportunities through ME Online, the SME website, client-provided content, SME e-News and *Mining Engineering* digital newsletter options.

Editorial advisory committees provided input and helped shape the editorial calendars for *Mining Engineering* and *T&UC* magazines, the official publications of SME and the Underground Construction Association. The magazines continued to provide industry-leading technical information and coverage in print and online.

SME Divisions and technical committees provided valuable information for the creation of the Industry Hot Topics list used to help SME's publication and content teams identify and deliver the information that is most important to SME members.

The image displays three magazine covers with callout bubbles indicating the number of issues. The top cover is *Mining Engineering* with a callout bubble for 12 issues. The middle cover is *MINING, METALLURGY & EXPLORATION* with a callout bubble for 6 issues. The bottom cover is *T&UC* with a callout bubble for 4 issues.



SME Books Offer Leading Technical Information

SME continues to provide the industry leading technical information for the mining and underground construction industries.

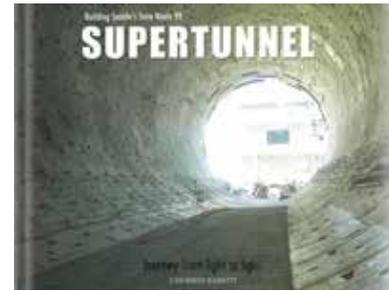
Featured new titles in 2021 include:

- RETC: 2021 Proceedings (Print, USB, eBook)
- Groundbreaking! America’s New Quest for Mineral Independence*
- Mining Capital: Methods, Best Practices, and Case studies for Financing Mining Projects*
- Supertunnel: Journey from Light to Light*



* Off-the-shelf acquisitions

Scope of SME Book Publishing



Stay Current:

Instagram

In the second year of activity, @smecomunity gained **350 followers** and reached **1,890 viewers** across the globe.



Facebook

The continued focus on member-centered content in 2021 saw an increased follower count for Facebook of **22,671 up 9 percent** for fiscal year 2020 and reached over **383,000** viewers.



LinkedIn

Follower count grew by over **5,000** in 2021 to bring the total followers to over **29,000**. The engagement rate also rose to **6.44 percent** for fiscal year 2021 up **103%** FY 2020.



Twitter

By sharing relevant content to followers, @smecomunity received over **1,000** engagements on **300 posts** during the year.

Coal & Energy

The SME Coal & Energy Division achieved a Division Endowment Fund of more than \$1 million—the first Division to do so in SME history. Many thanks to the dedicated Coal & Energy Division members and supporters over the past 20 years in achieving this goal.



Ryan Murray
2021 Division Chair

Coal remains critical to the global economy and the Division has further emphasized its role in energy in extractive industries. Innovations in energy abound and the Division looks forward to serving its members on this subject matter.

During the 2021 SME virtual Annual Meeting 79 presentations in 14 technical sessions were offered to SME members. Rare earths from coal remains a topic of interest and the Division continues to support this innovative work in its presentation offering at SME Annual Meetings.

The Coal & Energy Division continues to strongly support students by awarding more than \$33,000 in scholarships in 2021. Student applicants in coal and/or energy are encouraged to apply for scholarship awards.

The prestigious AIME Percy Nichols award, historically alternating between AIME & SME and not awarded for four years, will be awarded at the SME Annual Meeting in 2022.

Thanks to long-time Coal & Energy Division member, George Luxbacher, a handbook for the Division was completed to complement bylaws and provide a wonderful history of the Coal and Energy Division.

Environmental

The Environmental Division successfully navigated the extremely challenging circumstances of 2021. This included maintaining efforts such as fundraising, scholarships and student engagement, and achieving one of the more popular program provisions at the 2020 Annual Conference, the session presentations. With this basis, we feel we are in a better position to reinstate our routine activities of in-person conference planning for the 2022 conference. This includes organizing and managing a strong in-person Annual Conference, bringing forward value from 2021, but returning to events comparable (or better) to historical conferences.



Andrea Martin
2021 Division Chair

- Awarded \$8,000 in Environmental Division and Veolia Water Technologies scholarships.
- Awarded \$1,500 of prize monies to the top three Student Poster session entrants.
- Raised more than \$2,000 for scholarships in 2021 from an online silent auction.
- Continued updating virtual learning events on the Community to foster learning opportunities for SME members.

Health & Safety

The Health & Safety Division offered four virtual learning sessions during the 2021 SME MINEXCHANGE conference including lessons learned from frontline workers and a well-attended session about COVID safety protocols. Eric Lutz presented an overview of COVID protocols. Highlights of the year include:



Ali Lashgari
2021 Division Chair

- Planned technical sessions as well as other Division activities for MINEXCHANGE.
- Provided a number of webinars and safety shares in mining engineering.
- Created a business plan to support and grow the Certified Mine Safety Professionals program.
- Hosted the division's first virtual coffee break with more than 35 attendees.
- Planned for a roundtable discussion on COVID policies and protocols in February of 2022.
- Worked with the SME ESG Toolkit team to establish a review team and standard operating procedure for how submissions are reviewed.
- Worked with SME staff to initiate a fundraising campaign for potential scholarships and awards.

Industrial Minerals & Aggregates

The Industrial Minerals & Aggregates Division offered nine technical sessions during the virtual MINEXCHANGE 2021 SME Annual Meeting. These sessions were offered in two tracts, the first with topics related to the industrial minerals industry and the second with a focus surrounding the construction aggregates industry.



Kathryn Kosloski
2021 Division Chair

One coffee break was hosted by the division for members which fostered great networking, conversation and brainstorming around division goals. IM&AD also worked with the SME Young Leaders to share about the division and encourage engagement.

The Forum on the Geology of Industrial Minerals hosted a virtual meeting in collaboration with Illinois State Geological Survey. This meeting highlighted 12 abstract presentations which covered topics from rare earth extraction to road surfacing aggregates. The conference was well attended with more than 120 members joining the proceedings.

Highlights:

- Raised \$2,100 through the virtual silent auction which benefits the division scholarships.
- 44 scholarship applications from across the world for the Henderson Memorial Scholarship which will award \$1,000 to two undergraduate students.

Mineral & Metallurgical Processing

At the virtual MINEXCHANGE 2021 SME Annual Conference & Expo, the Mineral & Metallurgical Processing Division (MPD) offered an abbreviated technical program with 27 presentations on topics central to plant design, separation technology and chemical processing, and a signature lectures session featuring the major MPD award recipients.

While the virtual conference was not conducive to our usual division fundraising social functions, sponsorships of the annual MPD calendar netted in excess of \$4,700 after expenses, allowing the division to continue awarding \$18,500 in student scholarships with plans to also match the division's prior contributions to the SME Foundation's PhD fellowship and career development grants.

New to MPD is the Metallic Student Design Competition, sponsored by Rio Tinto. This process-metallurgy student team competition will become a regular feature of the annual conference.

The division also provided member value and engagement through:

- An MPD student video contest in place of the MPD student poster contest, awarding an additional \$5,125 to student participants.
- MPD virtual coffee breaks.
- Local section development through the Nevada MPD subsection and Reno conference.



P. Garland Davis
2021 Division Chair

Underground Construction Association (UCA)

The Underground Construction Association (UCA), a division of SME, is focused on sharing technical innovations in tunneling and underground construction.



Mike Rispin
2021 Division Chair

Highlights

- Expanded scope of Owners Forum to include enhanced offerings for project owners.
- Launched the Tunnel Watch List – A list of the top U.S. tunneling infrastructure projects that will benefit society if funded and approved to start development.
- Created new volunteer opportunities at www.UCAofSME/Volunteer.
- Hosted a virtual George Fox Conference and held 10 webinars.
- Supported events at the Rapid Excavation Tunneling Conference.
- Hosted the Cutting Edge Conference with record in-person attendance.
- Delivered four issues of *Tunneling & Underground Construction*.
- Launched digital advertising effort to gather interest in underground careers and promote www.undergroundcareers.org.

Mining & Exploration

The Mining & Exploration Division offered attendees eight semi-live sessions showcasing 22 individual papers at the MINEXCHANGE 2021 SME Annual Conference & Expo held virtually because of the pandemic. An additional 43 recorded on-demand papers were also available to conference attendees. The authors of approximately 115 papers were invited to submit preprints.

The division awarded scholarships to 12 deserving students in the United States and abroad totaling nearly \$32,000. In addition, a \$10,000 donation to the SME Foundation, Ph.D. Fellowship and Career Development Grant Program brought the division's overall contribution to this program since 2019 to \$30,000.

An inaugural Virtual Coffee Break was held on May 6 with 46 attendees participating, providing a platform to recognize the 2021 award recipients and session chairs while allowing for multiple breakout discussions. Two subsequent coffee breaks were held throughout the year, covering a variety of topics important to the division's members.



Matt Blattman
2021 Division Chair

WAAIME

In 2021 WAAIME awarded \$430,000 in scholarships. \$340,000 went to 130 graduate and undergraduate students in the United States and another \$15,000 went to each of our six International sections to help fund their scholarship programs. WAAIME also awarded another \$30,000 to our Lou Henry Hoover Ph.D. scholarship candidate to finish his degree.

The WAAIME Executive Committee chose Daphne LaPointe of the Nevada-Reno section as the recipient of the Founder's Award for her years of dedication to WAAIME by interviewing and mentoring students. Daphne unfortunately passed away this past fall less than a month after learning she had been chosen as the Founder's Award recipient.

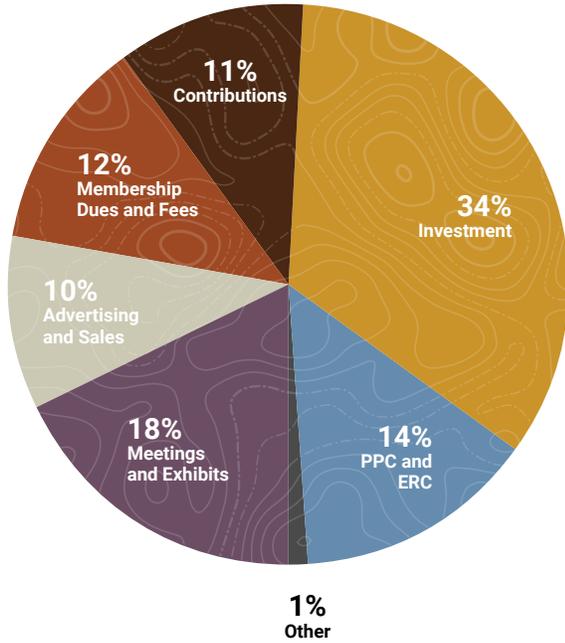
Our International section in Chile, Peru, and Mexico continue to provide students with needed scholarships as well as mentoring them and providing other informative programs.



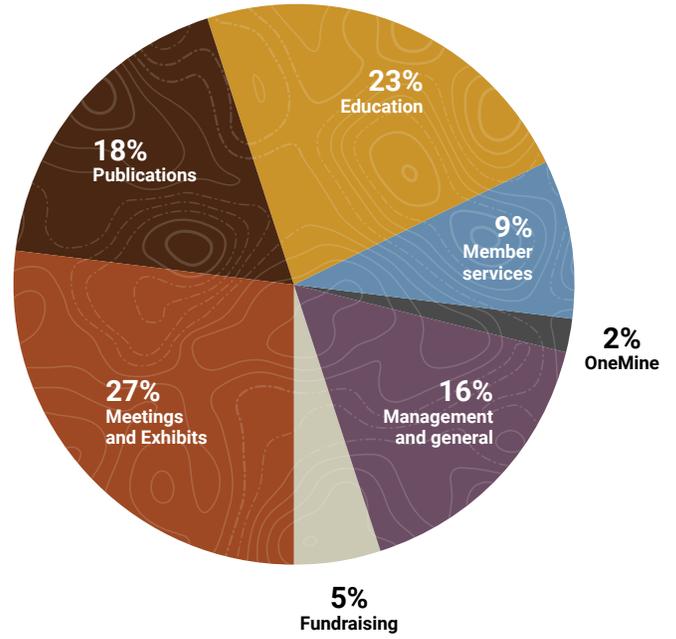
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2021 Division Chair

SME Financial Snapshot

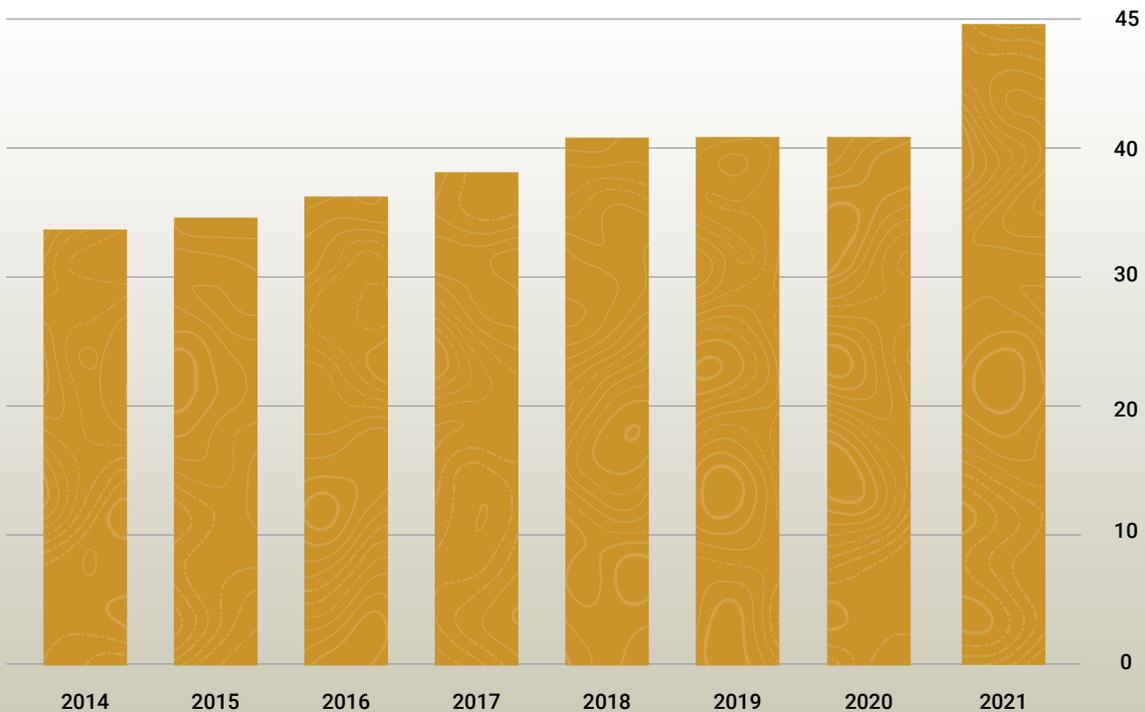
Operating Revenue (Sources)



Operating Expenses



Total Assets (in millions)



SME Foundation: Supporting the Mining and Minerals Industry

The SME Foundation celebrated an excellent year in 2021, with combined giving and investment earnings of \$1,914,134. This was a result of the generosity of our many members, corporate sponsors and donors, and the SME Foundations' exceptional trustees and staff who work very hard to raise the funding necessary to support our critical programs. Although the pandemic continued to limit some activities, the SME Foundation made good progress in fundraising through fun and exciting events, and in supporting those key activities that support mining.

In early 2021, the SME Foundation shifted to manage the SME Annual Conference & Expo Virtual Silent Auction. This new format generated a substantial amount of interest and participation and was a huge success. My thanks to the many individual donors and sponsors who provided a tremendous list of auction items. This new online format will be integrated into future silent auction events and gave participants the advantage of being notified instantaneously of competitive bids up to the last minute of the auction. Our thanks to civil and environmental consultants for sponsoring the auction and providing free shipping for all silent auction purchases. We also were very fortunate to have a successful raffle associated with the MINEXCHANGE 2021 Annual Conference & Expo. Thanks to Wagner Equipment Company for their donation of the 2020 CAT CUV82 UTV with upgrades and trailer package, which was raffled off virtually from Wagner's offices in Aurora, CO.

In November, the SME Foundation held its second benefit golf tournament at the Gold Canyon Golf Resort in Phoenix, Arizona. The tournament brought together a wide range of sponsors, players and supporters for a day of golf and friendly competition, which raised \$47,000 for our mining programs. Thank you to our top sponsors: First Majestic Silver Corp., Hexagon, Skyline Assayers & Laboratories, Komatsu and Weir Minerals.

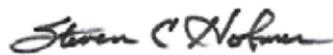
I would also like to recognize and acknowledge the terrific 13 Corporate Roundtable Partners who provided 31 percent of the SME Foundation

funding in 2021. Without their generous support, the Foundation could not finance the critical programs that support our mining industry and the many professors and students who will carry on the engineering and geoscience traditions that have made our industry strong. The SME Foundation also recognizes the generosity of SME members and individual contributors who supported the Foundation in 2021. Their personal donations made up a major portion of the support we need each year for our mining programs.

In 2021 the SME Foundation continued providing support for PhD Fellowship and SME Academic Career Development Grants for the tenure track professors and PhD Fellows, who will be rebuilding the academic and research teaching staffs of our mining schools. To date, the SME Foundation has provided more than \$6 million in funding for this vital program, and we are well on our way to replenishing our mining, metallurgy and exploration schools and departments across the country with the next generation of academic leaders. The PhD Fellowship and SME Academic Career Development Grants program is critical; without these new professors developing the next generation of engineers and geoscientists, the mining industry will suffer greatly. The SME Foundation also provides major support for the Minerals Education Coalition (MEC), which educates students and teachers across the country about the important role mining has in everyone's daily lives.

As we welcome a new year in 2022, I hope every SME member and those companies who support the mining industry donate to the SME Foundation. Without mining, our quality of life would not be possible, and as the world continues to grow and evolve, so does mining's role in society.

Thank you again for your support.



Steven C. Holmes
President, SME Foundation Board of Trustees



Steven C. Holmes
President, SME Foundation

The SME Foundation vision is to fund the solutions to mining's challenges.

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Ph.D. Fellowship and Career Development Grant Program

Three program recipients **achieved tenure in 2021**, while two additional recipients completed their Ph.D.

Three new individuals were selected to receive **Ph.D. Fellowship Grants**.

Two new individuals were selected to receive **Career Development Grants**.



ABET

16 program evaluators were assigned for accreditation visits.

8 new program evaluators are undergoing training and observation visits.





Professional Engineers (PE)

The SME Professional Engineer (PE) Committee was reformed in early 2021 with **18 members and a coordinator**.

The new committee plans to give PE presentations to Local Sections or Student organizations on license value and promotion.



Miners Give Back

The first Miners Give Back Award launched with the intent to increase the level of participation by the SME Local Sections in their humanitarian and community service efforts.



Scholarships

In 2021, **15 scholarships** totaling **\$57,000** were awarded to SME student members.

MEC: Succeeding with Outreach and Education



www.MineralsEducationCoalition.org

Five Move Mining finalist teams presented at the MINEXCHANGE 2021 SME Annual Conference & Expo. These teams, from Colombia, Ecuador, Mexico and Peru pitched their concepts of how to improve the way the world views mining to a panel of judges. The winning team, pictured here, was Team “Children’s Mining Pavilion” from Mexico.



Screenshot from Best Overall Team: Mason Kroll and Austin Schackman, Virginia, MN

Move Mining Next Gen asks students in grades K–12 “Why are minerals and mining important to our lives?” Move Mining Next Gen 2020–2021 saw the Best Overall Prize go to Team Chicken Steele. A total of \$2,250 in prizes were awarded to K–12 student winning teams for their work in demonstrating how mined materials are important in their daily life.



Create a Development Plan for a New Reservoir

MEC Minerals Education Coalition

Aggregates are crushed rock, sand and gravel. Aggregate mining creates freshwater supply reservoirs.

Make a site plan for water, habitat and recreation at this new reservoir.

Where would you put wildlife habitat? Hiking and biking trails? How about camping?

0.5 Mile

Find this lesson plan, and see how these materials support national and state educational standards, at the link below.

Try the Water Reservoir activity in the 2020-2021 Earth Science Week Calendar!

[MineralsEducationCoalition.org/esw](https://www.MineralsEducationCoalition.org/esw)

MEC participated in Earth Science Week in October to provide educational resources across the globe. This year Earth Science Week celebrated the theme “Water Today and for the Future.” MEC’s new offerings included the “Create a Development Plan for a New Reservoir” educational unit, the “Material Property Measurement, Stockpile Volume and Use” activity and the “Aggregate Mining Creates Freshwater Reservoirs and New Habitats!” activity.

Every American Born Will Need... 2.96 MILLION POUNDS of minerals, metals, and fuels in their lifetime

- 2,069 lbs. BAUXITE (ALUMINUM)
- 11,379 lbs. CLAYS
- 17,068 lbs. IRON ORE
- 13,448 lbs. PHOSPHATE ROCK
- 223,973 lbs. COAL
- 776 lbs. LEAD
- 27,413 lbs. SALT
- 828 lbs. COPPER
- 7.67 million cu. ft. NATURAL GAS
- 1.32M lbs. STONE, SAND & GRAVEL
- 445 lbs. ZINC
- 52,757 lbs. CEMENT
- 1.51 Troy oz. GOLD
- 65,170 gallons PETROLEUM
- +54,137 lbs. OTHER MINERALS/METALS

©2021 Minerals Education Coalition Learn more at www.MineralsEducationCoalition.org

The Minerals Education Coalition released the 2021 update of the popular MEC Mineral Baby. According to 2020 data, the estimated amount of minerals, metals and fuels that an American born this year will use in their lifetime is **2.96 million pounds**.



In collaboration with the Central Florida Council, MEC ran an online Mining in Society merit badge class for approximately **150 Scouts all over the country, and even overseas**. MEC volunteers also conducted several additional trainings, for approximately 20 Scouts per session.



Two teachers attending the National Harbor, NSTA Area Conference pose with their free mineral kit.

Staff and volunteers attended the National Science Teaching Association Area Conferences in Portland, Oregon and Los Angeles, California between October and December. Science teachers from around the country received mineral sample boxes and free resources to take back to their classrooms.

2021 SME Foundation Donors and Sponsors

The SME Foundation is grateful for the support we received in 2021 from Corporate and Individual Donors. During 2021, \$952,491 was donated from corporate donors, individual donors, SME Divisions, SME Sections, memorial donations and legacy gifts. Without this support, the Foundation would be unable to provide the programs and services critical for the future of mining. Therefore, we want to thank the following donors for their generous contributions.

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If your gift was omitted from this list, please accept our apologies and contact us at smefoundation@smenet.org.



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