

2018-20 Executive Progress Report

Commonwealth of Virginia
Secretary of Commerce and Trade

Department of Mines, Minerals and Energy

At A Glance

It is the mission of the Department of Mines, Minerals and Energy (DMME) to enhance the development and conservation of energy and mineral resources in a safe and environmentally sound manner to support a more productive economy.

Staffing 176 Salaried Employees, 10 Contracted Employees, 236 Authorized, and 0 Wage Employees.

Financials Budget FY 2019, \$37.08 million, 36.40% from the General Fund.

Trends Legend ↑ Increase, ↓ Decrease, → Steady

Key Perf Areas

- ↑ Injury rate on permitted sites
- % of sites with no damage
- ↑ % of miners rating training effective

Productivity Legend

- ↑ Improving, ↓ Worsening, → Maintaining

For more information on administrative key, and productivity measures, go to www.vaperforms.virginia.gov

Background and History

Agency Background Statement

The Department of Mines, Minerals and Energy (DMME) supports the safe and environmentally sound stewardship of Virginia's mineral and energy resources to promote economic growth. DMME provides for worker safety on coal and mineral mine sites throughout the Commonwealth. DMME also assists with worker safety on gas and oil extraction sites. DMME investigates complaints from citizens living near mining or gas and oil extraction sites, works to eliminate off-site environmental damages, and ensures proper reclamation of land used for mineral extraction.

Mineral resources have played a significant role in Virginia's growth and development since the settlement of Jamestown when English colonists began mining and smelting iron in 1609. The first commercial coal mining in the United States occurred near Richmond in 1748. Today, over 400 different minerals have been found and more than 30 different mineral resources are produced in Virginia at a combined annual value of nearly \$2 billion. In 2016, Virginia ranked 10th in the production of crushed stone, 16th in the production of natural gas, and 14th in coal production. Coal production has recently increased slightly, due in part to changes in federal regulations, but long-term production levels are uncertain because of challenging market conditions.

DMME serves as Virginia's geologic survey, performing investigations aimed at reducing risk from geologic hazards and encouraging sustainable development through the wise use of mineral, land, water, and energy resources. DMME also publishes maps and reports, maintains repositories of geological and geophysical data, as well as rock, fossil, and core samples.

Housing the state's energy office, DMME advances energy efficiency in state government and the private sector. DMME staffs the Virginia Solar Energy Development and Energy Storage Authority, the Virginia Offshore Wind Development Authority, and administers grant and revolving loan programs to facilitate the growth of the renewable energy industry. Additionally, DMME works with stakeholders to promote economic development in the natural resource and energy sectors.

Major Products and Services

DMME offers a wide variety of products and services to its diverse customer base, which includes the following:

- DMME's permitting review services ensure mineral extraction operations are safe, protect the environment, and comply with existing laws and regulations.

- DMME's customer assistance services help customers maintain safe and environmentally protective mineral extraction sites in compliance with regulatory requirements.
- DMME conducts thorough and consistent inspection of permitted sites and enforces laws and regulations addressing worker safety on mineral extraction sites, operational and reclamation environmental controls, and water quality to ensure compliance.
- DMME provides worker certification and training, technical assistance, risk assessment, hazard identification, and cooperative projects, such as mine safety, environmental protection and land reclamation during mineral extraction.
- DMME's geologic and mineral resource information is available to effectively manage development of natural resources, such as coal, natural gas, crushed stone and industrial minerals, and geothermal energy.
- DMME works with industry, state and federal agencies and local governments to respond to and mitigate natural and manmade hazards related to mining, drilling, earthquakes, and landslides.
- DMME conducts reclamation of abandoned mineral extraction sites, corrects damage and mitigates risks of future damage from improperly reclaimed sites while supporting economic development.

Economic Development:

- DMME offers incentives and grant programs for energy industry development to increase jobs and economic activity in Virginia.
- DMME provides mineral resource information to businesses seeking to develop deposits such as precious metals, rare earth elements, industrial minerals, and aggregate.
- DMME prepares a comprehensive Virginia Energy Plan (VEP), which proposes actions consistent with the energy objectives and the Commonwealth Energy Policy including encouraging investment in innovative technologies and supporting programs that stimulate economic growth such as energy performance contracting and property assessed clean energy (PACE) financing.

Customers

Customer Summary

Coal production is expected to remain stable during this biennium due in part to decreased federal regulation; however, long-term production levels are uncertain due to market forces such as the historically low price of natural gas and falling price of wind and solar energy.

Increasingly, DMME is becoming actively involved in economic development initiatives in the coalfields region. DMME received \$10 million from the federal Office of Surface Mining and Reclamation Enforcement in 2017 and 2018. DMME administers the program to distribute these funds for projects that spur economic development on abandoned mine lands in Southwest Virginia. Areas of focus include infrastructure improvement for new industrial sites, broadband access, clean energy development, tourism, and agriculture.

Natural gas production should remain relatively stable. The use of technologies such as horizontal drilling and hydraulic fracturing have produced record amounts of gas and many utilities have converted coal-fired power plants to natural gas. Historically low prices will also likely encourage increased retail consumption and new non-utility natural gas customers.

With respect to mineral mining, demand for minerals and construction aggregate will grow as the economy continues to recover. The Commonwealth's increased emphasis on funding new transportation projects, as well as a possible increase in federal infrastructure spending, may also help fuel the mineral mining industry's growth as it would increase the demand for gravel and other minerals.

Increasing global demand is driving up the prices of precious metals and energy-critical minerals such as lithium, cobalt, and rare earth elements. DMME offers readily available information about the occurrence of these resources in Virginia, which could facilitate the growth of new industries in the Commonwealth such as the emerging energy storage technologies discussed below.

DMME expects to see the number of government entities participating in demand response or energy performance contracting programs to remain stable or increase slightly. These programs offer participants incentives to curtail energy usage or install more energy efficient systems paid for by the savings those systems generate.

Virginia is experiencing rapid growth in solar energy projects and installations spurred by decreasing costs, increasing consumer demand, and recent solar legislation. In 2014, Virginia had 16.75 MW of installed solar. By 2016, that number had grown to 178.47 MW with the potential for over 900 MW installed by 2019. DMME provides staff support for the Virginia Solar Energy Development and Energy Storage Authority, which seeks to promote solar energy development.

DMME is also involved in other emerging energy technologies. The Virginia Solar Energy Development and Energy Storage Authority also seeks to position the Commonwealth as a leader in research, development, commercialization, manufacturing, and deployment of energy storage technology. Energy storage has been widely recognized as an impediment to a clean energy economy as intermittent solar and wind energy cannot currently be effectively or efficiently stored. Energy storage will also play a role in the ongoing development of electric vehicles. The agency is working with the Department of General Services to facilitate the conversion of the state vehicle fleet to alternative fuels. There are

currently over 300 alternative fuel vehicles in use by state and local government agencies. DMME is also monitoring efforts relating to legislation passed in 2017, which allows utilities to develop hydroelectric pumped storage facilities in abandoned coal mines.

Virginia is active in the development of offshore wind resources and an offshore energy resource supply chain. Virginia was the second east coast state selected for a commercial lease sale of submerged federal lands on the Outer Continental Shelf for the development of wind energy resources, which was a significant milestone achieved because of research, planning, and collaboration with multiple stakeholders. DMME provides staff support to the Virginia Offshore Wind Development Authority and is the holder of two offshore research leases from the U.S. Department of Interior's Bureau of Ocean Energy Management (BOEM).

DMME named Dominion (now Dominion Energy) to be the Designated Operator for the lease to enable the construction of the Virginia Offshore Wind Technology Advancement Project (VOWTAP). The VOWTAP consisted of two 6 MW wind turbines on the 2,135-acre research lease site. As the project evolved, Dominion Energy partnered with Danish offshore wind developer, Ørsted, in 2017 to refine the original plans for what is now called the Coastal Virginia Offshore Wind project (CVOW). Ørsted has developed 24 offshore wind projects around the world generating 5.1 GW of electricity, enough to serve more than 2 million homes in the United States. Dominion Energy remains committed to the CVOW project, which should be in operation by late 2020. The CVOW research project will lay the groundwork for potential large-scale commercial development (up to 2,000 MW) in an 112,800-acre commercial wind site beginning approximately 27 miles east of Virginia Beach in which Dominion Energy has leased from BOEM.

Customer Table

Predefined Group	User Defined Group	Number Served Annually	Potential Number of Annual Customers	Projected Customer Trend
Employer/ Business Owner	Mineral extraction operators	350	350	Stable
Employee	Mineral extraction workers	9,000	9,000	Stable
Employer/ Business Owner	Affiliated mineral extraction business interests	2,800	2,800	Stable
Federal Agency	Other governmental agencies	10	10	Stable
State Agency(s),	Other governmental agencies	20	20	Stable
Local or Regional Government Authorities	Other governmental agencies	60	60	Stable
Resident	Public affected by mineral extraction operations	1,600,000	2,000,000	Stable

Finance and Performance Management

Finance

Financial Summary

For FY 2019, DMME's funding derives from federal funds (41%), general fund appropriation (37%), permit and license fees paid by mineral extraction operators (9%), bond forfeiture proceeds (6%), indirect cost recovery revenue (4%), and miscellaneous sources such as state designated mine rescue team dues, civil penalty payments, and orphaned mineral mine or well reclamation or plugging revenues (3%).

Fund Sources

Fund Code	Fund Name	FY 2019	FY 2020
01000	General Fund	\$13,495,297	\$13,495,297
02142	Forfeited Bond Fund	\$2,165,000	\$2,165,000
02183	Permit Fees Fund	\$3,561,745	\$3,561,745
02409	Dmme Special Revenue Fund	\$163,252	\$163,252
02470	Mine Rescue Fund	\$155,000	\$155,000
02800	Appropriated Idc Recoveries	\$1,414,959	\$1,414,959
07261	Abandoned Mined Land Spec Trst	\$525,000	\$525,000
09500	Mnerlts Excl Coal Abandon Lands	\$120,000	\$120,000
09520	Orphaned Well Fund	\$53,000	\$53,000
09600	Coal Pool Bond Administration	\$43,837	\$43,837
09630	Conservation & Recreation	\$250,000	\$250,000
10000	Federal Trust	\$15,132,994	\$15,132,994
12080	Energize Va Revlving Loan-Arra	\$0	\$0

Revenue Summary

DMME's reported revenues are derived from ARRA related grants, other federal grants, indirect cost recoveries, license and permit fees, and other miscellaneous sources, such as civil penalty payments and orphaned mineral mine or well reclamation funds.

Performance

Performance Highlights

DMME continues to meet or exceed targets in its department-wide measures. Agency metrics for safety, environmental protection, and worker training all reflect high-quality performance.

Adjusting to ongoing staff and budget reductions, relevant performance measures continue to reflect DMME's emphasis on efficient, effective core services, and continuous quality improvement. Injury rates are stable, permits continue to be processed in a timely fashion, and customers consistently rate training provided by DMME as excellent. Productivity and efficiency gains enhance service delivery and support adjustments in staff and resources.

Selected Measures

Measure ID	Measure	Alternative Name	Estimated Trend
4090000.001.003	Average annual cost of keeping one mineral extraction worker safe.	Avg. safety cost for 1 worker	Maintaining
4090000.001.001	Number of serious injuries and fatalities at mineral and fossil fuel extraction sites per 200,000 worker hours.	Injury rate on permitted sites	Improving
4090000.002.001	Percentage of permitted mineral and fossil fuel extraction sites with no adverse off-site environmental damage or public safety hazards.	% of sites with no damage	Maintaining
409.0002	Percentage of miners rating safety training provided by the Department of Mines, Minerals and Energy as very effective.	% of miners rating training effective	Improving
409.0001	Cumulative net present value of energy conservation savings to the Commonwealth from the energy performance contracting program.		Improving

Key Risk Factors

DMME Workforce

Reflecting the overall aging of America's workforce, DMME is facing the need to replace a significant proportion of its workforce in the next five years. A number of employees have left the agency in recent years and more will be eligible for retirement in the coming biennium. Specifically, 47 percent of employees are eligible to retire with more than 30 years of service. This change in workforce requires DMME to transfer a tremendous amount of the institutional knowledge, which helps the agency understand and address the challenges of providing high quality customer service in the worker safety, environmental protection, geology, and energy conservation arenas to new employees. Recruitment and

retention are made more difficult as regulated industries continue to offer high wages and other incentives to deal with similar labor shortages. DMME has proactively updated its succession plans and task descriptions across the agency to prepare for these changes.

The Future of Coal

Given the increased pressures from cheaper fuels such as natural gas and global economic trends the future of coal is an uncertain one. Recently, coal prices have stabilized due in part to changes in federal policies. Idled mines have reopened and new permits have been issued. The economy in Southwest Virginia is tremendously impacted by changes in the coal industry, with ripple effects felt throughout the Commonwealth, which makes long-term economic diversification vital.

Uncertainty of Federal Policies and Funding

The new federal administration has increased uncertainty regarding federal policies and funding. While it is clear the administration intends, and has already taken action, to decrease federal regulations relating to mining, it is unclear the long-term impacts this will have on production and economic activity including job growth. The federal administration has also signaled it may decrease federal funds to states for certain programs, which could impact DMME including certain federally funded positions as well as services funded by the Mine Safety and Health Administration (MSHA) and the Department of Energy. In FY2019, 41 percent of DMME's funding is budgeted from federal sources. DMME is including strategies for flexibly handling changes in federal funding and policies in the agency's strategic plan.

Agency Statistics

Statistics Summary

These statistics reflect the breadth of DMME's responsibilities with respect to inspection of permitted sites. They also reflect the growth of the agency's energy performance contracting program and the wide variety of geologic and mineral resource material available. All statistics are current as of June 30, 2018.

Statistics Table

Description	Value
Number of permitted coal mine sites	240
Number of permitted mineral mine sites	442
Number of permitted gas and oil sites	11,068
Number of coal mine safety inspection hours for fiscal year 2018	10,704
Number of state agencies/public bodies utilizing performance contracting administered by DMME	118
Number of geologic and mineral resource publications available on DMME's website	5,200

Management Discussion

General Information About Ongoing Status of Agency

DMME continues to focus on its core services in order to fulfill its mission to enhance the development and conservation of mineral and energy resources in a safe and environmentally sound manner in order to support a more productive economy. DMME utilizes its robust strategic planning process, long an agency strength, to identify efficiencies, generate new opportunities, and prepare for the future in challenging economic times.

As a matter of course, DMME identifies existing processes that can be improved, thus providing increased benefits to its customers.

In fiscal year 2019 and beyond, DMME anticipates coal mining and natural gas drilling to continue to occur in close proximity in Southwest Virginia. DMME's regulatory divisions will continue to work closely together to ensure both activities are conducted in a safe and environmentally responsible fashion. DMME will continue to search for more innovative and efficient methods to provide training and certification services to its customers.

Technological advancements will be utilized across the agency. For example, geographic information systems and global positioning satellite systems will be utilized to ensure pinpoint accuracy of mineral data on permits, maps, and mineral resource information. DMME is also utilizing drone technology to more easily map abandoned mine land hazards, which is available to inspectors on a smartphone application.

DMME is partnering with the federal Bureau of Ocean Energy Management (BOEM) and the state geological surveys of other Atlantic states to identify new sources of sand in federal waters off the east coast. Known as the Atlantic Sand Assessment Project (ASAP), the initiative aims to assess the quality and volume of sand resources that can be used in future shoreline recovery and resiliency efforts. In the recent past, offshore sand resources have been essential to the maintenance of beaches at Wallops Island, Dam Neck, Sandbridge, and Virginia Beach.

With respect to energy, DMME will deliver an updated Virginia Energy Plan to the Governor and General Assembly in October 2018. DMME will play an important role in the growth of the emerging energy technology industries by providing staff support to the Virginia Solar Energy Development and Energy Storage Authority and Virginia Offshore Wind Development Authority. DMME will also continue to manage the Virginia Energy Management Program (VEMP), providing participating government entities with the tools to conserve and reduce energy usage and provide cost certainty via long-term bulk fuel purchase contracts. Additionally, DMME is taking the lead among southeastern states in developing a publicly accessible database of the region's geothermal energy resources. Finally, DMME will partner with the Department of General Services to convert

the state vehicle fleet to alternative fuels.

Information Technology

DMME follows existing Virginia Information Technology Agency (VITA) standards pertaining to users, software, and hardware. Vast amounts of DMME staff time have been required for hardware and software updates, and a number of the agency's custom applications required rewrites to make them compatible with Windows 10, Office 2016, and Commonwealth security standards. The new partnership agreements that are being made will hopefully provide better options in the future on both the hardware and software fronts.

DMME has developed custom innovative business applications for its clients and staff which provides advanced capabilities in mapping/GIS, enforcement tools, and web services. DMME has implemented web-based services for the overwhelming majority of our industry customers. These nationally recognized applications have had a tremendous positive impact on both service delivery and customer satisfaction. The award-winning DMME electronic permitting system was expanded from its coal environment protection and land reclamation service area to all regulatory groups at DMME, providing complete web-based functionality to industry customers. A number of interactive mapping web services are in place to support the wide variety of needs for our customers as well. These maps serve as an expanding resource for industry customers in meeting safety and reclamation requirements as well as a valuable resource for the public to inform themselves.

IT costs present challenges for DMME as demands for funding increase. The development of new and innovative services should be balanced with long-term maintenance of other systems. Customers continue to express a high demand for electronic government services and information, and DMME is committed to continuously reducing costs with no adverse effects to our currently existing software and new development.

Server and workstations upgrades will continue over the next two years with the focus on cost reduction and future needs. Years of software development are being re-engineered to work more efficiently while maintaining the high standards of service for which DMME is known. To continue to meet these standards, DMME's web-based services will be made cloud ready during the coming biennium to provide the additional services necessary to meet the needs of our customers.

Workforce Development

DMME currently has 236 FTE (full-time equivalent) positions, with 204 filled. DMME's FTE number has ranged from a high of 298 to a low of 233.

As detailed earlier in this report, DMME is facing the need to replace a significant proportion of its workforce in the next five years. Of the existing workforce, 47 percent are eligible to retire in five years or less with more than 30 years of service. This change in workforce creates a need to transfer a tremendous amount of institutional knowledge to new employees. DMME has proactively updated its transition plans across the agency to prepare for these changes.

Physical Plant

DMME maintains four offices across Virginia, one of which it owns (Big Stone Gap), another that is provided space by the Department of Forestry in Charlottesville at no cost, and two that are leased (Richmond and Lebanon). The largest of these facilities is the Buchanan-Smith Building in Big Stone Gap. This facility is 25,827 square feet of office space for approximately 80 staffmembers, an active file area, an Emergency Response Center, a customer assistance center, and the agency's garage of 6,000 square feet that maintains most of the agency's 110 vehicles. Efforts to store files electronically have alleviated the agency's storage problems of the past. DMME continues its work to become completely paperless.

The Buchanan-Smith Building was completed and occupied in 1992 and has maintenance needs typical of a twenty-six year old building. DMME completed an energy performance contract with Trane to upgrade all lighting in the building, garage facility, and all outside lighting to LEDs. The performance contract also included the replacement of the facility's chiller, and replaced one of the coal fired boilers with a modern propane boiler to be used in transition periods to increase energy efficiency. DMME has initiated the process to replace the roof. Maintenance of asphalt surfaces and painting (exterior and interior) will be assessed and contracted depending on budget availability.

DMME's Richmond office is located in the Washington Building on Capitol Square and houses 19 staff members. DMME has leased this space from the Department of General Services since 2009.

DMME's offices in Charlottesville are located in the Department of Forestry's building in the Fontaine Research Park. DMME moved into this building in 1994. The facility features office space for 32 staff members, a research laboratory, a large library, and a customer assistance area.

In 2009, DMME entered into a 20 year lease with the Russell County Industrial Development Authority (RCIDA) for office space located in the Russell County Government Center in Lebanon. This facility features office space for 20 staff members, 24 workstations shared among 40 field inspectors, and a customer assistance area. DMME has enhanced security at the facility through the use of proximity ID cards that must be scanned to gain access to DMME offices. DMME continues to work with the RCIDA on developing other security advancements. Storage issues continue to be addressed at this facility as well. DMME's efforts to electronically store required gas and oil data are ongoing.