COLORADO
Energy & Carbon Management Commission
Department of Natural Resources

The Outcomes of More Stringent and Strengthened Energy Regulations: A Comparison of 2016 to 2024

Prepared by ECMC for the Joint Energy Committee
1/16/2025

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Los resultados de regulaciones energéticas más estrictas y reforzadas: una comparación entre 2016 y 2024

Preparado por ECMC para el Comité Conjunto de Energía el
16/01/2025

Declaración de adaptación: El estado de Colorado se compromete a brindar acceso equitativo a nuestros servicios para todos los habitantes de Colorado. Comuníquese con Kristin Kemp (kristin.kemp@state.co.us or 720-666-0437) para obtener una traducción personalizada del idioma o asistencia de accesibilidad utilizando este informe, que incluye una representación geográfica visual de los datos. Los datos están disponibles en formato de texto a pedido. Ella se comunicará con usted directamente dentro de los siguientes tres días hábiles. Visite la página web de accesibilidad para obtener más información y servicios: dnr.colorado.gov/accessibility.

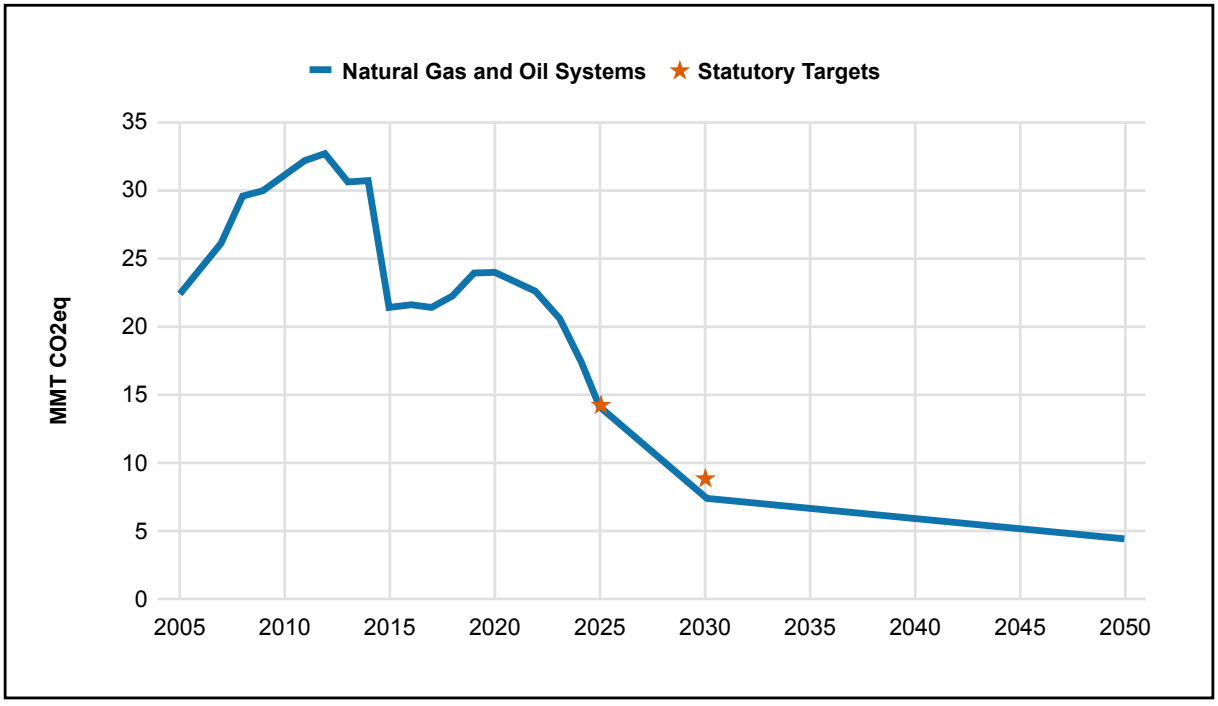
As the state of Colorado addresses climate change and sets a path forward for net-zero greenhouse gas emissions by 2050, the General Assembly in 2019 put in place a new mission for the the state's energy development regulator. As directed by SB23-016 and SB23-285, the former Colorado Oil and Gas Conservation Commission became the Colorado Energy and Carbon Management Commission (ECMC) with expanded regulatory authority on July 1, 2023.

ECMC now regulates not only oil and gas development, but also emerging energy sectors of deep geothermal and carbon storage. The expansion of ECMC's regulatory authority followed a multiyear process begun by SB19-181 to transform the Commission's mission from *fostering* oil and gas development to *regulating it in a manner that protects* public health, safety, welfare, the environment and wildlife resources.

That process included new rules adopted between 2019 and 2021 that added novel requirements for oil and gas development related to flowlines, wellbore integrity, cumulative impacts, protection of disproportionately impacted communities, wildlife protection, and financial assurance, among others. In total, ECMC has adopted 14 new rules promulgated since SB19-181, and four more rulemaking hearings are scheduled for 2025. In July 2020, the Commission also transformed from a volunteer board mostly run administratively by its Director to a full time five member professional Commission. Significantly, in August 2024, the Commission unanimously adopted Cumulative Impacts and Enhanced Systems and Practices Rules, as directed by SB24-229 and HB 24-1346, that further strengthened ECMC's protective regulatory framework and added new protections for disproportionately impacted (DI) communities.

As a result of this unprecedented series of General Assembly delegations of new, more protective authority, and the ensuing rulemakings over the last five years, Colorado has the most protective regulations for oil and gas development in the nation. These transformative regulations have positively impacted both the processes and outcomes associated with energy operations in Colorado. Notably, the biennial Greenhouse Gas (GHG) inventory model shows that the Oil and Gas Sector is achieving and exceeding its GHG emission reduction goals. More data on climate-related outcomes are published in the *Director's 2023 Report on the Evaluation of Cumulative Impacts*.

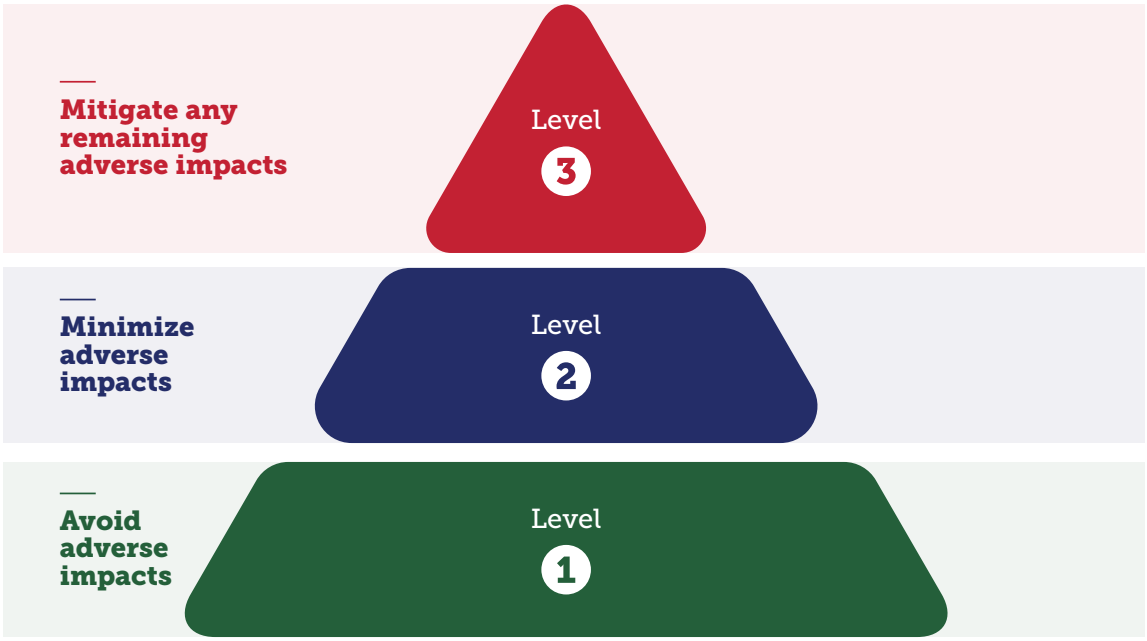
Natural Gas and Oil Systems GHG Emissions History and Projection (RMI's Baseline Scenario)





The Commission's Decisionmaking Model Rooted in ECMC's Mission

To fulfill its mission of regulating energy development in a manner that protects public health, safety, welfare, the environment and wildlife resource, ECMC uses a mitigation hierarchy to ensure that adverse impacts are first avoided, then minimized. Where not avoided or minimized, they must be then mitigated.



Mitigation Hierarchy

Steps to Issue Resolution

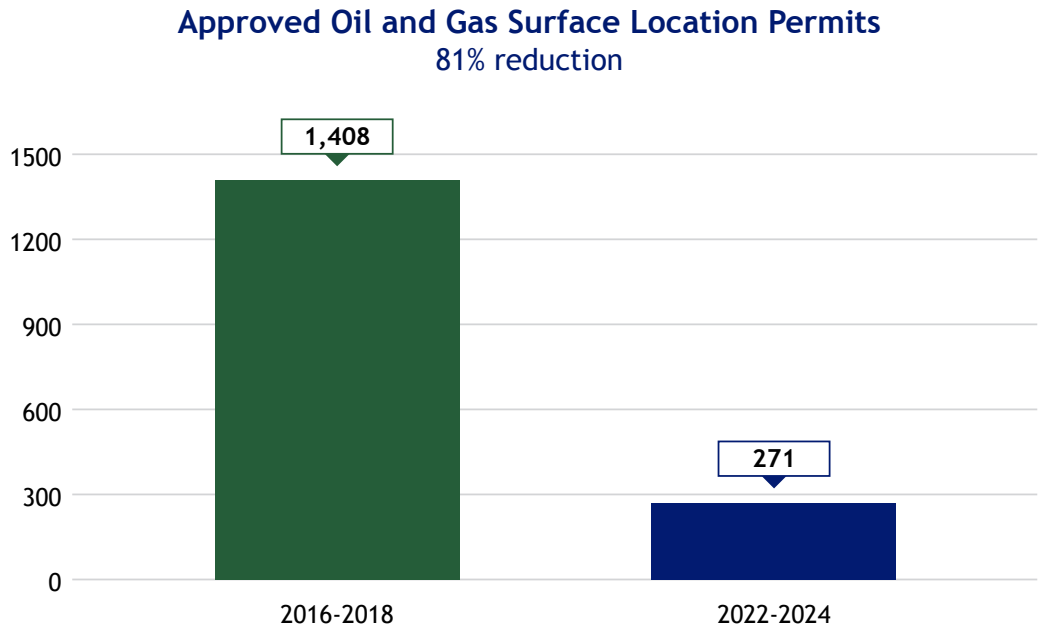
Oil and Gas Permits

Prior to SB19-181, operators only submitted one permitting form (called a Form 2A Oil and Gas Location Assessment) to seek approval to construct an oil and gas location, such as a well pad. Individual well permits (Form 2s) were also required for each well on the pad, but were approved concurrently with the Form 2A surface permit. Under the old mission of 'fostering' oil and gas development, ECMC staff could review and approve permits administratively without a public adjudicated hearing.

The transformatively stringent and protective new regulations now require operators to submit six times the amount of information on the Form 2A surface location permit, as well as the new Form 2B, Cumulative Impacts Data, both of which are reviewed by the Commission through a public hearing process.

Additionally, the new rules reflect the strongest financial assurance requirements in the country. Prior to the new rules, operators submitted a fixed bonding fee per well. Now, ECMC requires individualized financial assurance based upon each operator's site-specific operations. Financial assurance (i.e. bonding) provides the resources to correct, complete, or replace a compensatory mitigation project. It protects taxpayers from covering costs that should be borne by the oil and gas industry.

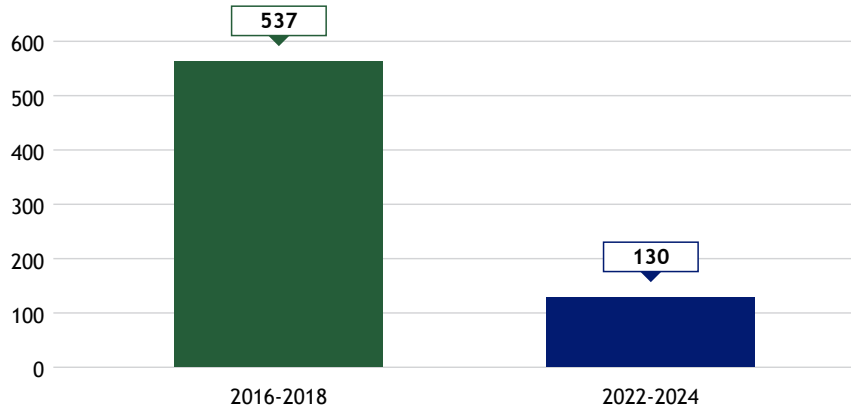
These new rules put in place the nation's most environmentally protective permitting approval parameters, which has caused a paradigm shift in the number of applications operators submit and the rate of approvals granted by the Commission.



Operators are required to obtain an oil and gas surface location permit prior to obtaining a subsequent permit for individual wells. Multiple wells are routinely sited on a single surface location.

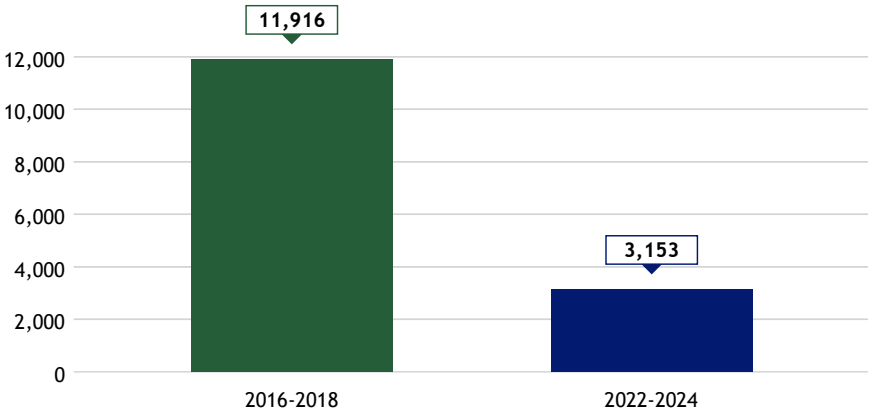
Locations approved within 2,000 ft of a Residential Building Unit (RBU)

76% reduction



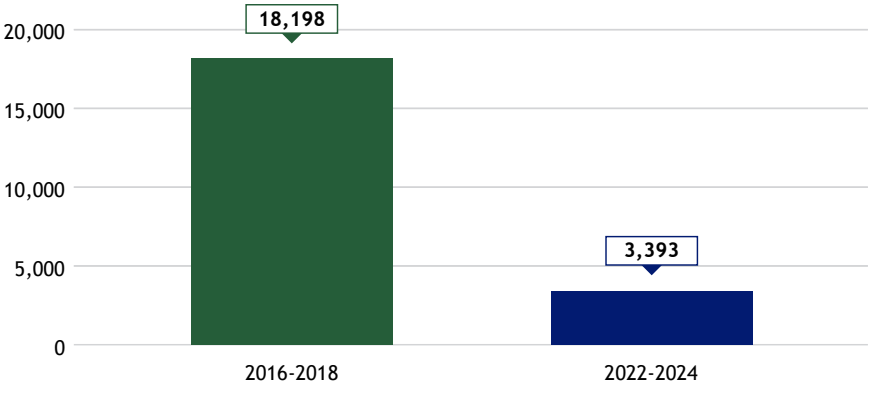
Approved Well Permits

74% reduction



Well Permits Submitted by Operators

82% reduction



Cumulative Impacts & Required Best Management Practices (BMPs)

Best Management Practices (BMPs) are operational and administrative practices that are an effective, practicable means of preventing or reducing pollution and other impacts. BMPs are enforceable as a permit condition, even when they are not specifically required by rule. Prior to 2019, an operator's use of BMPs was voluntary and generally not rule-based. A typical Form 2A in 2016 would include only three or four BMPs.

Pursuant to the rules adopted to implement SB19-181, more stringent BMPs from mandatory operator consultations with the Colorado Department of Public Health and the Environment (CDPHE) were developed to ensure that applications, upon review and approval, were protective. Notably, the Commission expanded upon the SB19-181 rules when it unanimously adopted the Cumulative Impacts and Enhanced Systems and Practices Rules, as directed by SB24-229 and HB24-1346. The rules created new rule-based BMPs and 'enhanced systems and practice' (ESP) requirements that further strengthened ECMC's protective regulatory framework and added new protections for disproportionately impacted communities. **Today's Form 2As includes 30-40 BMPs, which is a tenfold increase.**

Cumulative impacts, as defined by HB 24-1346, are the effects on public health and the environment, including the impacts to air quality, water quality, climate, noise, odor, wildlife, and biological resources, caused by the incremental impacts that a proposed new or amended operation regulated by the Commission pursuant to Article 60 would have when added to the impacts from other past, present, and reasonably foreseeable future development of any type on the impact area or on a disproportionately impacted community.

BMPs and Rule-based Requirements for Statewide Operations This table provides a summary of technical rules. The complete rules are posted online at ecmc.state.co.us/reg.html#/rules.	Required?	
	Pre-2019	Today
Noise mitigation	✓	✓
Light mitigation	✓	✓
Odor and dust mitigation	✓	✓
Stormwater and erosion control	✓	✓
Green completions (emission control systems in use on equipment during hydraulic fracturing)	✓	✓
Leak detection plan with permit application	✓	✓
Consultation with local govs, Colorado Parks and Wildlife (CPW), CDPHE	✓	✓
Per- and polyfluoroalkyl substances (PFAS) prohibition		✓
Venting and Flaring prohibition		✓
Demonstration of compliance with Greenhouse Gas Intensity Target - pursuant to Air Quality Control Commission (AQCC) Reg 7		✓
Cumulative Impacts Analysis		✓
Alternative Location Analysis		✓
Pre-application and post-completeness technical consultation		✓
Location permits approved by Commission vote at a public hearing, with multiple opportunities for public comment		✓
Compensatory mitigation for operations in CPW high priority habitat		✓
Flowline registration, description, and geographic information system (GIS) shapefile data		✓

Requirements for Oil and Gas Development within 2,000 feet of RBUs in DI Communities This table provides a summary of technical rules. The complete rules are posted online at ecmc.state.co.us/reg.html#/rules.	Required?	
	Pre-2019	Today
Environmental Justice (EJ) Community Liaisons - dedicated resources for residents		✓
Community Outreach Plan - required for every location		✓
Expanded radius for public notice		✓
Expanded public comment period		✓
Expanded opportunities for community/public engagement		✓
Language translation and interpretive services		✓
EnviroScreen scoring and analysis		✓
Pre-application and post-completeness community meeting		✓
Information regarding outreach to residents, resolution of their concerns, summaries of communications, translation/interpretive services requested, etc		✓
Information regarding attempts to obtain informed consent		✓
Information regarding attempts to execute a community benefit agreement or other direct beneficial impacts		✓

Ozone Non-attainment Areas

Addressing long-standing environmental and health impacts, particularly in DI communities, requires an accurate and realistic understanding of the effects from combined exposures to chemical and other stressors such as noise, odor, and socioeconomic disadvantages. It also requires stakeholders, particularly in DI communities, to have access to information and decision-making opportunities. ECMC adopted new requirements for oil and gas operations within the ozone non-attainment area to avoid, minimize, and mitigate adverse impacts and provide additional protections for residents. These new requirements include additional informational requirements for permit applications, permitting process improvements that expand opportunity for public engagement and input, and BMPs specific to emissions reductions and public health protections.

Seasonal (or Year-Round) Requirements for Oil and Gas Development Proposals for Locations in Ozone Non-Attainment Area This table provides a summary of technical rules. The complete rules are posted online at ecmc.state.co.us/reg.html#/rules.	Required?		
	Pre-2019	Today, for locations in ozone non-attainment area	Today, for locations in DI communities
Use of grid power or onsite solar power for all permanent powered production equipment onsite (excludes external combustion sources)		✓	✓
Use of grid power or non-fossil fuel generated power for heavy equipment such as drill rigs and turbine engines over 50 hp		✓	✓
No permanent produced water storage tanks		✓	✓
Demonstration of Compliance with NOx Intensity Target		✓	✓
No hydrocarbon liquids storage in permanent storage tanks on site			✓
Adequate and committed pipeline take-away capacity for all produced oil			✓
Use of temporary surface lines (e.g., lay-flat hose) to transport water used for hydraulic fracturing			✓

Setbacks

Setbacks are the minimum required distance set by law or rule between oil and natural gas development and homes, schools, and other buildings. The 2016-2018 rules contained only a hard setback requiring wells to be no less than 200 feet from buildings. ECMC strongly encouraged operators to site wells farther away from homes, which resulted in the average distance between homes and wells being over 1,700 feet. Nonetheless, well siting provisions were tempered by caveats based upon the operator's assessment of whether they were "technically feasible and economically practicable."

SB19-181 removed those technical and financial caveats and enabled the Commission to require more stringent setbacks. The 200 foot minimum setback is still in place. Additionally, a new 2,000 foot setback is required for single- and high-occupancy homes, schools, and child care centers, and is measured from the edge of the pad rather than from the wellhead.

This 2,000 foot setback is always required for schools and child care centers, and would require the Commission to grant a variance for any exception. To date, no such variance has been requested or granted. The 2,000 foot setback to homes does allow for certain exceptions, which the Commission may grant based on any one of four offramps:

1. the homeowner providing informed consent;
2. prior approval of the location within a Commission-approved Comprehensive Area Plan (CAP);
3. all wells, tanks, separators, and compressors sited on the pad remain more than 2,000 feet from the home; or
4. a clear demonstration of substantial equivalence that includes ongoing and thoughtful community outreach and engagement, resolution of the concerns of nearby neighbors, expanded notice and public engagement opportunities, any executed community benefit agreement, and a commitment to "above and beyond" BMPs, which may include limited occupation of the pad with heavy equipment, voluntary operational timing limitations, or other beneficial impacts that would offset certain adverse impacts that could not be avoided or minimized. The resulting average distance from a new well pad to a home is over 2,000 feet, which demonstrates that this new process is effective in ensuring residents have a higher level of protection than ever before.

The substantial equivalence offramp provides operators an opportunity to seek approval for a location that warrants significant additional review, particularly when the location is within 2,000 feet of a DI resident. It requires an extraordinary level of thoughtful planning, frequent and meaningful engagement and compromise with nearby residents, relevant and proximate local governments, and additional information for the Commission to consider. The burden is on the operator to demonstrate that every possible avenue for compromise and collaboration with local residents has been thoroughly undertaken and documented and that no alternative location is available that might result in less adverse impacts.

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