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## Join IIR for a Webinar on the Outlook for Global Refining, Crude Oil & Alternative Fuels

On March 13, at 10 a.m. CST (11 a.m. EST), Industrial Info will be holding a complimentary webinar on the outlook for the refining, crude oil and alternative fuels sectors.

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## U.S. Seeks Home-Grown Enriched Uranium for Advanced Reactors

On January 9, the Department of Energy (DOE) issued a request for proposals (RFP) for contractors to help establish the domestic production of high-assay low-enriched uranium (HALEU), a material used in the deployment of advanced nuclear reactors.

"Nuclear energy currently provides almost half of the nation's carbon-free power, and it will continue to play a significant part in transitioning to a clean-energy future," U.S. Secretary of Energy Jennifer Granholm said in a press release.

White House National Climate Advisor Ali Zaidi added that boosting the domestic uranium supply won't just advance zero-carbon goals, but will increase the nation's energy security. The fuel currently is only available in commercial levels from Russia, according to Reuters.

The existing U.S. fleet of reactors runs on uranium fuel that is enriched up to 5% with uranium-235. However, most U.S. advanced reactors require HALEU, which is enriched between 5% to 20%, to achieve smaller and more versatile designs. HALEU also will allow developers to optimize their systems for longer life cores, increased efficiencies and better fuel utilization, according to the DOE.

The Inflation Reduction Act of 2022 will provide up to \$500 million for HALEU enrichment contracts up to 10 years and a separate one, released in November, is for services to deconvert the enriched uranium into metal, oxide and other forms to be used as fuel for advanced reactors. Once enriched, the HALEU will be stored on site until there is a need to ship it to deconverters.

The DOE projects that more than 40 metric tons of HALEU could be needed before the end of the decade, with additional amounts required each year, to deploy a new fleet of advanced reactors in time to support the Biden administration's goal of 100% "clean" electricity generation by 2035.

All nuclear power in the U.S. currently is generated by light water reactors (LWRs), which were commercialized in the 1950s and early 1960s, according to a document released last year by the Congressional Research Service. LWRs are cooled by ordinary ("light") water, which also slows the neutrons that maintain the nuclear fission chain reaction.

High construction costs of large conventional LWRs, concerns about safety raised by the 2011 Fukushima nuclear disaster in Japan, growing volumes of nuclear waste, and other issues have led to increased interest in unconventional, or advanced, nuclear technologies that proponents say could be less expensive, safer and more fuel-efficient than existing LWRs.

In November, the DOE reached a milestone under its HALEU demonstration project when a domestic company produced the nation's first 20 kilograms of HALEU, according to the department.

[Centrus Energy Corporation \(NYSE:LEU\)](#) (Bethesda, Maryland) announced on November 7 it made its first delivery of HALEU to the DOE, completing the first phase of its contract by demonstrating its HALEU production project. Centrus Energy and the DOE each contributed about \$30 million to the first phase.

The second phase requires a full year of HALEU production at a rate of 900 kilograms per year at Centrus Energy's centrifuge plant in Piketon, Ohio. Subscribers to Industrial Info's Global Market Intelligence (GMI) Chemical Processing Plant Database can [click here](#) for a plant profile of the Piketon facility.

Centrus Energy President and Chief Executive Officer Daniel Poneman said in a press release his company is "committed to working with the (DOE) and industry to build a public-private partnership so that we can scale up production in the coming years to meet the full range of commercial and national security requirements for enriched uranium."

Centrus Energy said it could expand production from the current 900 kilograms per year of HALEU to 6,000 kilograms per year within 42 months after securing the necessary funding.



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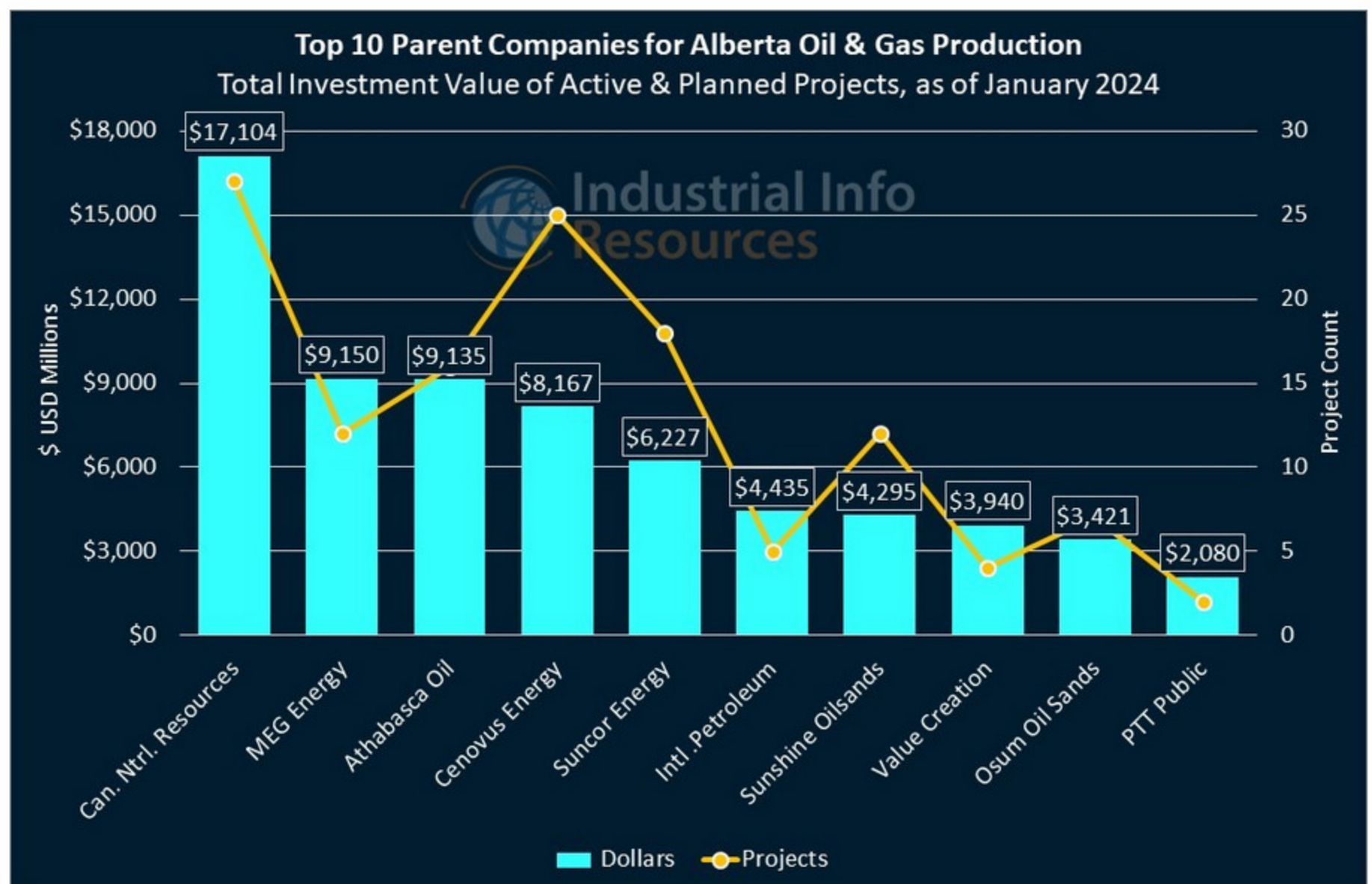
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## Oil & Gas Producers See Record Results Across Alberta

Researched by Industrial Info Resources (Sugar Land, Texas)—Canadian Natural Resources Limited (NYSE:CNQ) (Calgary, Alberta) (CNRL) is among the major Canadian oil and gas producers to report impressive production totals from Alberta for the end of 2023, as the "Texas of Canada" proved more bountiful than expected for the fossil fuel market. CNRL joined heavy-hitters like [Suncor Energy Incorporated \(NYSE:SU\)](#) (Calgary) and [Cenovus Energy Incorporated \(NYSE:CVE\)](#) (Calgary) in reporting record results—and expressing discomfort on a cap-and-trade plan proposed by federal regulators. Industrial Info is tracking more than US\$77 billion worth of active and planned Oil & Gas Production projects in Alberta, including more than US\$10.2 billion worth with a 70% or higher likelihood of kicking off before the end of 2024.

CNRL's oil and gas production from Alberta totaled 703,330 barrels of oil equivalent per day (BOE/d), its highest since 2018, with its gas production hitting a record 1.593 billion cubic feet per day. The company is preparing to begin an **expansion and replacement project at its Wolf Lake bitumen-processing plant and gathering field near Bonnyville, Alberta**, which currently has a 140,000-barrel-per-day (BBL/d) capacity. In addition to replacing aged components, CNRL aims to improve the facility's gathering system by constructing between 40 and 50 miles of steel pipe to carry fuel gas, diluted bitumen and steam to and from the production well pads.

CNRL also is seeking permits to **expand its Smith and Pelican Lake developments near Slave Lake, Alberta**, for which it aims to drill between 170 and 190 new wells and build gathering field tie-ins to boost its production of heavy crude oil from the Smith and Pelican Lake fields. Subscribers to Industrial Info's Oil & Gas Production Project Database can read detailed reports on the [Wolf Lake](#) and [Smith/Pelican Lake](#) projects.



Meanwhile, Suncor said its upstream crude production totaled 808,000 BBL/d for the fourth quarter, the second-highest quarterly total in its history, including an all-time record of 900,000 BBL/d for December. Much of this growth was driven by its Fort Hills and Syncrude facilities in Alberta, which totaled 534,000 BBL/d. In December, Suncor executives said they expect 2024's upstream production to total between 770,000 and 810,000 BBL/d, about 7% higher than its final estimate for 2023 production; the growth is attributed, in part, to what will be its first year of full ownership of Fort Hills.

Just southeast of the Fort Hills project, Suncor hopes to perform a **debottlenecking of its Firebag Bitumen-Processing Plant**, which produces up to 215,000 BBL/d. The company expects debottlenecking the facility's inlet and separation sections will reduce back pressure and add 20,000 BBL/d of bitumen production. Subscribers can learn more from a detailed [project report](#).

But Canada's Oil & Gas Industry is wrestling with a new challenge: At last month's COP28 climate summit in Dubai, Canada's federal government announced a draft framework for a cap-and-trade system, which would require related companies to cut emissions by 35% to 38% from 2019 levels—unless they buy offset credits—starting in 2030. Officials in Alberta joined industry leaders in harshly criticizing the proposed legislation, under which federal officials would gradually reduce allowances until Canada reaches net-zero in 2050.

Detailed regulations are expected to arrive this spring, with supporters hoping to finalize the regulations in early 2025. Natural Resources Minister Jonathan Wilkinson later told reporters after the announcement that the cap "is structured in such a way that we are focused on what is technically feasible" without cutting production. But industry leaders across Alberta and other major oil-producing areas in Canada do not believe the goals can be achieved without cutting production.

To reduce greenhouse gas emissions, producers in Alberta are considering up to US\$1.4 billion worth of cogeneration-technology projects, which capture the heat generated from the facility's on-site power generation, thus reducing the need for grid-based generation, transmission and distribution. Cenovus is considering natural gas-fired **cogeneration unit additions at its Meadow Creek and Narrows Lake complexes, both near Fort McMurray**. Each would supply their facilities with 85 megawatts (MW). Subscribers can read detailed reports on the [Meadow Creek](#) and [Narrows Lake](#) projects.

When excluding oil sands activity, Cenovus' December production in Alberta trailed only CNRL, exceeding 635,000 BBL/d.

Subscribers to Industrial Info's GMI Project Database can [click here](#) for a full list of detailed reports for projects mentioned in this article, and [click here](#) for a full list of related plant profiles.

Subscribers can [click here](#) for a full list of reports for active and planned Oil & Gas Production projects in Alberta.



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## U.S. Utilities Projects Account for Billions of Dollars in Opportunities

In the Western world, we've come to expect a certain level of comfort from the buildings and facilities in which we work and live. These comforts include regulated air temperatures and hot and cold water. Utility systems play a crucial role in maintaining comfortable and functional environments in buildings. Among the essential components of building utilities are boilers, chillers, and heating, ventilation and air conditioning (HVAC) systems. Industrial Info is tracking more than \$4 billion worth of U.S. projects involving these building components. Most of the projects being tracked are occurring at universities, prisons and military bases.

One of the largest utilities-based projects is underway at the California State University System's campus in Fresno, California, which is being accomplished in three phases. Phase I involved the cooling tower. Four 75-horsepower cooling tower cells have been replaced, supporting increased capacity. The second and third phases kicked off shortly after Phase I, which began in 2022. Phase II includes a new thermal energy storage tank, the replacement of four boilers, and upgrading aging air handlers and duct work. Phase 3 replaces more chillers and boilers on the campus and includes upgrading the piping and distribution lines. All work is set to be wrapped up later this year. To learn more, subscribers to Industrial Info's Global Market Intelligence (GMI) Industrial Manufacturing Project Database can view the project reports for [Phase I](#), [Phase II](#) and [Phase III](#).

Similar projects at universities include the University of Virginia's plan to construct a new utilities plant at its Charlottesville campus' Fontaine Research Park to help support a new four-story, 350,000-square-foot research facility, construction of which started last year and is expected to be finished in 2026. The initial construction of the utilities plant will include 1,600 tons of cooling capacity and 17,500 thousand British thermal units per hour (MBH) of heating. The facility is being designed to support capacity growth as needed in the future. Work is expected to begin this summer, putting the utilities plant on track for completion as the university's new Paul and Diane Manning Institute of Biotechnology Center opens in mid-2026. Subscribers to Industrial Info's GMI Database can learn more by viewing the project reports on the [new research building](#) and the [utilities plant addition](#).

While the California project represents the largest utilities project at a U.S. university, the largest such project at a military base is occurring in Utah. Last year, the Hill Air Force Base in Layton began replacing boilers at its steam plant. The first portion of the project, which is underway, includes replacing one 60,000-pound-per-hour (lb/hr) boiler and two 40,000-lb/hr boilers with two new 50,000-lb/hr boilers to increase the system's reliability. This portion of the project is expected to be completed in early 2025.

A second portion of the project is expected to begin in the near future. This portion involves removing two 70,000-lb/hr boilers and six 40,000-lb/hr boilers and, in their place, installing five new 50,000-lb/hr units. This project segment will be completed later in 2025. The new equipment being installed will be manufactured by [Cleaver-Brooks](#) (Thomasville, Georgia). Subscribers can learn more by viewing the related [project reports](#).

Other planned utilities projects at military bases include a utilities building addition, planned to begin in late 2025 or early 2026, at the Wright-Patterson Air Force Base in Dayton, Ohio. A 19,800-square-foot structural building addition will house gas-fired steam boilers and three 500-ton centrifugal chillers with two 750-ton cooling towers. Subscribers can [click here](#) to learn more about the project.

Among the utilities at prisons is a new boiler facility and boiler replacement at the San Quentin State Prison in San Quintin, California. A prefabricated metal building will be constructed next to the existing utilities building that will house three new 1,200-ton boilers and a 500-kilowatt emergency generator. The project is expected to begin later this year and take about a year to complete. Subscribers can [click here](#) to learn more.

Subscribers to Industrial Info's GMI Database can [click here](#) to view reports for all of the projects discussed in this article and [click here](#) to view the related plant profiles.



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On March 13, at 10 a.m. CST (11 a.m. EST), Industrial Info will be holding a [complimentary webinar](#) on the outlook for the refining, crude oil and alternative fuels sectors.

The Oil & Gas Industry has been struggling to keep up with rising demand, production cuts and the ongoing Russia-Ukraine conflict. In addition to the Russia-Ukraine conflict, many other factors have been bringing the petroleum refining, alternative fuels and crude oil markets into the spotlight.

We hope you are able to join our industry experts as they discuss the key trends that will impact these sectors over the next 24 months. [Click here](#) to learn more and RSVP.

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