



FRACTAL SYSTEMS AND CSV MIDSTREAM ANNOUNCE AGREEMENT TO JOINTLY DEVELOP ENHANCED JETSEAR PARTIAL UPGRADING HUB

CSV Midstream Solutions to Finance, Build, Own and Operate the Project

January 14, 2020 (Calgary, Alberta) – Fractal Systems Inc. (“Fractal”) and CSV Midstream Solutions Corp. (“CSV”), today announced that they have entered into an agreement to jointly develop a diluent reduction and partial upgrading hub (the “EJS Regional Hub”) utilizing Fractal’s Enhanced JetShear (“EJS”) technology. Following the successful commercial demonstration of the EJS technology at a field facility, CSV and Fractal have developed a commercial scale facility design capable of providing bitumen producers with higher product value, reduced diluent costs and a reduced carbon footprint, while achieving a competitive cost structure. Relationships with government funding agencies have been established, and Fractal and CSV have entered into discussions with producers to prepare for the successful development of the EJS Regional Hub project. The capacity of the EJS Regional Hub will be approximately 50,000 barrels per day (bpd) of bitumen feed (70,000 – 75,000 bpd of diluted bitumen).

Fractal and CSV have been working collaboratively since 2018 towards the development of the EJS Regional Hub project. Leveraging Fractal’s innovative technology and CSV’s efficient project execution expertise, the partners have agreed to work together on the next stages of development. These include further engagement with producers on long-term supply agreements and advancing engineering, consultation and regulatory work. CSV will finance, build, own and operate the EJS Regional Hub project employing the EJS technology under license from Fractal.

The EJS technology cost-effectively improves bitumen product quality through reduced acidity and significantly lowers bitumen viscosity, eliminating the need for more than 50% of the diluent that is normally required to meet pipeline specification. The final product reduces operators’ transportation costs and increases available bitumen export pipeline capacity by about 20%. It also reduces ‘wells-to-tank’ greenhouse gas emissions by approximately 10%. EJS product may also be shipped efficiently with little or no diluent by rail to refineries on the US Gulf Coast and other locations. CSV and Fractal believe that the EJS technology offers a unique opportunity for the energy industry in Western Canada.

“We are very excited to have a partner in CSV, because their project execution model aligns closely with ours, and we share CSV’s approach to creating shared value,” said Ed Veith, President and Chief Operating Officer of Fractal. “Fractal believes that successful execution of the EJS Regional Hub project will provide a basis for rapid expansion at transportation hubs and producer sites to directly address producer needs while delivering a large net benefit to society. We look forward to working with CSV to achieve this objective as swiftly as possible.”

Daniel Clarke, CSV’s President and Chief Executive Officer, said “With the current challenges facing western Canadian producers, the innovative technology developed by Fractal has the potential to be a real game changer. With our unique approach to project execution, we can confidently deliver a project that simultaneously reduces greenhouse gases, increases producer netbacks and relieves export constraints on existing pipeline and rail infrastructure. Our collaboration is a demonstration of the innovative culture of the Canadian producing community where we come together to create unique homegrown solutions.”



About Fractal

Fractal Systems Inc. is a venture-backed Canadian technology company focused on the advancement of innovative technology solutions for partially upgrading heavy oil and bitumen. Fractal's technologies will enable oil sands companies to reduce their environmental impact while realizing significant operating and transportation cost advantages over existing upgrading alternatives. Fractal's current technology platform includes JetShear, EJS and Acid Reduction Process ("ARP"), which have concluded field testing and are ready for commercial deployment with oil producers and midstream companies. Fractal has offices in Calgary, Alberta and a lab facility in Sherbrooke, Quebec.

In 2013, Fractal entered into technology and testing agreements with Cenovus Energy Inc. ("Cenovus"), resulting in diluted bitumen testing at Fractal's 1,000 bpd JetShear demonstration facility. In 2015, Sustainable Development Technology Canada ("SDTC") awarded Fractal and Cenovus \$3.7 million of funding to conduct field trials of the newly-developed EJS and ARP technologies. This facility underwent a retrofit and expansion and the expanded facility operated from late August 2016 through August 2017. This facility processed over 225,000 barrels of partially-diluted bitumen produced at Cenovus' SAGD operations. The facility achieved approximately 50% diluent displacement and reduced the total acidity number ("TAN") and olefinic content of the product to exceed industry quality thresholds.

In February of 2019, Fractal announced that it had been awarded funding of \$7.2 million from SDTC and \$5.0 million from Emissions Reduction Alberta to support the development of the EJS Regional Hub project. In March 2019 Fractal announced that it signed a non-binding term sheet with Cenovus to provide long-term supply to the EJS Regional Hub Project.

About CSV

CSV Midstream Solutions Corp. is a Calgary-based, midstream natural gas and liquids infrastructure company creating a sustainable footprint in the Western Canadian energy industry. Our expertise lies in providing innovative solutions in the commercial structuring, engineering, construction, operation and management of these assets. CSV owns three natural gas handling facilities in northwest Alberta – Karr, Pipestone and Resthaven.

Our core purpose is to **Create Shared Value** for all involved, creating and supporting community with pride through shared purpose and collaboration. With extensive technical expertise we will provide assured execution in the construction, operation and maintenance of midstream facilities, servicing both upstream and downstream clients in the Canadian oil and gas industry.

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