

Pre-Combustion Carbon Capture, Blue Hydrogen Power Generation & Water Production

Blue hydrogen is the only mature zero-carbon hydrogen technology in 2021. Blue hydrogen meets the energy demands of today and provides the feasible infrastructural foundation required to transition to the green hydrogen economy of the future. The environmental impact of carbon dioxide (CO₂) emissions is eliminated by capturing these emissions pre-combustion and sequestering or developing uses for the carbon dioxide that is the byproduct of pre-combustion blue hydrogen production. With sequestration, this zero-carbon emission fuel has a high energy density and is a direct replacement for many liquid and gaseous hydrocarbon fuels currently powering the world.

[Newpoint Gas, LLC](#) is currently developing a pre-combustion carbon capture and blue hydrogen power generation project in McKinley County New Mexico which is [the worlds first coal to hydrogen conversion](#). Using a Methane Reformer Process with an Air Separation Unit (ASU) and carbon sequestration, the facility will fuel the retired coal fired power plant with blue hydrogen and produce 215 MW of zero-carbon power with the capacity for expansion if required. The facility will also produce an additional 50,000 MSCFD of blue hydrogen which will be marketed to attract other industries to the area such as semiconductor manufacturing, green steel, low carbon cement production, commercial road/rail transportation and the opportunity to blend blue hydrogen into the existing natural gas distribution grid providing low carbon natural gas to markets such as California.

The enterprise value of the 500 MT/day blue hydrogen production facility and the coal to blue hydrogen conversion of the retired power plant demonstrates the feasibility of the project. The hydrogen production facility and conversion will be completed in about 18 months with an additional 12 to 18 months required for air quality and carbon dioxide sequestration well permitting. This blue hydrogen production and power generation facility will provide approximately 300 jobs during the construction phase and retains up to 110 retired generating stations employees for operations and maintenance.

Newpoint has also developed a patent pending blue hydrogen water production technology which captures the water produced in the combustion of hydrogen. For example, a 100 MW blue hydrogen fueled power generation facility will produce over 100,000,000 gallons of water per year. Also, the US power generation industry is the largest consumer of fresh water requiring 133 billion gallons per day—(48.5 trillion gallons per year) in 2015. Newpoint's technology can be configured to provide a closed loop power generation system eliminating the need for fresh water from outside sources. This technology highlights today's essential energy-water nexus and could not be more relevant.

Hydroelectricity (already challenged by depleting water flows) aside, Wikipedia reports "There is no formal definition for the **water-energy nexus** – the concept refers to the relationship between the [water](#) used for [energy production](#),^[1] including both [electricity](#) and sources of fuel such as [oil](#) & [natural gas](#), and the energy consumed to extract, purify, deliver, heat/cool, treat and dispose of water (and wastewater) sometimes referred to as the [energy intensity](#) (EI). The relationship is not truly a closed loop as the water used for energy production need not be the same water that is processed using that energy, but many forms of energy production require some input of water making the relationship inextricable".

Newpoint and its water innovation partners focus is to reduce, and if possible eliminate, the need for outside water in the production of zero-carbon dispatchable power. Newpoint contributes a new dimension to a more relevant "**water-energy nexus**" definition fielding 24/7 dispatchable zero-carbon emissions at source power in converted coal power plant sites with the option to add clean water. The enterprise value and economic impact of pre-combustion carbon capture, blue hydrogen power generation and water production supports communities currently being displaced by the worlds energy transition. Our focus is to retain previous plant employment with upgraded blue and green hydrogen skill sets for a just energy transition and powering the future.

Contact - info@newpointgas.com