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ULE REFORMING TECHNOLOGY: Innovative Technology, Environmental Leadership

Ultra-low emission (ULE) reforming technology is a more energy efficient way to convert natural gas to methanol. It relies upon a combination of electricity and process-generated heat to power production. This innovative technology will reduce environmental impact while maintaining the economic benefits of the approximately \$7 billion investment Northwest Innovation Works (NWIW) is making in the region.

Because the technology is highly energy efficient, ULE reforming technology uses less natural gas. It results in a significant reduction in carbon emissions, underscoring NWIW's key objective of achieving global environmental responsibility along with local economic benefits.

ULE reforming technology is a proven technology with a solid industrial safety record. Originally developed in the 1980s for use in other reforming-based production, the first methanol application was made for a project in 1994 at the Coogee LCM plant in North Laverton, Australia.

NWIW will be the first to use this clean technology for methanol production in the U.S. Because the technology is highly energy efficient, ULE reforming technology uses less natural gas. It results in a significant reduction in carbon emissions, underscoring NWIW's key objective of achieving global environmental responsibility along with local economic benefits.

Three facilities are planned in the Pacific Northwest to process natural gas delivered by pipelines and convert it to methanol. The facilities will be located at the ports of Tacoma and Kalama in Washington, and Port of St. Helens in Oregon.



ULE reforming emerged as the preferred technology for NWIW's proposed facilities at the Port of Tacoma, Port of Kalama and Port of St. Helens. ULE reforming technology will make NWIW facilities more environmentally responsible, leading to decades of jobs and economic growth for the region.

ULE reforming technology will lower greenhouse gas (GHG) emissions at the facility up to 75 percent, compared to conventional methanol production technology. The conversion process will also use 15 percent less natural gas.

NWIW's adoption of this technology is an example of how the research involved in the permitting and design process aids in identifying more environmentally sustainable options.

NWIW has entered into an agreement with Johnson Matthey to provide the ULE reforming technology for planned facilities in the Pacific Northwest. Johnson Matthey is one of the world's leading methanol technology providers, with over half of the world's licensed methanol plants using its technology.

Stay informed and involved

Send an email to info@nw-iw.com if you would like to receive regular updates about NWIW projects, or visit www.nwinnovationworks.com to learn more.



Northwest Innovation Works is a strong multi-national partnership committed to generating economic growth in the Pacific Northwest while meeting a global need – a cleaner source for methanol production. NWIW is constructing three facilities in Washington and Oregon. Unlike development of fossil fuels for energy, methanol produced by NWIW will be a component in a value-added manufacturing chain. It takes the place of coal in manufacturing processes for items we use every day.

NWIW is working closely with the ports, state agencies and local communities to plan and permit the facilities. Once fully operational, each facility will generate more than 200 permanent, family-wage jobs, with additional work for longshore and marine service providers. More than 1,000 jobs will be created during construction for each facility.