



RECAP
RENEWABLE ENERGY CLEAN AIR PROJECT

**INTERNATIONAL FALLS
MINNESOTA**

FREQUENTLY ASKED QUESTIONS

WHY INTERNATIONAL FALLS? This project is designed to fit small and rural towns in the United States. It will provide jobs, economic development, education and some level of energy security. This project is scalable and fits the available feed stock supplies in most communities. With small town USA losing most of its young folks to the larger metropolitan areas, rural America needs revitalization.

WHAT IS PLASMA? Plasma is the fourth state of matter. The states are solid, liquid, gas, and finally plasma. State transitions occur from solid to plasma, by adding more energy in the form of heat. An analogy is ice to water to steam to plasma as more heat is added.

WHAT IS THE DIFFERENCE BETWEEN INCINERATION AND GASIFICATION? Incineration is a process where a fuel is heated to the flash point in the presence of oxygen. This process is commonly known as burning or incineration. Gasification is a very high temperature process (18,032° F or 10,000° C) which occurs in an oxygen deprived environment.

WHO WILL OWN THIS FACILITY? After the initial commissioning of the facility it will be turned over to Koochiching County for further operation.

WHERE DID THIS PROJECT ORIGINATE? The concept for this project was developed by the Laurentian Resource Conservation and Development Council (RC&D) along with numerous partners in 2001.

WHAT VALUE ADDED PRODUCTS ARE PRODUCED BY THIS PROJECT? The plasma gasification process can produce several useful byproducts such as hydrogen, ethanol, biodiesel, vitrified glass, rock wool, and more.

WHAT POLLUTANTS ARE RELEASED INTO THE AIR? Very few emissions are released as the gasification process turns most of the organic feedstock into hydrogen and carbon monoxide. The inorganic material that is produced is contained within the slag which is the second output. The output streams of the plasma gasification process meet all present day United States Environmental Protection Standards (EPA) standards.



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WHO IS GOING TO PAY FOR THIS PROJECT AND WHERE IS THE MONEY COMING FROM? Funding for the Koochiching County project will come from several sources. The program has been designed to use funding resources from federal, state and private investor contributions.

WHAT KINDS OF FEEDSTOCK WILL BE UTILIZED? The gasification process can use any organic feedstock: municipal solid waste, forestry residues, agricultural residues, paper mill residues, residential demolition, yard waste, and similar items.

HOW MANY JOBS WILL BE CREATED? The facility will employ an estimated 15 people. These positions will be well paid and require a level of education and certification to operate the systems.

WHERE WILL EDUCATIONAL OPPORTUNITIES COME FROM? One of the project components is to create an educational system that is integrated into the K-12 curriculum teaching renewable energy systems and conservation, moving on to a two year certificate obtainable from Fond du Lac Tribal and Community College in Cloquet, and Rainy River Community College in International Falls. Additionally, four year and graduate level degrees will be available from the University of Minnesota Duluth.

HOW WILL THIS PROJECT HELP WITH HOMELAND SECURITY AND SUSTAINABLE COMMUNITIES? Communities where these projects will be located will be producing their own electricity, fuel for cars and trucks as well as selling products outside the community. Harvesting the feedstock (municipal solid waste) locally will allow communities to move towards independence from foreign oil and vulnerable power transmission grids.