NARA is led by Washington State University and supported by the Agriculture and Food Research Initiative Competitive Grant no. 2011-68005-30416 from the USDA National Institute of Food and Agriculture.

SUPPLY CHAIN

FOREST RESIDUES PREPARATION
Primary feedstock targets include forest residues from logging and thinning operations. We are also considering mill residues and discarded woody material from construction and demolition, in regions where these materials are underutilized.

TRANSPORTATION
Feedstocks are transported from the collection site to a conversion facility. Chipping can take place at the loading or in a preprocessing facility.

PRE-TREATMENT
Wood chips are treated to make the sugar polymers (polysaccharides) accessible to degrading enzymes. These processes allow the lignin to be available for separation.

ENZYMATIC HYDROLYSIS
Specific enzymes are added to hydrolyze (cleave) the polysaccharides and generate simple sugars (monosaccharides).

FERMENTATION
Specialized yeast convert the monosaccharides into isobutanol.

BIOJET & CO-PRODUCTS
Aviation fuels can be generated from the platform molecules derived from wood sugars. Lignin can be used to generate co-products such as epoxies, structural materials and bio-based plastics. As an alternative, lignin can be burned to produce renewable energy.