	Conventional Bio-products	Advanced Bio-products	
Paper Mills \rightarrow	Packaging, Newsprint, Publishing, Substrate, tissue	Composites & Textiles: Cellulose nanocrystals, Cellulose filaments, Mi- cro-fibrillated cellulose, Composites using cellulose fibres, Bioplastics	Advanced Bio-materials
Chemical Pulp Mills	Market kraft pulpt Tall oil, Turpentine, Dissolving pulp	Chemicals & Additives: Methanol, Ethanol, Acetate, Lignin, Lubricates, Surfactants and rheology, Pharma- ceuticals	Advanced bio-materials
Mechanical Pulp Mills	Market high-yield pulp		Bio-chemicals
Forests and Process Residues →	Pellets, Boilers	Liquid Fuels: Pyrolysis oil, Bio crude, Gas, Bio diesel aviation fuel, Dime- thyl ether, Natural Gas (Nexterra Syn-Gas, Gas Technology Institute)	Biofuel
Plywood Engineered Wood Products Oriented strand board Mills	Panels	Solid Biomass: Bio-energy interme- diates, Torrefied pellets, Bio-coal, Heat and Power	
Sawmills	Lumber		Bioenergy
Harvesting	Log	Next-gen Engineered Wood: Cross-laminated timber (CLT), Multi-attribute panels, Wood fibre insulation, Hybrid/tall building solu- tions, etc.	Conventional Bio-product System with Innovative Technology