

# WORKING TO CREATE CLEANER FUELS

## INNOVATION ACTIVITIES & SKILLS FOR REDUCING CARBON INTENSITY



KEY ACTIVITIES	<b>FACILITY CONSTRUCTION AND MODIFICATIONS</b>	<b>UPSTREAM INPUTS</b> <i>Equipment, Material and Feedstock</i>	<b>MIDSTREAM OPERATIONS</b> <i>Processing, Co-processing and Manufacturing Fuel</i>	<b>DOWNSTREAM HANDLING AND USE</b> <i>Storage, Distribution and Use of Products</i>
	<ul style="list-style-type: none"> <li>• Engineering, design and installation of new or adapted facilities/ equipment for biomass processing facilities and refineries</li> <li>• Improve energy efficiency of facility operations</li> <li>• Metallurgical testing to reduce corrosion</li> <li>• Upgrade steel, pumps and injection nozzles</li> <li>• Develop refueling infrastructure for alternative fuels</li> </ul>	<p><b>Biomass Feedstock:</b></p> <ul style="list-style-type: none"> <li>• Produce, harvest and process agriculture, food (oils and fats), forestry, organic and solid wastes and residues</li> <li>• Apply feedstock conversion technologies</li> <li>• Pre-treat biomass</li> <li>• Access and aggregate supply chains of biomass</li> <li>• Transport to refinery by tanker truck, rail, barge or pipeline</li> <li>• Expand processing facilities and storage tanks to meet processing demand</li> </ul> <p><b>Feedstock from CO<sub>2</sub>:</b></p> <ul style="list-style-type: none"> <li>• Extract and capture carbon emissions or ambient CO<sub>2</sub> and convert to make synthetic fuels</li> <li>• Processes for direct-air-capture of CO<sub>2</sub> and air-to-fuel conversion</li> <li>• Business development and integration into business strategy and processes</li> <li>• Stakeholder and government relations and policy analysis and implementation</li> </ul>	<ul style="list-style-type: none"> <li>• Feedstock conversion processes</li> <li>• Use existing infrastructure (refineries, pipelines, storage facilities) and power systems including co-generation</li> <li>• Produce transportation fuels and chemicals using biofuels and catalysts</li> <li>• Synthetic fuel manufacturing using captured carbon and hydrogen</li> <li>• Monitor and analyze performance</li> <li>• Preventative maintenance/repairs</li> <li>• Corrosion management</li> <li>• Ensure policy, health and safety compliance and reporting</li> <li>• Identify and quantify carbon inputs and outputs</li> <li>• Buy and sell carbon credits</li> <li>• Commercial and supply chain management to source, procure and aggregate feedstock, and distribute products for sale to end users</li> <li>• Analyze the implications of operations and technologies to policies</li> <li>• Stakeholder/government relations, policy analysis/implementation</li> </ul>	<ul style="list-style-type: none"> <li>• Commercial, supply chain and sales management to distribute and market fuel products to commercial and retail consumers</li> <li>• Handling and transporting fuel from production facility to pipelines, storage terminals or retail fuelling station</li> <li>• Transfer fuel from storage and pipelines to fuel dispensing stations and into vehicles or vessels for consumption</li> <li>• Consumption of fuel in the operation of vehicles and vessels</li> <li>• Business development and integration into business strategy and processes</li> <li>• Stakeholder and government relations and policy analysis and implementation</li> </ul>

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For more information please contact: [info@cleanresourceinnovation.com](mailto:info@cleanresourceinnovation.com) and to view or download documents in the series, visit [www.cleanresourceinnovation.com](http://www.cleanresourceinnovation.com)

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