

UMN MSP Waste-Lipid-to-Fuel Opportunity

UMN NORTH STAR: university value first

Every Arns opportunity should be anchored in commercializing UMN IP, attracting external funding, corporate partnerships and sponsorship, expanding who can participate in venture creation, enabling student/founder leadership where applicable, creating new licensees, patentable inventions, jobs, local economic development, partnerships, and broader societal benefit.

Opportunity in 60 seconds: Use UMN scum-oil / waste-oil biodiesel IP as the anchor for a regional waste-lipid fuel opportunity connecting MSP Airport, wastewater/FOG streams, SAF Hub demand, downstream partners, and campus venture-building.

Funding logic: This is not a request for UMN to fund the work. UMN corrects and routes first. The next stage is funded by the party that benefits from reducing uncertainty: SAF Hub, MAC/MSP, airline, wastewater, fuel/refinery, corporate, public, external IP holder, or venture-build sponsor.

MAIN DISCUSSION SURFACE: Specific Complement Candidates to Correct, Prioritize, Add, or Remove

Candidate / example	Why it may fit with UMN IP	Value it can create together	Question for UMN / inventor feedback
Core UMN anchor Ruan scum-oil / waste-oil biodiesel process; Tech 20150113; U.S. Patent 9,745,530.	Directly targets difficult wastewater-derived and waste-oil lipid streams rather than clean commodity used cooking oil.	Creates defensible technical basis, license/option path, and a credible UMN-centered starting point.	Is this the correct primary anchor? Which claims, data, TRL, rights status, or inventor assumptions need correction?
Local feedstock + logistics candidates MCES/WWTP scum, MSP/MAC concession oils, campus dining oils, FOG/grease haulers, food processors.	The business works only if usable lipid supply can be identified, controlled, aggregated, documented, and economically moved.	Turns a technology into a regional supply system; identifies first site, aggregation model, partners, and sponsor rationale.	Which streams matter first: WWTP scum, brown grease, clean UCO, airport concessions, campus dining, or hauler networks?
Pretreatment + quality-control candidates Dewatering, solids removal, soap/FFA control, contaminant testing, batch QA, lab validation.	Wastewater scum and brown grease need cleanup/spec control before fuel buyers or refinery partners will trust the material.	Improves yield, product quality, offtake credibility, and ability to route material beyond biodiesel if viable.	Does UMN technology cover enough pretreatment, or should external testing/cleanup technologies be matched?
Downstream fuel-path candidates Biodiesel use, renewable diesel feedstock, HEFA SAF/refinery/coprocessing partner specifications.	UMN IP is biodiesel today; SAF-adjacent value requires a validated downstream pathway for lipids/esters/intermediates.	Creates the bridge from scum/waste oil to MSP, Delta, SAF Hub, and fuel-producer relevance without overclaiming SAF.	What output should be prioritized: biodiesel, upgraded lipid feedstock, renewable diesel feedstock, or SAF-adjacent route?
CILCA/MRV + traceability candidates GREET-style modeling, feedstock origin, chain-of-custody, transport energy, product specs.	Low-carbon fuel value depends on proof: source, handling, processing, transport, carbon intensity, and eligibility logic.	Adds sponsor confidence, buyer credibility, incentive readiness, and a stronger SAF Hub evidence package.	Which UMN, SAF Hub, or external LCA/MRV capability should be included before sponsor-facing use?
Venture-build + campus execution candidates UMN venture teams, students, founder-in-residence, operator partner, Chevron Studio feedback lens.	The inventor does not need to become founder; the opportunity can be built by a matched campus/operator team.	Creates a founder-ready opportunity and proves UMN can commercialize selected IP using campus talent and resources.	Who should build: student team, venture team, external entrepreneur, operator-backed venture, or corporate-sponsored build?
External IP holder / partner candidates Third-party conversion, testing, logistics, MRV, fuel, or deployment rights holders.	External IP may benefit when matched into a market-pull package with UMN IP, sponsors, feedstock, and deployment logic.	Can create multi-party value: stronger bundle, clearer funding path, broader sponsor base, and more complete venture thesis.	Which external complements should be identified next, and which should be excluded until UMN/inventor review?

CHEVRON STUDIO RECOGNITION + ARNS/UMN EXPANSION MODEL

Recognition pattern: Chevron Studio shows a familiar model for entrepreneur-led commercialization of university/lab IP. **Arns/UMN expansion:** start with company, vertical, market-pull, infrastructure, or sponsor demand first; then map UMN IP, external complements, funding logic, and venture-build paths around that demand. **UMN benefit:** channel build opportunities back into UMN students, faculty, venture teams, TTO resources, licensees, new patentable inventions, partnerships, and local economic development - not just one external entrepreneur or one standalone IP listing.

How UMN should use this

Treat candidates as a correction surface: confirm, cross out, prioritize, add missing UMN capabilities, identify external complements, and decide whether a sponsor-facing version should be prepared.

Fundable next step

A corrected bundle map + feedstock/sponsor matrix + SAF-adjacent pathway memo + business model comparison + directional economics + team needs + go/no-go gates. Funding path is matched to final approved configuration.

Portfolio reusability note

If this UMN pathway is not the right fit, the same method can be redirected to another university, lab, airport, wastewater, or SAF Hub ecosystem where IP, feedstock, sponsor interest, and venture conditions align.

Keep out for now

Final license terms, final ownership, detailed plant design, full patent diligence on every complement, investor deck, or claiming SAF before downstream validation.