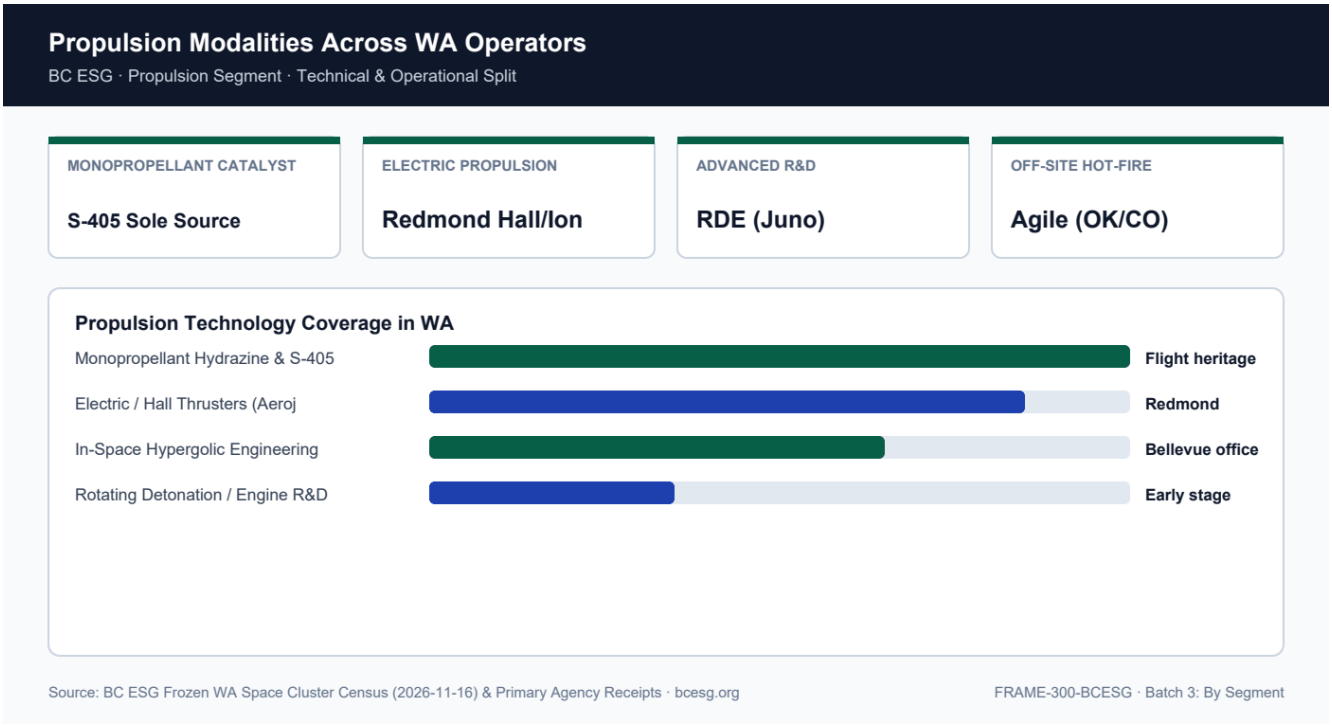
Chemical, Electric & Rotating Detonation Propulsion Operations in WA

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Verification & Scope Baseline: Aerojet Rocketdyne Redmond produces MR-series hydrazine thrusters, S-405 catalyst, and electric thrusters; 5 startups are early-stage R&D with thin public records.



Modality	WA Operator(s)	Where Hot-Fire Occurs	Maturity
Monopropellant Hydrazine & S-405	Aerojet Rocketdyne (L3Harris)	Redmond, WA / customer sites	Flight-proven production
Electric / Hall Propulsion	Aerojet Rocketdyne (L3Harris)	Redmond vacuum chambers	Flight-proven production
In-Space Hypergolic Thrusters	Agile Space Industries	Tulsa, OK & Durango, CO	Commercial development
RDE & Rocket Engine R&D	Juno, GHKN, New Frontier, Reach, RPS	Undisclosed / off-site	Early-stage R&D (thin record)

Flight-Heritage Production vs. Early-Stage Engine R&D

Washington's propulsion capability spans two distinct tiers. At the heritage tier, Aerojet Rocketdyne in Redmond has manufactured thousands of monopropellant hydrazine thrusters (MR-106, MR-107, MR-111) and electric thrusters for NASA, DoD, and commercial constellations, alongside sole-source **S-405** catalyst manufacturing.

At the emerging tier, Agile Space Industries designs in-space chemical thrusters from Bellevue while keeping 3D additive printing in Pennsylvania and hot-fire stands in Tulsa, OK and Durango, CO. Meanwhile, Juno Propulsion (rotating detonation engines) and four peers remain early-stage R&D ventures with limited public test data.

Verified Primary Sources & Internal Bridges

- L3Harris Technologies: https://www.l3harris.com/
- Agile Space Industries: https://agilespaceindustries.com/