

LANZAJET

From Concept to Commercial Reality Challenges and Insights

NON-CONFIDENTIAL

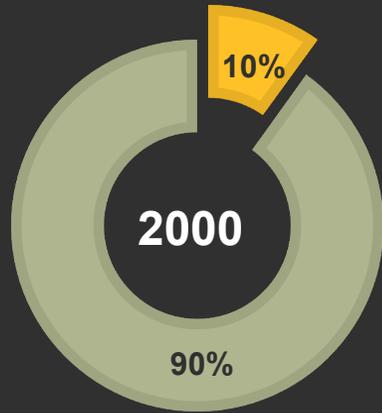


VIKRANT CHOPRA

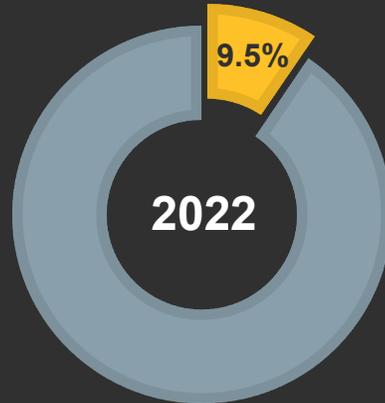
Keynote address at

The International Conference on
Thermochemical Conversion Science

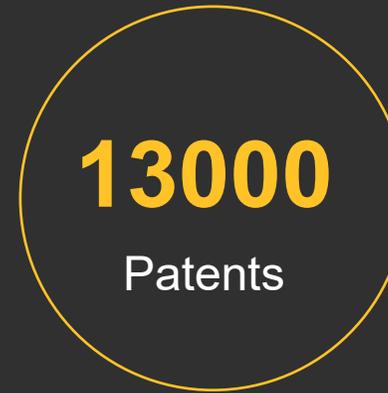
State of Biofuels: Innovation and Adoption



Share of biofuels in world's energy supply



Absolute number increased, % share remain the same

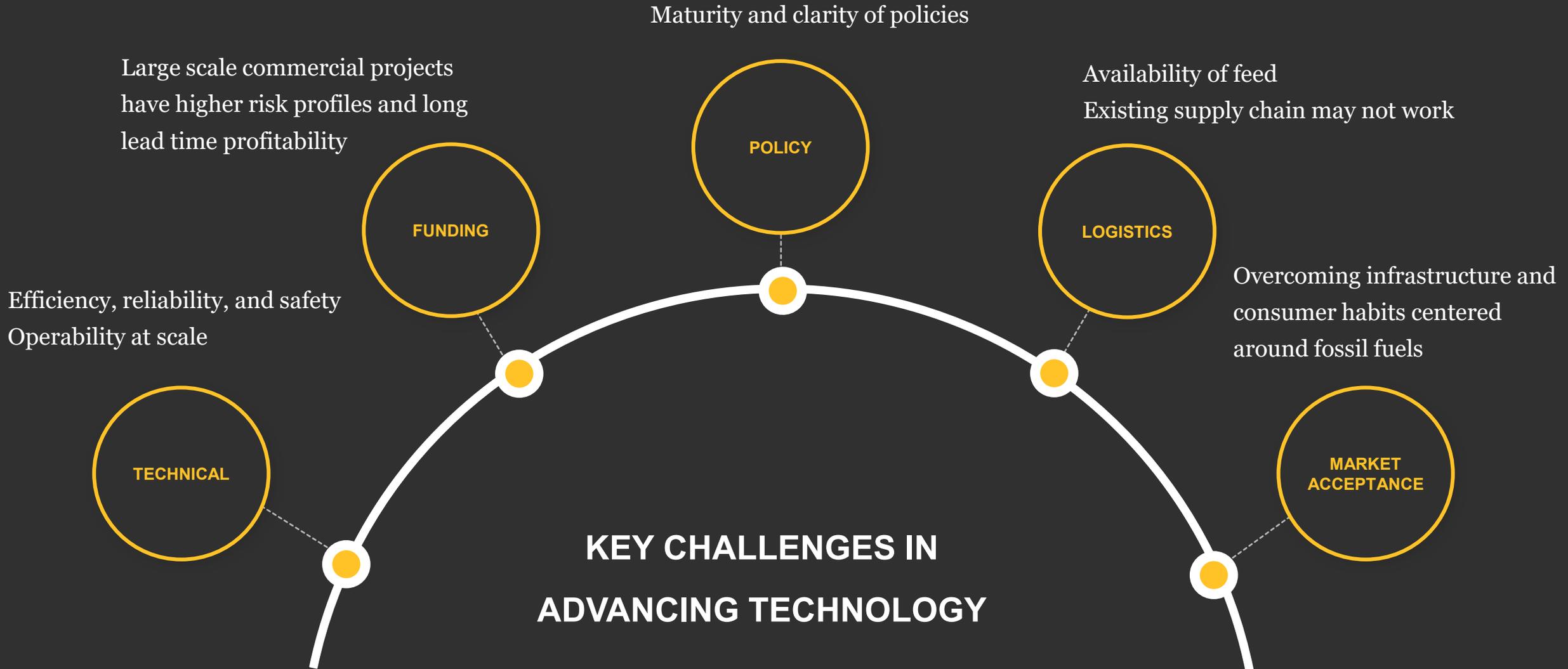


2000-2022:
Number of patents worldwide in bioenergy



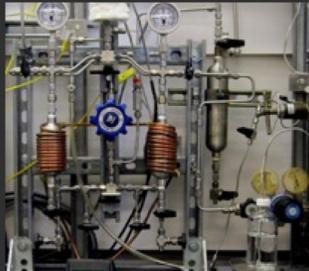
Bioenergy patents as % of total energy related patents

Advancing from R&D to Commercialization



LanzaJet's Transition from Lab to Commercial Deployment

2010–2015



Lab Bench & Pilot

2016–2020



ASTM Approval &
Commercial Flights

2025+



Global Technology
Deployment

Lab Demo



2014–2016

Commercial Plant



2020–2024

De-Risking and Managing Risks as Technology Scales

Key in assuring
that technology
would work as
intended post
scale up

Structured Challenge Sessions:

- Cross functional team comprised of Technology, Engineering, Safety, and Operability departments
- Strategic timing - early in the process saves cost; multiple session over time
- Participation of right skillset/ experience is key

Maintaining a Technical Risk Register:

- Gaps identified in the challenge sessions show up here as risks
- Demonstrates that risks are proactively managed or mitigated
- Records residual technical risks and outlines plans to mitigate or manage residual risk
- Act as evidence of risk management which is crucial to gaining investor confidence, regulatory approval, and team alignment

Keeping Up with Changing Skillset Needs as Technology Scales



Do we have the right people with the right skills at the right time?

Retaining individuals with skills and experience to keep pace with technological advancements:

- Derisks design
- Improves capital efficiency
- Prevents schedule slips

Technology and Execution Partnership

LANZAJET



- 15,000 employees globally
- Operates in 35 countries
- 65+ years of operation

World-Class Funders and Supporters



Commitments from our partners

- ✓ Funding
- ✓ Commercial-scale projects
- ✓ Offtake
- ✓ Knowledge, support, and secondees
- ✓ Feedstock supply flexibility
- ✓ Technical and business innovation

Assuring Technology Scale-Up

Structured cross-functional Challenge Session

At strategic times in the scale up timeline

Maintain a Technical Risk Register

Record, manage risks;
Proactive risk management

Right skillset at the right time

Bring in complementary skills early
Collaboration and Partnerships



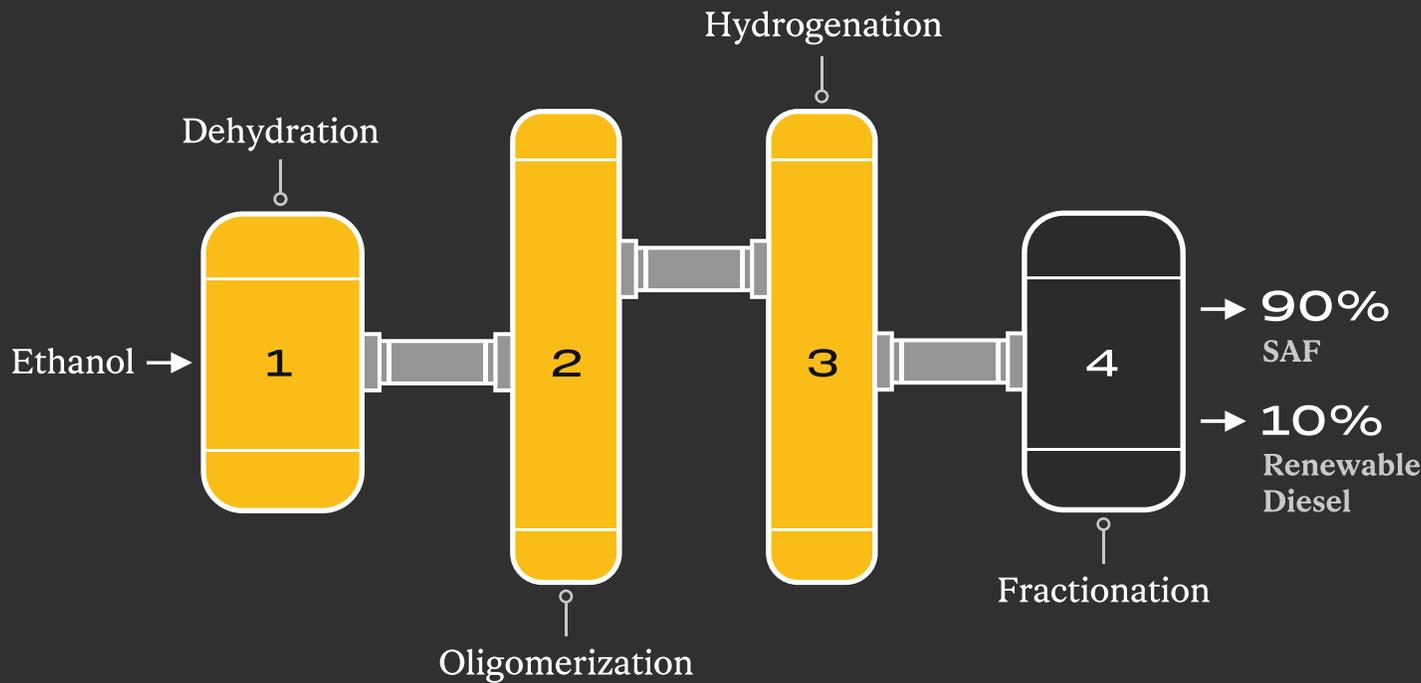
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Freedom Pines Fuels

Someday is now.

Ethanol Alcohol-to-Jet (ATJ) technology

High selectivity to SAF, high carbon conversion, abundant feedstock, and platform versatility



30B gallons of ethanol available today (140 million MTA)

Leveraging & transitioning existing ethanol supply

- Existing low-CI ethanol production
- Cellulosic ethanol
- Waste-based ethanol

Unlimited potential

Building new waste-based ethanol supply

- Industrial / landfill off-gasses
- Agricultural waste and residues
- Municipal Solid Waste (MSW)
- Corn fiber cellulose / sugarcane bagasse
- Direct Air Capture (DAC) – CO₂ + H₂

Publicly Announced LanzaJet Projects

● LanzaJet Publicly Announced Project



LanzaTech

- Broad marketing and collaboration relationship
- Pollution and carbon recycling to ethanol
- Joint projects globally using both LanzaTech and LanzaJet technologies



- Partner on British Airways Project Speedbird in the UK
- Woody waste and ag residues converted to ethanol
- Supported by UK Department for Transport grant funding



- Production of ethanol from corn stover
- National Renewable Energy Lab (NREL) technology and US DOE and Southwest Airlines funded program
- LanzaJet as partner to upgrade to SAF