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Ascent 1: SAJF Supply Chain Analysis Task 5.2

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October 13-15, 2015
Seattle, WA

Opinions, findings, conclusions and recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of ASCENT sponsor organizations.



5.2 R-t-W SH Assessment Objective

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Near Term:

- NARA Region - develop stakeholder populations and samples, pretest, & survey (interviews & questionnaires);
- Subsequent (Midwest?) Region – delineate the geographic parameters, develop SH populations/samples and survey instruments.

Long Term:

- Assess SH perceptions regarding the development of the SAJF industry and the adoption & diffusion of SAJF via qualitative and quantitative measures and analysis.

... toward a US – EU cross-national understanding of AJF industry barriers, logistical issues, requirements, & concerns among key stakeholder groups.

Outline

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- I. Aviation Fuel Demand in the U.S. PNW (NARA) Region
- II. Objectives & Research design
- III. Primary Data Collection Methods
- IV. Preliminary Findings
- V. Future work



I. Aviation Fuel Demand in the PNW Region

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Perspective: U.S. Petroleum and Jet Fuel Consumption

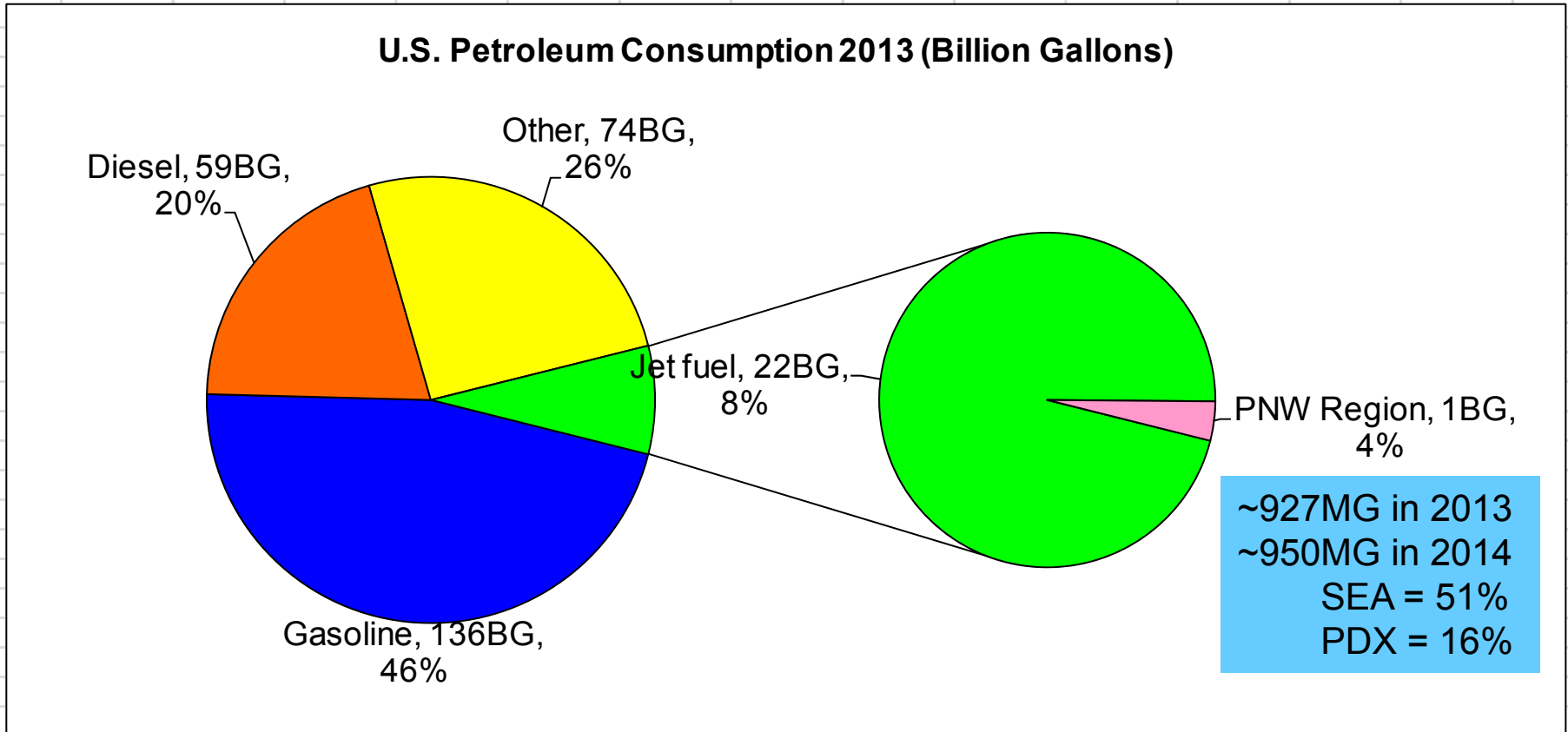


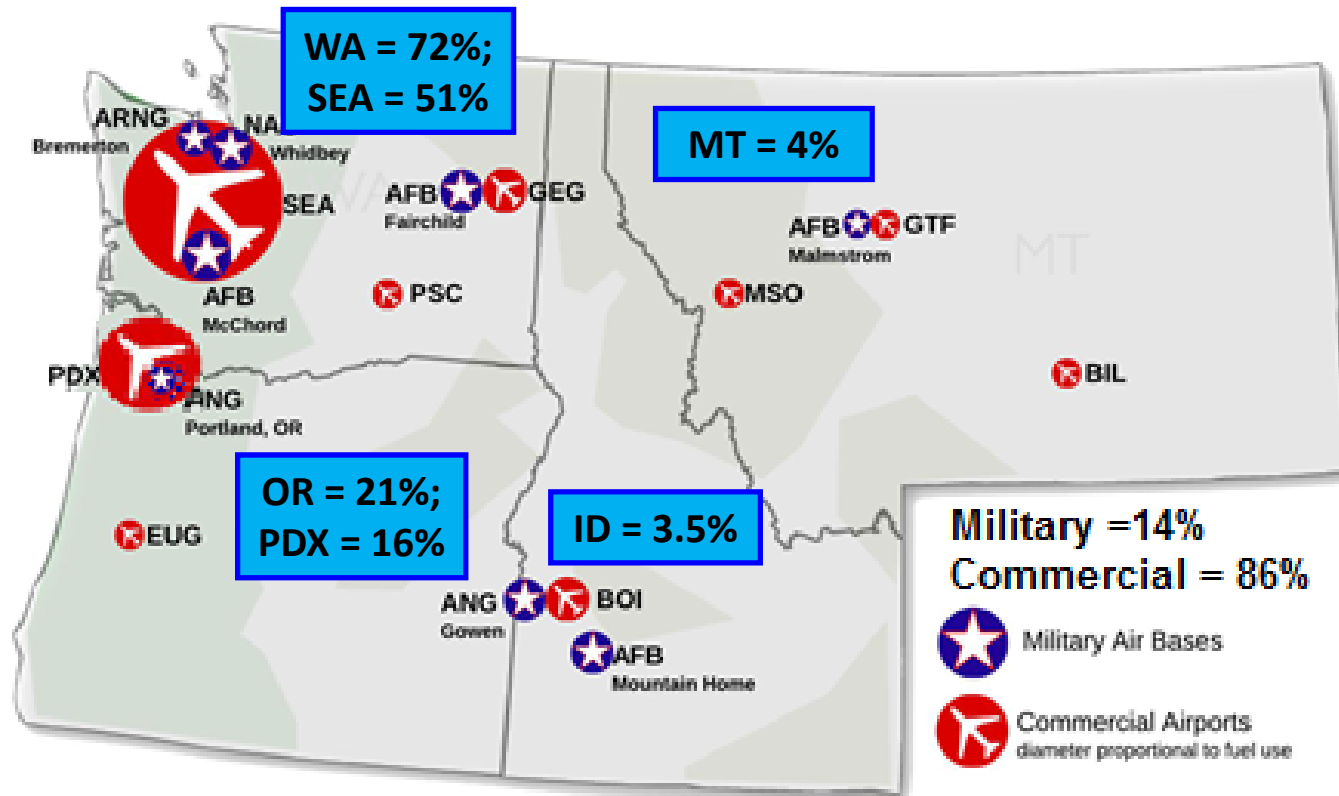
Figure 1. U.S. Petroleum Consumption and NARA's share of U.S. Jet Fuel in 2013 (EIA 2015a)



PNW Region Demand by State (2013 = 927MG)

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Civil and Military Jet Fuel Demand Centers in PNW Region



Data source: Military share is derived from SAFN 2011 Report; the state fuel consumption is from FAA

II. Research Objectives

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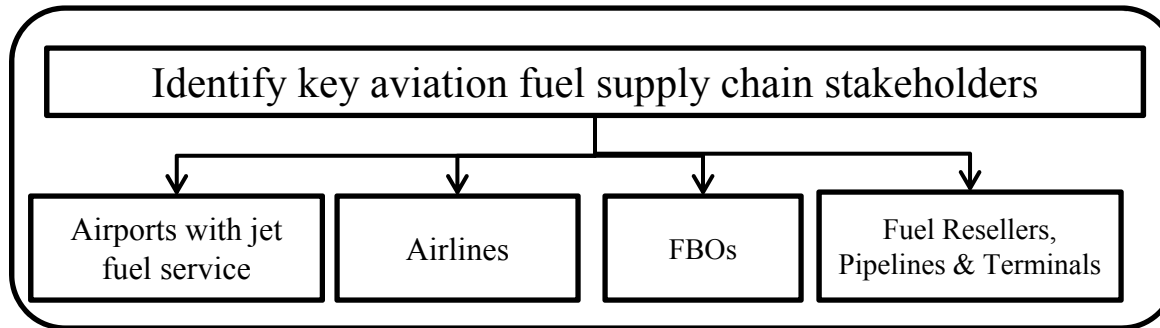
1. ID key aviation fuel supply chain SHs – U.S. PNW region;
2. Assess SH perceptions regarding the barriers/drivers to economically viable SAJF production in the NARA region;
3. Examine key issues to adding blended SAJF (ASTM D7566) into the ASTM D1655 Jet A fuel supply chain, including molecule tracking and crediting.



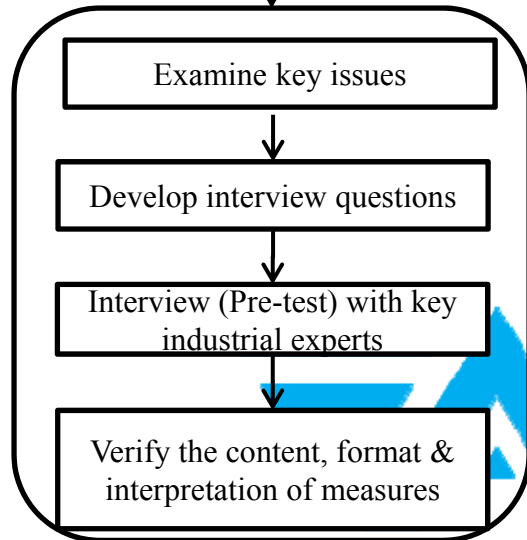
Research Design

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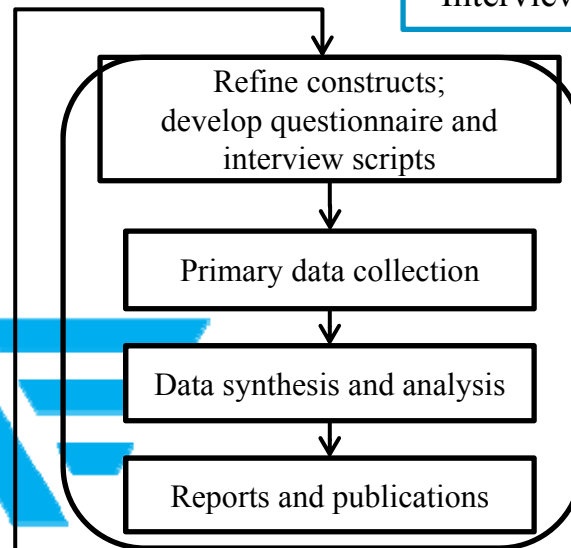
Phase I:
Secondary Data
& Exploratory
interviews –
Population &
issues



Phase II:
Construct
development and
verification



Phase III:
Primary Data Collection
–Interviews & e-Surveys



III. Primary Data Collection Methods:

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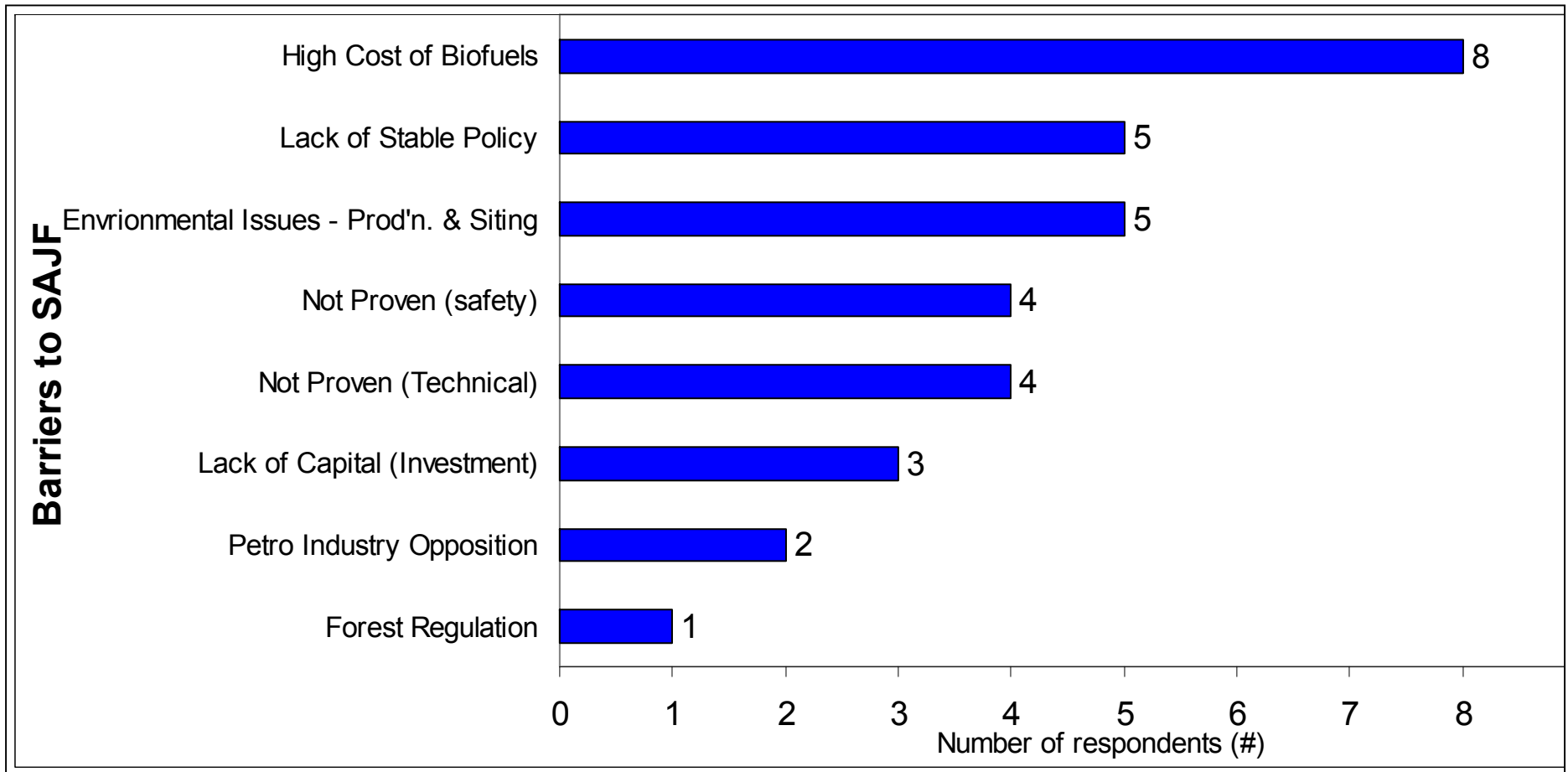
- **e-Surveys – Airport Mgrs. (n=98)**
 - Pretest, then Round #1 (Spring 2015):
 - 26.5% Response Rate (n=26); mostly small and micro airports
 - Obtained key endorsements to increase RRs
 - Currently in progress (Round #2)
 - Selected 8 for this prelim. analysis (size/geog. balance)
- **In-Depth Interviews – 12 Supply Chain SHs (this analysis)**
 - On-Site by Appt; June-Oct.; recorded & transcribed;
 - Airport Mgrs., FBOs, Fuel Resellers, Pipelines & Airlines;
 - In progress (n=20 to date)



IV. Preliminary Findings: Barriers to Regional SAJF (n=20)

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Q. What are the **key barriers** to developing an economically viable SAJF production industry in the Pacific Northwest region?



Barriers to Regional SAJF

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*“**Cost** is the #1 barrier.” “The cost of production and logistics is limiting market entry and scale up.”*

*“There is not **policy stability** or harmony for SAJF. In contrast, on-road fuels have better incentives for renewable fuel than jet fuel.”*

*“**Siting refineries** is a contentious issue with environmentalists, particularly new greenfield sites. Brownfield siting or co-siting with existing mfg. may be the answer.”*

*“**Safety** is a paramount concern in this industry.”*

*“Lack of **long-term (fuel) purchasing agreements** to provide a secure return on capital.”*

*“The **forest is over-regulated**. We can’t sit and watch thousands of acres burn. (SAJF) is a great use of the biomass.”*

ENGOS – A Key SH Group – Support/Oppose...

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- ... love the product, but are resistant to the regional industrial development necessary for production (siting issues);
- ...distrust the claimed sustainability certification; oppose the environmental impacts; do not trust LCA carbon reduction;
- ... support/opposition depends on the conversion process and other externalities;
- Local ENGOS could influence local airports;
- ... seeking a credible system, such as ASTM, ISO 4001, etc.



Additional questions include:

1. What is **driving** the development of an economically viable SAJF production industry in the PNW region?
2. Where is the logical SAJF blending location for your airport?
3. Do you think the SAJF molecules should be tracked?
4. Should SAJF purchases have a mechanism for crediting?
5. How do you think SHs will react to a SAJF crediting system?



V. Future Work

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- **Year 1 – PNW Region**
 - Complete primary data collection
 - Analysis & reports
 - Pub(s).: *J. of Air Transport Mgmt. & Biomass & Bioenergy*
- **Year 2 – Expand to other U.S. region(s)**
 - Develop populations & samples - airport mgrs. & fuel handling
 - Refine and verify constructs
 - Primary data collection



U.S. Population Development

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- U.S. Airports (N=1,664)
 - With jet fuel service: n=1,182
 - Top 20 U.S. Airports ~60 % of total U.S. enplanements
- Airports by 9 FAA region (in-progress)

2015b. 'Passenger boarding (enplanement) and all-cargo data for U.S. airports',
http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/ (last accessed Jul. 10, 2015).



Challenges and Proposed Resolution

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- Identifying key contacts (participants)
 - Directories, websites, & pre-notification phone calls
- Response rates - cooperation regarding potentially sensitive (competitive/political) issues
 - Engage participants via social science exchange theory – intrinsic rewards, costs, trust... (expert endorsements)
 - Content and ordering of questions
 - Develop relatively benign, yet meaningful & interpretable questions
 - Thorough pretesting



References

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Thank You

