



# Fuel Usage Study Extended Demonstration (FUSED)

Sept 15, 2021





# Agenda

- Big Picture
- FUSED Overview
- Past FUSED studies
- Future FUSED studies
- FUSED and you





# Big Picture – Logistics Wins Wars

“My logisticians are a humorless lot. They know they are the first ones I will slay if my campaign fails.”

– Alexander the Great

“The line between disorder and order lies in logistics...”

– Sun Tzu





# Big Picture – Questions of Supply

over 70 years of undisputed naval dominance

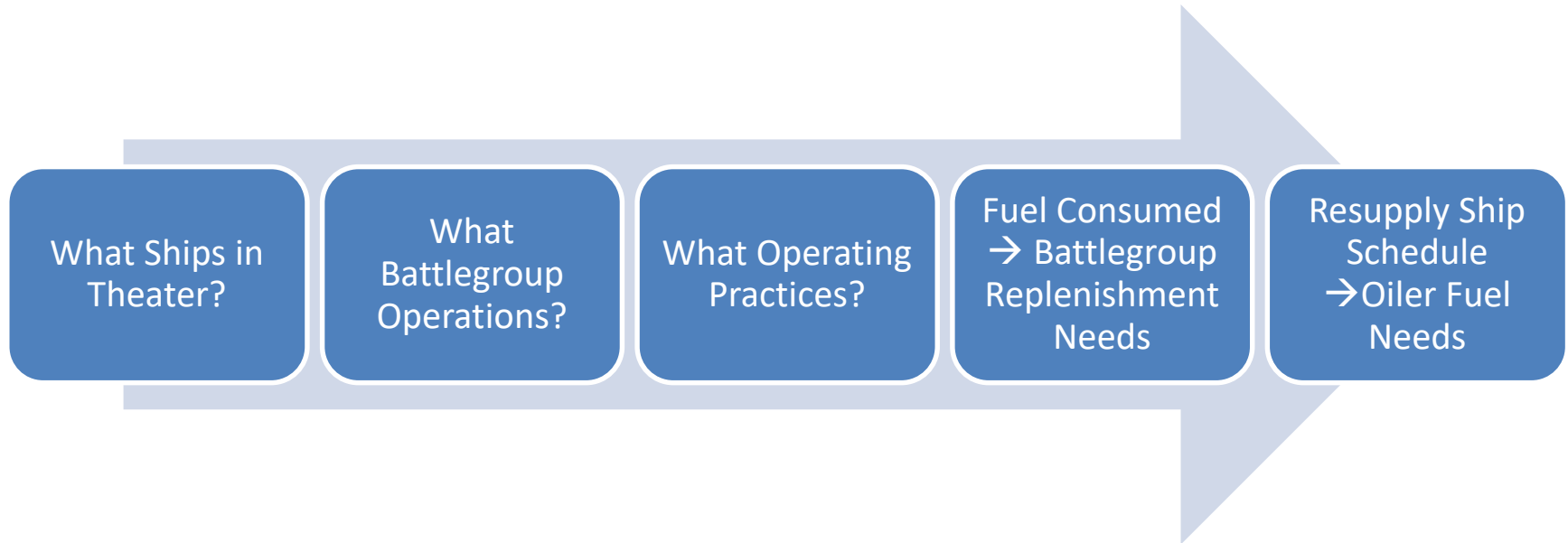
- Do we still have the logistics capacity to support a full force conflict?
- Do we even know how much fuel that will take?





# FUSED Overview - Introduction

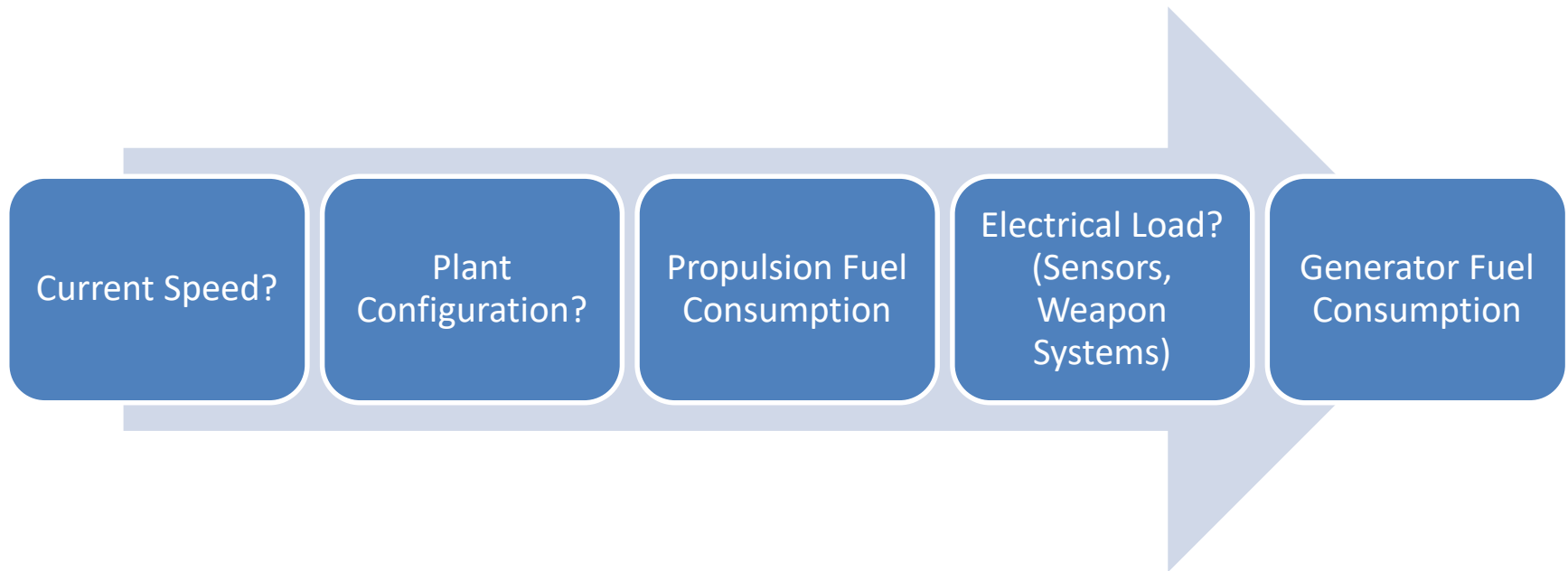
FUSED is a deterministic model to estimate fuel needs for battlegroups and supply ships





# FUSED Overview – Fuel Consumption

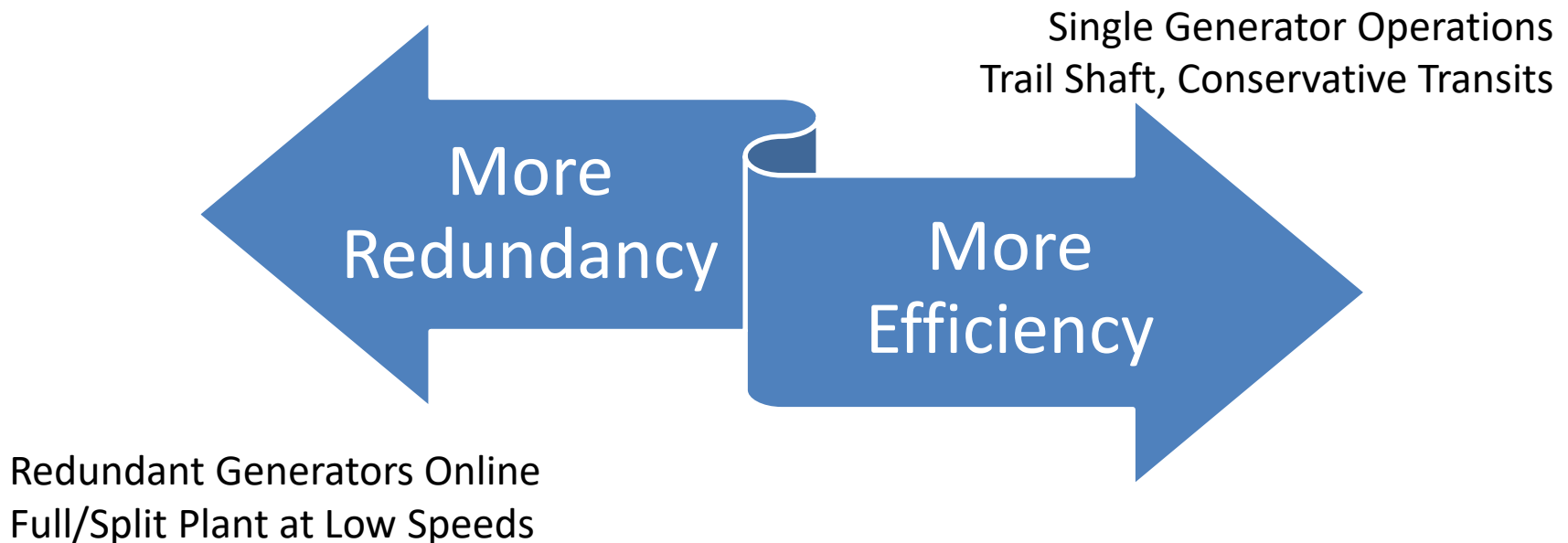
If you know what a ship is doing, and how it's doing it, you can estimate its fuel consumption at a given time





# FUSED Overview – Operations Practices

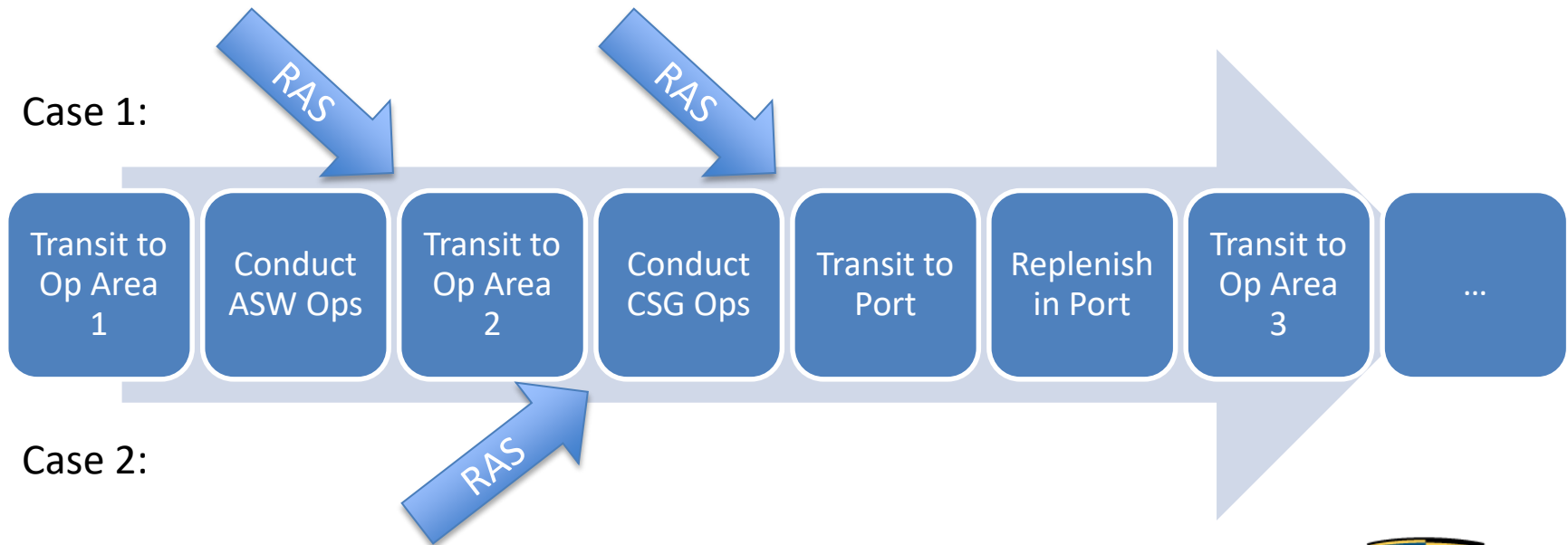
Different operational behaviors impact fuel consumption, often trading risk tolerance for efficiency





# FUSED Overview – Mission Modeling

Fuel consumption determined by modeling battlegroups carrying out a mission with two different sets of operational practices for comparison

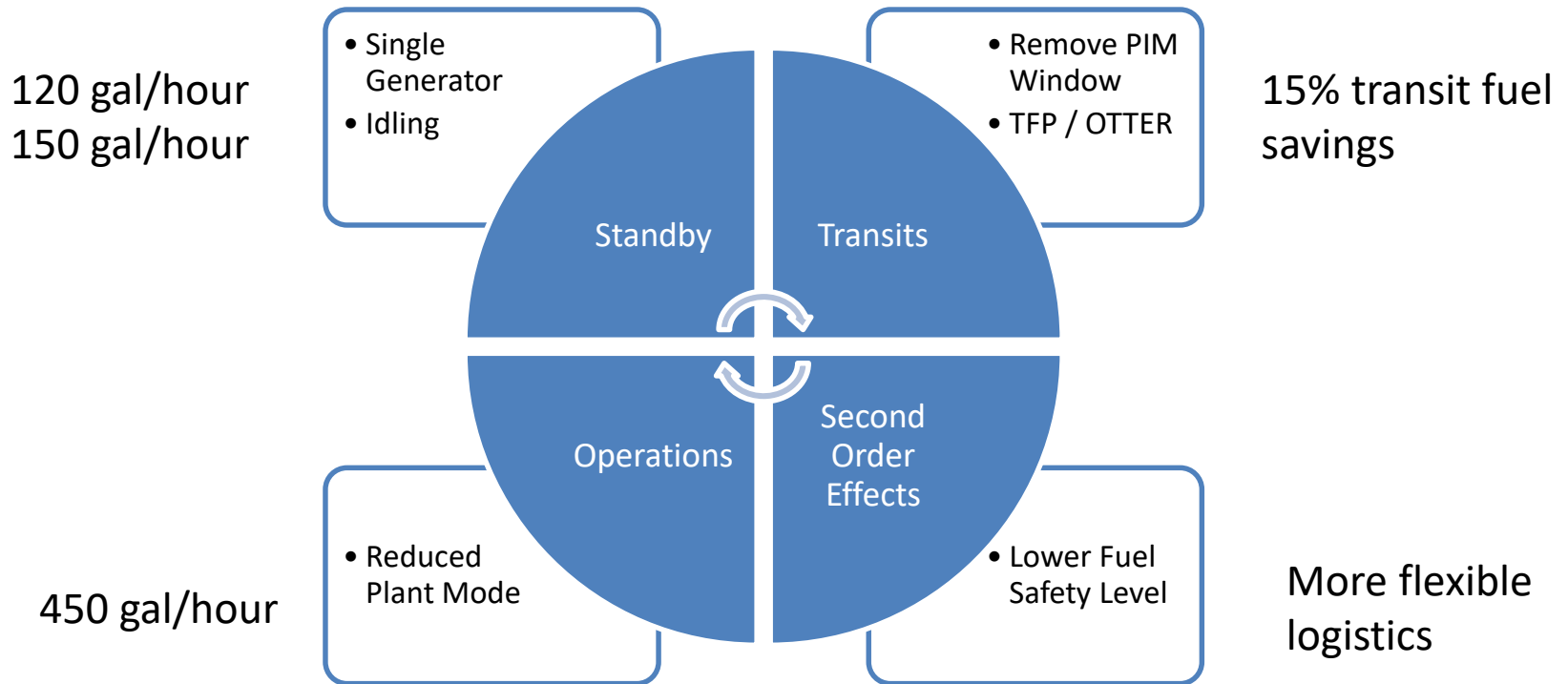






# Past FUSED Studies – Fuel Conservation

FUSED was used to model how different operating practices would impact fuel use





# Past FUSED Studies - NAVEUR

FUSED was used to compare NAVEUR fuel demand against available transport assets

## Naval Combatants

- Supply fuel to surface combatants conducting ASW and Amphibious Assault Operations

## Tanker Escorts

- Supply fuel for tankers bringing fuel into theater and shuttling supplies to combatants

## Ground Forces

- Supply ground forces with fuel brought in from across the Atlantic





# Past FUSED Studies - NAVEUR

## Questions answered:

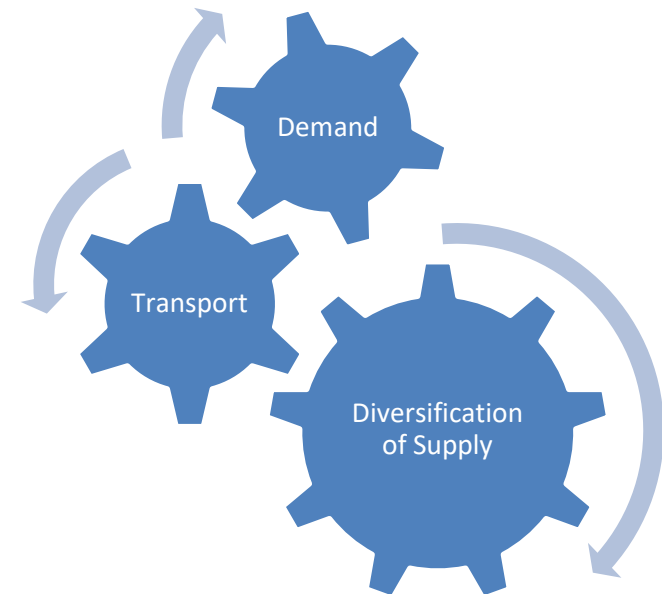
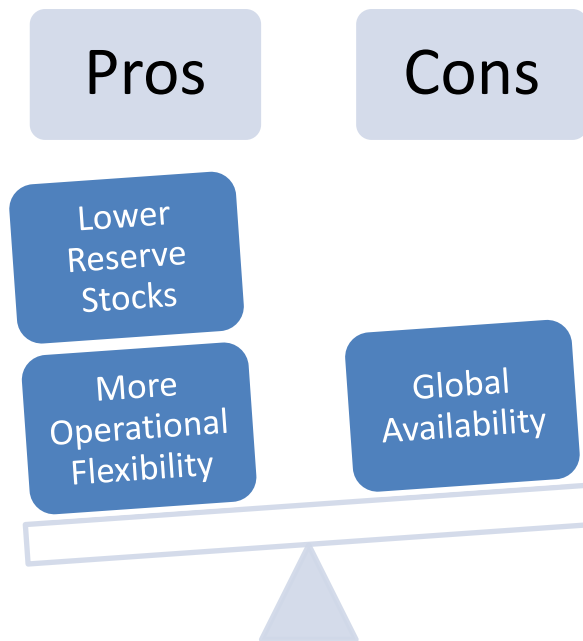
- How much fuel is needed?
- How many CLF and Tanker ships are needed?
- How much fuel can current assets deliver?
- What are the capability gaps?





# Future FUSED Studies – Single Fuel

FUSED will be used in FY22 to model how switching to a single fuel type impacts fuel demand and replenishment logistics





# Future FUSED Studies – Single Fuel

## Focus Questions:

- Where to preposition fuel? How much?
- How does single fuel impact capability gaps?
- How does availability of JP5 impact logistics?





# Future FUSED Studies- Possibilities

- Electric Ship / Hybrid Electric Drive
- Fuel Distribution for Marine EABO
- FFG(X) Fuel Tank / Endurance Requirements
- Acquisition: More CLF Ships, Tankers, or Combatants?
- Red FUSED: What are Adversaries' capabilities?
- Munitions, Food, Etc





# FUSED and You – Funding Studies

Studies using FUSED can be funded directly or through ONR Naval Research Program

- Can build in additional capabilities as needed
- Low-cost R&D
- NRP – Find a topic Advocate (N4)





# Questions

