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2014

## Steaming on Convex Hulls

Kline, Jeffrey E.; Brown, Gerald G.; Rosenthal, Richard E.;  
Washburn, Alan R.

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### STEAMING ON CONVEX HULLS

— RESEARCH PROJECTS —

**Prof Kline, Prof J. Brown, Prof Rosenthal, Prof Washburn**

Operations Research Dept.

#### Objective/Approach

- Demonstrate the value of leveraging fuel use curves by intelligently planning for long transits to minimize fuel
- Most fuel curves have a region where going faster then slower than the average speed required to make a transit saves fuel
- Modify current transit planner for LCS ships to test value and applicability of planner

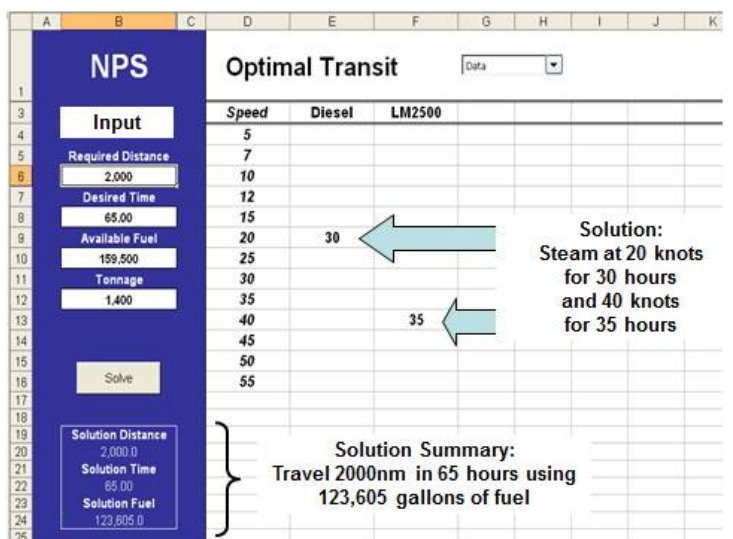
#### Results/Future Research

- How to save fuel?
  - Intelligently plan transits for best combination of speeds and plant configurations
  - Consistently apply optimized planner for long term fuel savings
- Method has already received a patent for the US Navy
- Data collection is necessary with LCSRON to support model modification and application
- Initial LCS transit planner already created from original optimized planner
- Application and testing with actual LCS fuel performance data is needed
- Future objectives are to apply to other ships

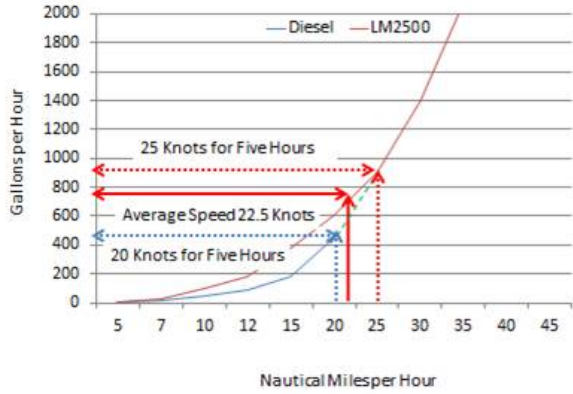
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### Diesel and Gas Turbine Fuel Curve for a Dual Plant Ship



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