



High-Performance GMAW Panel Project

Interim Report

Presented to
Welding Technology Panel
National Shipbuilding Research Program



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Outline

- **Programmatic Overview**
- **Historical Perspective**
- **Technical Approach**
 - Goals - consensus as to shipyard needs
 - Percentage of Mechanized
 - “Benchmarking”
 - What does the market offer?
 - Many new items - how do they compare
- **Potential of modification to existing equipment**
- **Future Work**





Why Do This?

- Recent progress with hybrid Processes has shown breakthrough performance (=10X)
- Cost of hybrid systems has shown “break bank” capital needs for shipyards (=20X)
- Recent progress with GMAW power supplies and process development
- Find a “sweet spot” of increased performance at acceptable cost
- Determine path to implementation

Source: NSRP N7-91-4





Programmatic Update

- Project Team: ATS - Todd Pacific - HII NN - CTC
- Contracts in Place: February 2011
- Subcontract with CTC in place; working on Todd Subcontract
- Literature Search, Contacts Initiated
 - Seeking permission for foreign material
- Project completion ~10%
- Budget status - ~9%
- Completion on or before 1/31/2012





Future Work

- **Continue market review**
 - Establish comparative data
- **Evaluate near-to-market items**
 - Review and validate claims
 - Attempt to have actual demonstrations
- **Determine applicability to shipyard needs**
 - Does the market meet the needs?
 - Is new development needed?
 - Generate a functional specification
 - Evaluate pathway to implementation





Q&A

- **Are we happy with what we're seeing coming to market at this time? If not:**
- **What do we need?**
 - Better penetration? - good for fillets?
 - Does this imply volumetric NDT?
- **Lower heat input means lower distortion**
 - Always true? HAZ issues?
 - Higher dep rate at lower heat input - good for semi-auto?
- **What is needed to assure shipyard implementation?**
 - Training
 - Maintenance and parts support
 - Other obstacles to implementation

