



CONNECTICUT MARITIME FOUNDATION

DERA Marine Vessel Repowers

October 18, 2017

Bill Gash
ctmaritime@msn.com

Paul J. Moynihan
pmoynihan@mjbradley.com

CT Maritime Foundation – About Us

501(c)(3) Non-Profit Organization

Charter/Mission

- Increasing public understanding and appreciation about Connecticut's maritime heritage & modern industry
- Promoting, foster and engaging in environmental activities related to the maritime community
- Promoting regional marine transportation and environmental awareness
- Serving as a catalyst to continuously improve communication and knowledge sharing within the industry and with community and education partners
- Providing educational and vocational training opportunities to the State of Connecticut's maritime region.

CT Maritime Foundation – DERA Projects

5 DERA grants since 2012

Diverse maritime partners

- Ferries
- Tugboats
- Excursion Vessels



MKM Cruises, Inc.

CT Maritime Foundation – DERA Projects

Partner	Vessel Type	EPA Region	EPA Grant Amount	Cost-Share	Project Total
Block Island Express <i>Jessica W.</i>	Ferry	1	\$ 800,000	\$ 1,613,736 [1]	\$ 2,413,736
New York Water Taxi <i>Sam Holmes</i> <i>Ed Rogowsky</i>	Ferry Ferry	2	\$ 600,000	\$ 1,239,495 [2]	\$ 1,839,495
MKM Cruises <i>Star Stream</i>	Excursion				
Cross Sound Ferry Services <i>Cape Henlopen (propulsion)</i>	Ferry	2	\$ 596,066	\$ 2,170,675 [3]	\$ 2,766,741
<i>New London</i> <i>Cape Henlopen (gensets)</i>	Ferry Ferry	1	\$ 800,000	\$ 1,116,906 [4]	\$ 1,916,906
Norfolk Tug <i>Paula Atwell</i>	Tug	2	\$ 507,546	\$ 691,524 [4]	\$ 1,199,070

[1] Cost-Share realized far exceeded the original project estimate.

[2] Estimated - The NYWT portion is complete, with significant additional cost-share. The Star Stream portion is ongoing.

[3] Estimated - The project is nearly complete with additional cost-share realized. This value represents grant minimum requirement.

[4] Estimated - The project is ongoing; this value represents grant minimum requirement.

CT Maritime Foundation – DERA Projects

Partner	Annual Emission Reductions (tons) ^[1]		
	NOx	PM	CO ₂
Block Island Express			
<i>Jessica W.</i>	46.90	0.48	369
New York Water Taxi			
<i>Sam Holmes</i>	5.37	0.19	30
<i>Ed Rogowsky</i>	4.67	0.16	19
MKM Cruises			
<i>Star Stream</i>	12.01	0.91	139
Cross Sound Ferry Services			
<i>Cape Henlopen (propulsion)</i>	24.40	0.94	138
<i>New London</i>	26.12	1.12	112
<i>Cape Henlopen (gensets)</i>	2.89	0.21	13
Norfolk Tug			
<i>Paula Atwell</i>	25.50	0.86	150
Total:	147.86	4.87	970

[1] Estimated

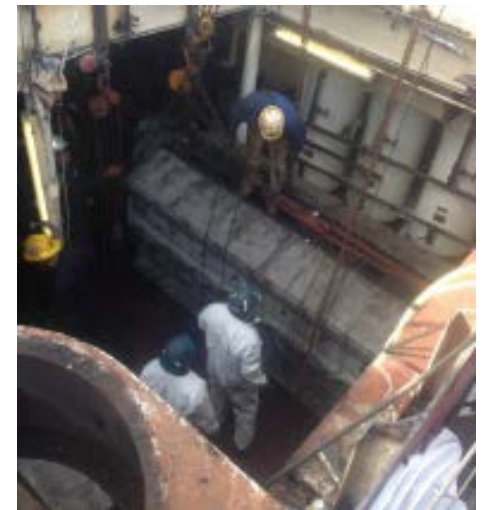
Timeline

- Application (Spring)
- Start (October 1st)
- Contracting
- Fleet Procurement
- Purchase Orders
- Wait
- Schedule Installation
- Wait
- Shipyard Work
- Engine Destruction
- Sea Trial
- Final Documentation



Anatomy of a Repower

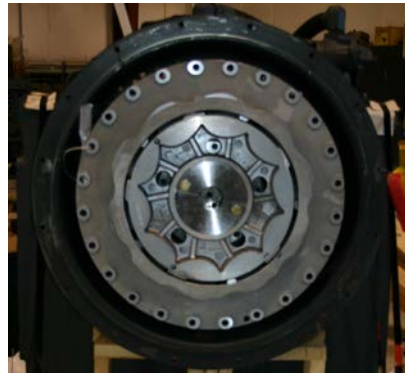
- Procurement
 - RFPs (Equipment & Installation)
 - Purchase Orders
- Deliver Vessel to Shipyard
- Inventory & Gas Free
- Access Hatch for Removal (existing or new)
- Disconnect and Remove Old Equipment
- Cooling Arrangement Changes?
 - Add/Replace Keel Coolers?
- Installation of New Equipment
- Pipe Fitting
 - Cooling Water
 - Oil
 - Exhaust
- Wiring
- Sea Trials



Lessons Learned – Application Phase

- Lots of Interest
- Inconsistent Capital Planning
- Grant Requirements
- Tier 4 Engines ?
- Limits of Funding

§1042.615 Replacement Engine Exemption



Communication !!!

Lessons Learned – Active Grant

- Unexpected Financial Constraints
- Significant Budget Changes
- Ongoing Level-of-Effort
- Procurement Rules
 - Engine Hp Limit
 - Physical Size
 - L x W x H vs. Engine Room
 - How does it impact shipyard installation
 - How is the engine cooled
- Eligible Expenditures Documentation
- A-133 Audit
- Engine Disposition

What do we do if a partner 'drops out'?



Lessons Learned – Cost Share

- Example – Cross Sound Ferry *Cape Henlopen* Propulsion Engine Repower
- Initial Estimates for Shipyard (Conceptual Stage)
- Post-Award Naval Architect Work
- Significant Vessel Changes as a result of the new engines
- Install new Engines & Gearboxes
- Lower the Foundation
- Modify Shafting
- Rudder Supports
- Hull Modifications
- Gearbox Orientation
- Cooling Arrangement
- Dead Weight Survey

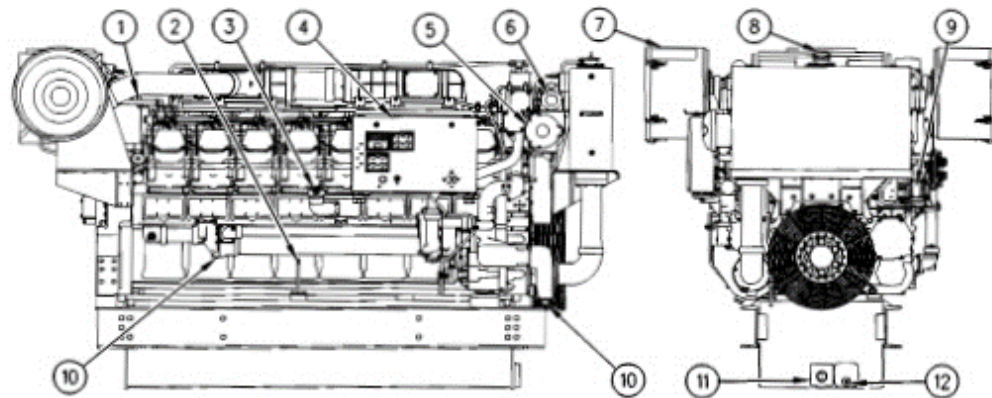


Illustration 16

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- (1) Lifting eye
- (2) Oil level gauge (dipstick)
- (3) Oil filler cap
- (4) Electronic instrument panel

- (5) Oil filter
- (6) Secondary fuel filter
- (7) Air cleaner
- (8) Cooling system filler cap

- (9) Primary electronic control module (ECM)
- (10) Water drain
- (11) Oil screen
- (12) Oil drain plug

Thank You!

Bill Gash
Connecticut Maritime Foundation, Inc.
860-941-0044
ctmaritime@msn.com

Paul Moynihan
M.J. Bradley & Associates LLC
978-405-1276
pmoynihan@mjbradley.com

