Ocean Energy Technology Portal
GOAL:

• Provide a “gateway” to innovative technology that initiates interaction between academic, industry and government organizations regarding offshore challenges and industry innovations in an effort to advance safety in ocean energy operations.

• To empower the oil and gas industry by facilitating research collaboration and providing cross-referenced innovative engineering from alternative industries.
What is the OETP?

The OETP is a dynamic collection of innovative technologies enabling development of safe and sustainable ocean energy through crosscutting-industry collaborations and best practices.

Content to date:
- 100,000+ engineering solutions from diverse industries
- 12,000+ ocean energy research challenges
- 8,000+ affiliate memberships identified
- 300+ reviews by engineers and scientists
- Academia Subject Matter Expert review support
- Contributors include:
  - NASA, BSEE, NETL, European Space Agency
  - OESI, RPSEA, others

NASA Technology “Mining” Example

100,000+ Technologies

300+ Reviewed to Date

Relevance 100+
Ocean Energy Industry: Initial Research

Phase I
• Representation Matrix
• Affiliate Memberships

Phase II
• Join Organizations
• Negotiate release of Research Abstracts

Double Click Icon below to Open Matrix:
OETP Website Beta Demonstration

Website Link: OETP Website Link

Real World Applications:
1. Fire Resistant Coatings
2. Oil Dispersants at Low Temps
3. Leak Detection
OETP Website Beta Demonstration
OETP Website Beta Demonstration

Welcome to the Ocean Energy Technology Portal

Start your search by typing key words or phrases into the search bar below:

Search bar, same look and function as Google or Amazon
OETP Website Beta Demonstration

Information and description of the website, database and the content for first time users.
Example 1. Fire Resistant Coating

Search: “fire resistant coating”
Top result was SME reviewed.
Example 1. Fire Resistant Coating

Technology page for top result includes:

- Abstract
- Benefits
- Application Notes
- Source
- Contact information (email)
- Relevance to Offshore Oil and Gas
- Technology Readiness Level
- Link to Patent
Example 1. Fire Resistant Coating

Patent webpage for the Fire Resistant Coating
Summary Example 1. Fire Resistant Coating

**Title:** Pressure vessel with impact and fire resistant coating and method of making same

**Technology/Research:** Technology

**Offshore Category:** High Temperature, High Pressure

**Offshore Relevance:** 3 (highly relevant)

**Readiness Level:** 6 (some development still required)

**Benefits:** Reduce risk of catastrophic failure of pressure vessels offshore due to external impact and/or fires. The coating is inexpensive, light weight, and is capable of being repaired in the field. Initial prototypes have been manufactured and tested, maintaining 3,000 psi pressure at 1,500 degrees F for 15 minutes (DOT bonfire test). It should be noted traditional cylinders rupture at the 2 to 3 minute mark. Initial designs ruptured under hydrostatic pressure testing at 7,000 psi.

**Patent:** [Patent Link]

**Contact:** msfc-sra-team@mail.nasa.gov
Example 2. Oil Dispersant at Low Temperature

Search: “oil dispersant”

Returns 55 results (too many)
Example 2. Oil Dispersant at Low Temperature

Switching to Advanced Search to refine results

Source: Government Institution
Source Name: BSEE
Example 2. Oil Dispersant at Low Temperature

Advanced search results returns 2 research abstracts.
One has been SME reviewed.
Example 2. Oil Dispersant at Low Temperature

Reviewed research abstract looks promising. Advanced search reduced search time and helped to find the most applicable result.

Contact information is available. Research report is available online. (pdf) SME review brings credibility to research.
Summary Example 2. Oil Dispersant at Low Temp

Title: Combining Mineral Fines with Chemical Dispersants to Disperse Oil in Low Temperature and Low Mixing Energy Environments

Technology/Research: Research

Offshore Category: Spill Response, Chemical Additives, Cold Temperature

Offshore Relevance: 3 (highly relevant)

Readiness Level: 4 (moderate development still required)

Benefits: Oil spill response in cold climates is a concern for Arctic exploration and drilling due to the extreme conditions and remote locations. This research provides a foundation for chemical manufacturing and service companies to build on towards developing the next generation of oil spill response technologies.

Patent: NA; Document Link

Contact: ken.lee@dfo-mpo.gc.ca
Example 3. Leak Detection

Search: “leak detection”

Top 2 result results look promising. 2nd result was SME reviewed.

We investigate “Ultrasonic leak detection system”
Example 3. Leak Detection

Technology is relevant to offshore applications. The benefits look promising. Emailing the contact will be the next step towards advancing this technology and developing a solution for fast, easy and accurate leak detection in the field.
Example 3. Leak Detection

Jumping back, we further investigate the top result:

“Hermetic seal leak detection apparatus”
Example 3. Leak Detection

The technology has not been SME reviewed. The user can scroll down and request the technology be reviewed with the click of one button.

Each month the top technologies requested will be forwarded to a team of SME’s for review. Reviews are populated into the database each month.

Emails are sent out to OETP members to keep users on the cutting edge of technological advancements in the ocean energy sector!

Administrators and SME’s can easily edit documents when logged in under their profile.
Example 3. Leak Detection

If a user needs or wants an immediate response they can contact our team directly.

The OETP team response as quickly as possible to answer questions and connect the user with the technology/research contact.

Promoting industry collaboration! Advancing innovation!
Summary Example 3. Leak Detection

Title: Ultrasonic Leak Detection System

Technology/Research: Technology

Offshore Category: Facilities, Risk Management, Sensors, Health Safety & Environment, Inspection

Offshore Relevance: 2 (moderately relevant)

Readiness Level: 3 (moderate development still required)

Benefits: Functionality allows for nondestructive inspection of pipelines and pressure vessels for leaks. Inspectors can quickly and accurately inspect a facility for hazardous leaks. Ease of use allows for expedited training of inspectors and flexibility of design improves accuracy for a wide range of scenarios.

Patent: Patent Link

Contact: KSC-DL-TechnologyTransfer@mail.nasa.gov
OETP: Value

• Ability for early analysis of innovative activity
• Subject Matter Expert (SME) reviews “Distilling data into knowledge.”
• Research and development
• Details of current industry research funding opportunities
• Pathway to diverse technology sources
• Increase collaboration and efficiency of technology implementation
Next Steps

• Incorporate additional key databases
  • National Laboratories
  • DOT, DOE
  • JIP
  • Industry: API, SPE, COS, etc.

• Expand subject matter expert (SME) review team:
  • Enables user to be at forefront of new innovation activity

• Additional OETP awareness:
  • Invitations to key government, academic and industry advisory committees

• Additional budget requirements and integration with OESI mission
Future Enhancements

• Develop intelligent/auto program to match technologies with research topics
• Publish analytics on database searches to identify industry research focus
• Comments section for users to augment SME reviews
• Incorporate international industry and regulatory community
• Collaborative industry success announcements
• STEM educational resource outreach invitation