### **Tech Transfer**

M. Garces, ETI Lab Liaison

Infrasound Laboratory, University of Hawaii, Manoa

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# >> Technology Transfer

- Are you collaborating with the National Laboratories?
- Can the National Laboratories help you mature the technology?
- Last we checked, the answer was TRUE for ETI members
- If FALSE, please let us know





## >> Technology Readiness Level Scale

### Table 1 TRL Definitions Used by the DOD and DOE $\,$

TRL	Definition used by the DOD	Definition use by the DOE
1	Basic principles observed and reported	Basic principles observed and reported
2	Technology concept and/or application formulated	Technology concept and/or application formulated
3	Analytical and experimental critical function and/or characteristic proof of concept	Analytical and experimental critical function and/or characteristic proof of concept
4	Component and/or breadboard validation in a laboratory environment	Component and/or system validation in laboratory environment
5	Component and/or breadboard validation in a relevant environment	Laboratory/bench scale, similar system validation in relevant environment
6	System/subsystem model or prototype demonstration in a relevant environment	Engineering scale, similar (prototypical) system validation in a relevant environment
7	System prototype demonstration in an operational environment	Full - scale, similar (prototypical) system demonstrated in a relevant environment
8	Actual system completed and qualified through test and demonstration	Actual system completed and qualified through test and demonstration
9	Actual system proven through successful mission operations	Actual system operated over the full range of expected conditions

#### Source: [DOD, 2009] [DOE, 2013]

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DoD (still in vernacular): 6.1 – 6.9

TRL 1 2 3 4 5 6 7 8 9					
Phase	Research & development	Demo. Demo Commer- Small Large cialization			
Output	Paper Pieces Prototype	Product			
Scale	Concept Lab Bench Engineering Scale Scale Scale Scale	Full Scale			

From: Andante Hadi Pandyaswargo, Issui Ihara, Hiroshi Onoda. J-TRA: Development and the Effectiveness of the J-TRA: A Methodology to Assess Energy Technology R&D Programs in Japan, Conference: Ecodesign Product and Service Symposium 2018



### >> Technology Transfer: Alternate Path

- ✓ Does your tech work?
- ✓ Is your tech easily available through validated channels?
- ✓ Does it use approved commercial off the shelf (COTS) hardware and software?
- ✓ Have you earned the trust of the end user?

If so, the USG could use your tech to meet their immediate mission needs (TRLs be darned).



