Amendment 0003
Solicitation Number: ONRBAA11-028
"Large Displacement Unmanned Underwater Vehicle Innovative Naval Prototype (LDUUV INP) Energy Section Technology"
Date: (4 AUG 2011)

The purpose of Amendment 0003 is to respond to questions submitted prior to 26 AUG 2011. Questions received after that date and before the deadline for submissions of questions will be addressed in a subsequent amendment.

The following questions have been received pertaining to BAA 11-028.

BAA 11-028 is hereby amended as follows:

1. Question:

Is the power section the only source of power at 300V on the vehicle, and hence will be responsible for regulating this voltage?

Answer:

Refer to Tables 2 and 4 of ONR BAA 11-028 for information pertaining to the power section.

2. Question:

Will there be any back EMF to the power section electronics from the propulsion system during vehicle shut down?

Answer:

The question of back EMF is beyond the scope of ONR BAA 11-028.

3. Question:

Figure 1 - The figure shows 18"x18" access ports. Note 4 states ports may be anywhere and that the ones shown in the figure are examples. Please confirm that proposers have full control of number and size of access ports required to support the energy system requirements.

Answer:

Yes, proposers have control of the number and size of access ports. Please refer to the information contained in Figure 1 and the notes associated with Figure 1of ONRBAA 11-028.

4. Question:

Figure 2 - The mission profile has a period of time when the power profile goes to zero. Does this mean there is no load required of the power system? Can the power system continue to generate power for recharging batteries and/or maintaining energy system temperature during this time?

Answer:

Correct, no load is required from the power system. The power system CAN NOT continue to generate power during this time**.**

5. Question:

Table 2- Please clarify the start/stop Cycle metric definition. Does a start/stop cycle mean before and after a mission?

Answer:

The start/stop cycle definition is contained in Table 2 of ONR BAA 11-028.

6. Question:

Table 2 - What is definition of hibernation? Is it the period of time at which there is no power draw on the system during the mission?

Answer:

The definition of hibernation is a period of time at which there is no power draw on the system during the mission.

7. Question:

Table 2 - Under Safety Considerations, it states to see Section 6.2 page 12. What is on page 12 that is relevant to Safety?

Answer:

Please see Amendment 2, enclosure 1 to ONRBAA 11-028. The relevant information is contained on page 9.

8. Question:

Table 3 - Is the on-board 8 kW battery that is external to the energy section rechargeable? If yes, can it be recharged from the energy system during the mission? If so, what is the peak and sustained charge power capability of the battery?

Answer:

The question of whether the 8kW batter is rechargeable is beyond the scope of ONR BAA 11-028.

9. Question:

What is the minimum voltage of the battery? What is the maximum voltage?

Answer:

Maximum/minimum battery voltage is contained in Tables 2 and 4 of ONRBAA 11-028**.**

10. Question:

Is the 8kW Battery used for any other power requirements in the system?

Answer:
Other power requirements for the 8kW battery are beyond the scope of ONRBAA 11-028.

11. Question:

Is there a power conditioning unit (i.e. DC/DC converter) for the battery buss? Is the battery connected through a charger and battery management controller? Is there a specific communication protocol with such a controller?

Answer:

The question of a power conditioning unit is beyond the scope of ONR BAA 11-028.

12. Question:

Do proposers have to tie into the conduit runs that are integrated into the corners of the hull section for interfacing electrically with other sections of the UUV?

Answer:

The conduits are for adjoining sections to pass cables; the energy section cabling interface documentation (ICD) to adjoining sections will be provided to the performers continuing on to the Phase I option of the effort.

13. Question:

What is the minimum transition time for transitioning power from low power (0 - 575 watts) to 12,100 watts? Is this time typical for all power transitions, up and down?

Answer:

The minimum transitioning time is contained in Figures 2 and 3 and Appendix A of ONRBAA 11-028.

14. Question:

Do we need to include filtering of seawater in our system or is this seawater filtered in another section?

Answer:

Any required seawater filtering must be provided for by each proposal.

15. Question:

Is there a lower voltage bus (e.g. 12 VDC or 24 VDC) available on the vehicle? In other words, is there a step down power conversion from the 300 VDC in another section of the UUV that could be accessed for power at that voltage?

Answer:

There is no lower voltage bus available to the energy section.

16. Question:

Does the energy section need to be sealed off from the other sections? If so, will the adjacent sections be pressurize by the ocean water so that the pressure differential across the seal would be minimal?

Answer:

The question of the pressurization of other sections is beyond the scope of ONRBAA 11-028.

17. Question:

In section 6.2 under the Objective sub-section it states "Conduct subscale (at least 5 kW peak power) component and/or full-scale critical component and integration testing.". Can the proposed fuel cell stack provide 5 kW peak power for Phase I Base or does it need to be full-scale (12 kW peak power)?

Answer:

The question of peak power during the Phase I Base period is answered by the information contained in Section 6.2, Phase I Base Objectives.

18. Question:

What is the vehicle velocity profile associated with the mission profile? Specifically, what are the vehicle velocities at 575 watts and 12,100 watts?

Answer:

ONR will not be providing a velocity profile since it is beyond the scope of the BAA.

19. Question:

What is the chemistry of the 8 kW battery (e.g. Li-ion)?

Answer:

ONR will not be providing the 8kW battery chemistry since it is beyond the scope of the BAA.

20. Question:

The phase-I Threshold specific-energy seems to be 817 kWh/3540 kg or 230.8 Wh/kg; while the Objective specific-energy is 1800 kWh/3540 kg or 508.5 Wh/kg.

Please confirm if these values can be just for the test cells or must include the outer casing and terminals, as well.

Answer:

Per Section 6, paragraph 1, page 2, and Table 1 of ONRBAA11-028 (specifically note 2), the Threshold and Objective specific energy values are at the complete energy system level.

21. Question:

Per the BAA the Cost Proposal Spreadsheet needs to be completed by:
Phase I Base (by Government Fiscal Year), Phase I Option (by Government Fiscal Year).
In addition to the above, does the Cost Proposal Spreadsheet need to be completed by Task/Subtasks by government fiscal year? If budgets are required by Task is it by Major Tasks only or all Tasks and Subtasks by Government Fiscal Year?

Answer:

In completing the required Cost Proposal Spreadsheet, offerors are to follow the instructions embedded within the required spreadsheet. As shown in the spreadsheet costs are to be proposed based on calendar year. Options are to be priced separately. There is no requirement to provide costs by tasks/subtasks.

22. Question:

When can the 8kw battery be used? Can it be used prior to the start of the mission? Can the 8kW battery power be used during the 143W for first 0.5hr at the start of the Threshold profile? Can it be used during the 2700 watt mission period?

Answer:

Per Table 4, page 7: "8 kWh for 1 hour available for energy section start-up. Max Power is 8KW. Energy Section may request power from battery through the control interface"

23. Question:

Are we responsible for providing ports to flood all channels of the power section or will the adjacent sections also be flooded?

Answer:

The condition of adjacent sections of the UUV is beyond the scope of this BAA.