

Powering The Army White Paper Forum (Teleconference)  
Board on Army Research and Development (BOARD)

National Academies Study  
Powering the U.S. Army of the Future

White Paper Forum Agenda  
May 18-20, 2020

Join from PC, Mac, Linux, iOS or Android: <https://nasem.zoom.us/j/94359775180>  
Or Telephone:  
US: +1 470 250 9358 or +1 646 518 9805  
Meeting ID: 943 5977 5180  
Password: 304257

## May 18, 2020 – Day One

### Closed Session

1030 ET (0730 PT) – 1130 ET (0930 PT) Closed Session  
- Committee and Staff Only

### Open Sessions

1230 (0930) – 1300 (1000) Welcome and Introductions  
*William Millonig, BOARD Director and Steven Darbes, Study Director*  
*Dr. John Parmentola Co-Chair and Dr. John Luginsland Co-Chair*

1300 (1000) – 1400 (1100) Session 1 (30 minute presentation, 30 Minute Q&A)  
***All Graphene Nano Ribbon on Diamond Substrate Energy Efficient Power Electronics Switch***  
Author: Cemal Basaran  
Session Moderator: John Parmentola, Co-Chair

1400 (1100) – 1415 (1115) Break (15 minutes)

1415 (1115) – 1515 (1215) Session 2 (30 minute presentation, 30 Minute Q&A)  
***Converting Wastewater to Distributed Power and Energy: Addressing Two Critical Utility Needs of the Future Army with One Advanced Technology***  
Authors: Aaron Petri, Dawn Morrison, Nicholas Josefik, Nathan Peterson, and Kathryn Guy  
Session Moderator: Paul Roege

1515 (1215) – 1530 (1230) Break (15 minutes)

1530 (1230) – 1630 (1330) Session 3 (30 minute presentation, 30 Minute Q&A)  
***High Performance Hybrid Solar Photovoltaic Thermoelectric Panel***  
Authors: Hongbin Ma and Pengtao Wang  
Session Moderator: Michael MacLachlan

1630 (1330) – 1700 (1400) Day One Wrap Up

1700 (1400) – Day One Adjourn

## May 19, 2020 – Day Two

### Open Sessions

1030 ET (0730 PT) – 1100 (0800 PT) Welcome and Introductions

*William Millonig, BOARD Director and Steven Darbes, Study Director  
Dr. John Parmentola Co-Chair and Dr. John Luginsland Co-Chair*

1100 (0800) – 1200 (0900) Session 1 (30 minute presentation, 30 Minute Q&A)

#### ***Multi-fuel Capable Hybrid-Electric Propulsion***

Author: Chol-Bum “Mike” Kweon

Session Moderator: John Koszewnik

1200 (0900) – 1215 (0915) Break (15 minutes)

1215 (0915) – 1315 (1015) Session 2 (30 minute presentation, 30 Minute Q&A)

#### ***Hybrid Power Source for the Military Aircraft Fleet of the 2035 Environment***

Author: Manuel Mar

Session Moderator: John Kassakian

1315 (1015) – 1345 (1045) Lunch Break (30 minutes)

1345 (1045) – 1445 (1145) Session 3 (30 minute presentation, 30 Minute Q&A)

#### ***Fuel Flexible Engine-Generators with High Power & Energy Densities for Future Unmanned Aircraft Systems and Soldiers***

Authors: Christopher Depcik, Sindhu Preetham Burugupally, Suman Saripalli, Alison Park,  
and Kyu Cho

Session Moderator: John Koszewnik

1445 (1145) – 1545 (1245) Session 4 (30 minute presentation, 30 Minute Q&A)

#### ***Solid Oxide Fuel Cell (SOFC) Technology For Powering the U.S. Army of the Future***

Author: Nguyen Minh

Session Moderator: Subhash Singhal

1545 (1245) – 1600 (1300) Break (15 Minutes)

1600 (1300) – 1700 (1400) Session 5 (30 minute presentation, 30 Minute Q&A)

#### ***Powering the U.S. Army of the Future***

Authors: Tina Stoia, Shailesh Atreya, Chellappa Balan

Session Moderator: John Szymanski

1700 (1400) – 1730 (1430) Day Two Wrap Up Discussion

1730 (1430) Day Two Adjourn

## May 20, 2020 – Day Three

### Open Sessions

1030 ET (0730 PT) – 1100 (0800 PT) Welcome and Introductions

*William Millonig, BOARD Director and Steven Darbes, Study Director  
Dr. John Parmentola Co-Chair and Dr. John Luginsland Co-Chair*

1100 (0800) – 1200 (0900) Session 1 (30 minute presentation, 30 Minute Q&A)

#### ***Safe, High Energy and High Power Li-ion Batteries for Army Multi-domain Operations***

*Authors: Jiang Fan, Lasantha Korala, Chris Kompella, and Dengguo Wu*

*Session Moderator: Debra Rolison*

1200 (0900) – 1215 (0915) Break (15 minutes)

1215 (0915) – 1315 (1015) Session 2 (30 minute presentation, 30 Minute Q&A)

#### ***Cubic Boron Carbonitride for Advanced Electronic Applications to Modernizing Communications Technology***

*Authors: Eunja Kim, Sergey Tkachev*

*Session Moderator: John Luginsland*

1315 (1015) – 1345 (1045) Lunch Break (30 minutes)

1345 (1045) – 1445 (1145) Session 3 (30 minute presentation, 30 Minute Q&A)

#### ***Silent lightweight battlefield power source: Scalable from Soldier wearable power to platform power***

*Authors: Ivan Celanovic, Walker Chan, and John Joannopoulos*

*Session Moderator: John Kassakian*

1445 (1145) – 1545 (1245) Session 4 (30 minute presentation, 30 Minute Q&A)

#### ***A Research and Development Program to Meet the US Army's Emerging Power and Energy Needs***

*Author: Robert Hebner*

*Session Moderator: Michael MacLachlan*

1545 (1245) – 1600 (1300) Break (15 minutes)

1600 (1300) – 1700 (1400) Session 5 (30 minute presentation, 30 Minute Q&A)

#### ***Towards Multi-Modal Army Base Energy Management Systems: The Arctic Resilient Intelligent Integrated Energy System (ARIIES) Case***

*Author: Amro Farid*

*Session Moderator: Paul Roege*

1700 (1400) – 1730 (1430) Day Two Wrap Up Discussion

1730 (1430) Day Two Adjourn

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**May 21, 2020 – Day Four**

Closed Session

1200 ET (0900 PT) – 1600 ET (1300 PT) Closed Session

- Committee and Staff Only