U.S. DEPARTMENT OF ENERGY

Office of ENERGY EFFICIENCY & RENEWABLE ENERGY

ADVANCED MATERIALS & MANUFACTURING TECHNOLOGIES OFFICE

EES2 ENERGY EFFICIENCY SCALING

1st Virtual Presentation

Day 2 Closing EES2 Workshop #8

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EES2 Workshop Co-Chair

July 20 2023

https://microelectronics.slac.stanford.edu/amo-microelectronics

More Lessons Learned

True Definition of Energy Efficiency Scaling

- The Parable of “Stone Soup” applied to ~50% of energy efficiency scaling

- A fair amount of Expert labor is needed

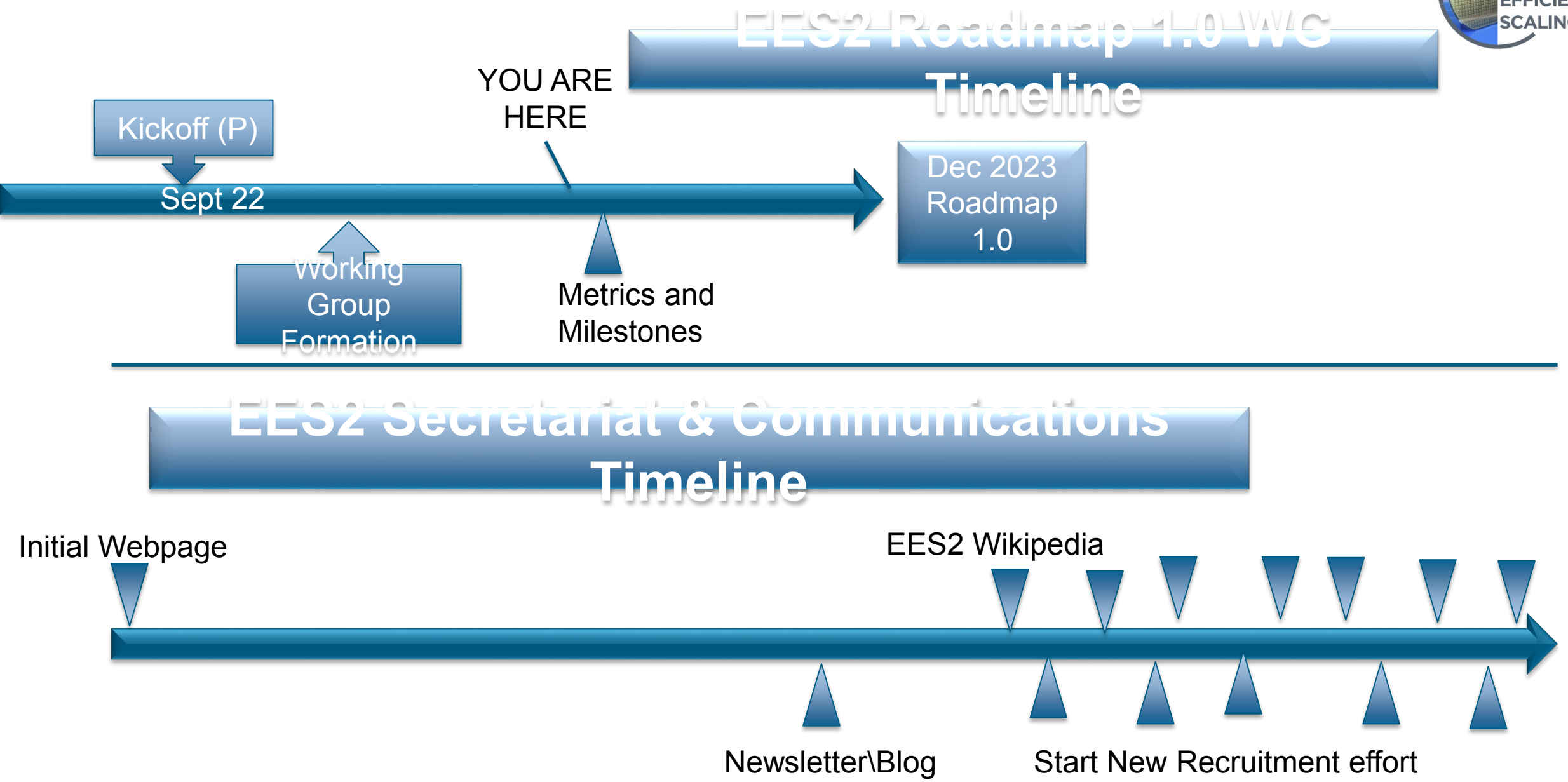
To do from Yesterday

E. EES2 Secretariat Activities (Recruitment (we need YOU to help!), Redesigned webpage, Newsletter, Wikipedia, Book Club)

EES2 Secretariat Homework (August & Beyond)

1. Overall Management including Non-Roadmap Milestones
2. Keep Recruiting (thank you Farah!) and identifying targets
3. Launch Wikipedia Page and Newsletter/BLog (C)
4. List (expected) Federal Microelectronics Funding Opportunities DOE, DOD, NIST, and NSF CHIPS
5. Write articles and response letters—update White Paper (C)
   - First Broad EES2 (IST), Technical letter on Analysis (Sadas) drafted and submitted! SLAC newsletter URL provided
   - leading to EES2 Goal for Working Group members to sign (A)
6. More, Better Data on Microelectronics Energy Use (EIA, DOC) and pledgers energy use
   - Meetings and input to EIA Energy Use Surveys
   - Create energy data feedback form for Pledgers (A)
7. Develop ideas for projects with Performance Benchmarking Organization on Efficiency (WG)
8. Microstructure Infrastructure and other Prizes that target key segments such as students and retirees
9. Develop Fall Event for Pledge Partner Senior Officials? (C?)
10. Set up Speaker Series for Post WG Workshop Plenaries (C?)
11. Write non-WG part of Roadmap (C,P)
    - Create separate teams comprising xsection of WG members and other)
    - List (and Justify) what we're NOT including in version 1.0 of roadmap—e.g. Communication/ WIreless
12. Come up with new excuse to update Social Media kits include tweets, LinkedIn, FB etc (C)
13. Develop Prize and Fellowship Proposals
14. Update BookClub

Put EES2 To Do List on a Timeline



New Webpage Sections—

- **WG Highlight in Each Monthly Meeting**
  - Monthly Highlight Presentation (Teams)
  - Monthly Summary/Discussion
- Aug 16-17 EES2 Final WG Meeting

NEW

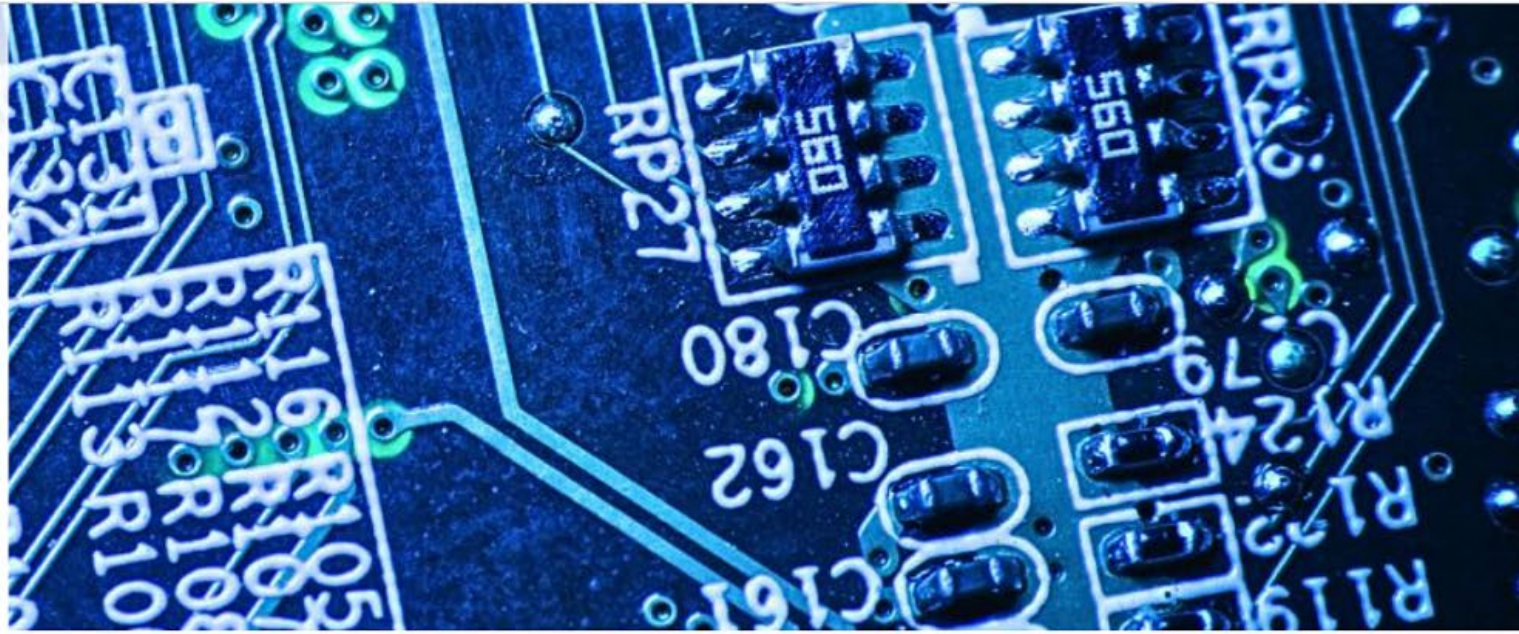
https://live-slac-microelectronics-d9.pantheonsite.io/sustainable-computing

SUSTAINABLE COMPUTING | RESEARCH AREAS | EVENTS | RESOURCES | ABOUT | PROGRAMS

RESOURCES & PUBLICATIONS

U.S. Department of Energy's Effort on Energy Efficient Scaling of Computing (EES2)

Learn more about sustainable computing research and development efforts at SLAC and beyond.



EES2 Working Group Homework for August

Working Group	Materials & Devices	Circuits & Architectures	Het Intg Adv Pkg	Metrology & Benchmark	Power & Control	Software Algorithms	Mfg Energy Efficiency
Co-chair Point for April 2023	Shashank John?	Azeez Emre?	Josh Fryman?	Jim Booth	Phil Sharps	Brian Hirano	Steve Putna?
Working Group Highlight Month	~~March~~ Thank you John	~~April~~ Thank you Azeez And Emre	~~May~~ Thank you Na Li and Moinuddin	August I	~~July~~ Thank you Paul!!	~~July~~ Thank you Brian	~~June~~ Thank you Prashant!

....potential crosscutting teams??

We can DO This!

- In the short- and medium-term
  - Both S&WGs Must detail linkage between meeting EES2 goals and other government mission technical goals to get resources for Roadmap

- For the long term –getting from 100X to 1000x
  - Microelectronics Infrastructure Reinvention needed for nature-inspired
  - Also quantum, carbon-based and photonic

Thank you!

Q&A and Discussion