

ARPA-E MEITNER Project Management Overview, Expectations, and Lessons Learned*

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ARPA-E Technical SETA

*(ie. How to be a good performer)

MEITNER projects deserve our significant attention

- ▶ We're passionate about the mission of ARPA-E and the MEITNER program specifically.
- ▶ We expect to demonstrate this to you over the course of the program by treating your projects as **high priority** (Hope you've seen this from us already!)
- ▶ It's a two-way street.
We expect the same from you



ARPA-E Active Program Management

MEITNER awards are Cooperative Agreements

1. We're partners
2. High-risk, R&D projects → Our well-laid plans will probably be wrong! So,
 - Projects are tracked
 - Projects have flexibility and can pivot
 - Projects can be terminated (including mutual terminations!)



To be good, it helps to not be bad!

RED flags for ARPA-E

- Lack of a sense of urgency
- Disregard for the milestones or reinterpretation of milestones without discussing with ARPA-E
- Omission of key data/results, avoiding detailed technical conversations on milestone challenges
- Team not appearing well integrated (eg. site visits seeming more like team status meetings)

How to make all of our lives easier

- ▶ Quarterly report template (upcoming walkthrough)
- ▶ Put all updates in context of system, TEA, and/or T2M. Given updated knowledge, how do we know the project still matters?
- ▶ Demonstrate to us that the breadth of expertise on your teams is being fully leveraged.
- ▶ Invoice regularly
- ▶ Ask for help
- ▶ Candor
- ▶ Dedicated Project Managers hugely beneficial.



Reporting requirements are found in Attachment 4 of your award agreement

**ATTACHMENT 4:
ARPA-E REPORTING CHECKLIST AND INSTRUCTIONS**

1. Identification Number: DE-AR0000XXX	2. Program/Project Title: The Best Energy Technology Ever!		
3. Recipient: Awesome Energy, Inc.			
4. Reporting Requirements (see attached "ARPA-E Reporting Instructions"):	Frequency	No. of Copies	Addressees
I. PROJECT MANAGEMENT REPORTING (DURING AWARD)			
<input checked="" type="checkbox"/> A. Research Performance Progress Reports	QR	1	https://arpa-e-epic.energy.gov
<input checked="" type="checkbox"/> B. Financial Reports	QR	1	https://arpa-e-epic.energy.gov
<input checked="" type="checkbox"/> C. Scientific/Technical Conference Papers/Proceedings	Y	1	http://www.osti.gov/eink-2413
<input checked="" type="checkbox"/> D. Intellectual Property Reporting	Y	1	See block 5 for instructions
<input checked="" type="checkbox"/> E. Intellectual Property & Data Management Plan	X	1	https://arpa-e-epic.energy.gov
<input checked="" type="checkbox"/> F. Subject Invention Utilization Reporting	A	1	https://arpa-e-epic.energy.gov
<input checked="" type="checkbox"/> G. Lobbying Activities Reporting	Y	1	https://arpa-e-epic.energy.gov
<input checked="" type="checkbox"/> H. Special Status Reports	Y	1	https://arpa-e-epic.energy.gov
<input checked="" type="checkbox"/> I. Annual Indirect Cost Proposals	FY	1	See block 5 for instructions
<input checked="" type="checkbox"/> J. Annual Audit of For-Profit Recipients	RFY	1	See block 5 for instructions
<input checked="" type="checkbox"/> K. Annual Property Inventories	A	1	https://arpa-e-epic.energy.gov
<input checked="" type="checkbox"/> L. Subaward/Subcontract Reports	Y	1	See block 5 for instructions
<input checked="" type="checkbox"/> M. Human Subjects Research Reporting	A	1	See block 5 for instructions
<input checked="" type="checkbox"/> N. Animal Subjects Research Reporting	A	1	See block 5 for instructions
II. CLOSEOUT REPORTING (UPON CLOSEOUT OF AWARD)			
<input checked="" type="checkbox"/> A. Final Scientific/Technical Report	F	1	http://www.osti.gov/eink-2413
<input checked="" type="checkbox"/> B. Final Invention and Patent Report	F	1	See block 5 for instructions
<input checked="" type="checkbox"/> C. Final Property Report	F	1	https://arpa-e-epic.energy.gov
<input checked="" type="checkbox"/> D. Software Deliverable Submission	F	1	http://www.osti.gov/estsc/241-4pre.jsp
III. POST-AWARD REPORTING (FOLLOWING CLOSEOUT OF AWARD)			
<input checked="" type="checkbox"/> A. Subject Invention Utilization Reporting (see Section I.F above)	A	1	https://arpa-e-epic.energy.gov
FREQUENCY CODES AND DUE DATES:			
A – Annually; within 90 calendar days after the end of the annual reporting period.			
F – Final; within 90 calendar days after closeout of the award.			
FY – Annually; within 180 calendar days after the close of the fiscal year.			
QR – Quarterly; within 30 calendar days after end of the quarterly reporting period.			
RFY – Recipient's Fiscal Year; within the earlier of 30 days after receipt of the auditor's report or 9 months after end of the audit period.			
X – Within six (6) weeks of the effective date of ARPA-E Award.			
Y – Within five (5) calendar days after the event or as specified.			

Reporting Requirements Breakdown

▶ At Project Outset

- Intellectual Property & Data Management Plan (via ePIC)

▶ Quarterly

- Technical/T2M Progress (via ePIC)
- Financial Update (via ePIC)

▶ Annually

- Subject Invention Disclosure report (via iEdison)
- Human and Animal Subject Research reports (email)
- Property Inventories (via ePIC, part of QR)
- Indirect Cost Proposals (via ePIC, part of QR)
- Annual Audits of For-Profit Recipients (via ePIC, part of QR)

Reporting Requirements Breakdown

- ▶ **Within 5 days after an “event”**
 - Scientific/Technical Conference Papers/Proceedings (via ePIC, part of QR)
 - Intellectual Property Reporting (via iEdison)
 - Subaward/Subcontract Reports (via ePIC, part of QR)
 - Lobbying Activities Reporting (via ePIC part of QR)
 - Special Status Reports (via ePIC, part of QR)
 - e.g. Patent/copyright infringement, flowdown refusal, bankruptcy, US export control...

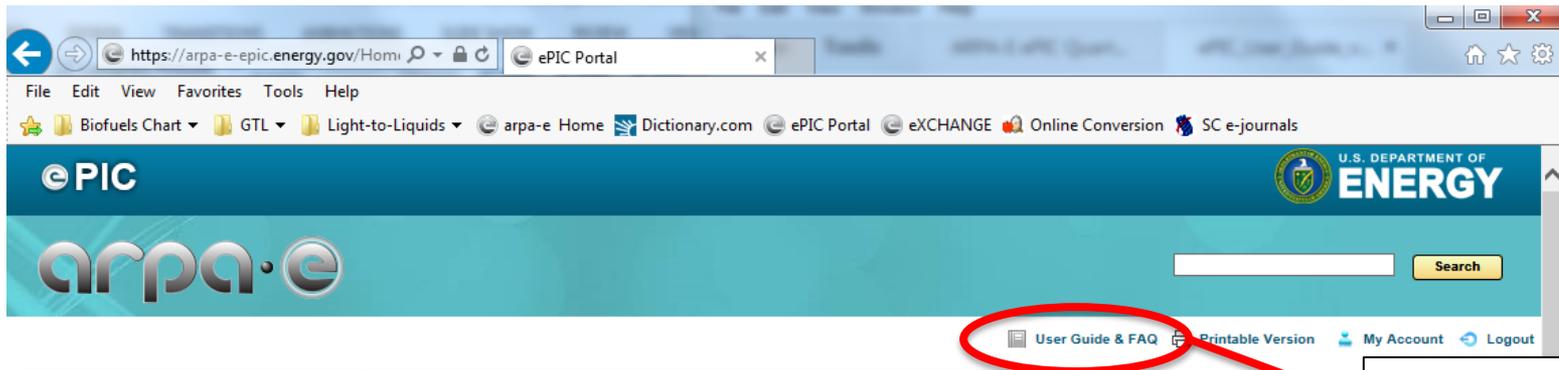
Reporting Requirements Breakdown

- ▶ **Following Close-out (due 90 days after close-ou)**
 - Final Technical Report (via OSTI + ePIC)
 - Final Invention and Patent Report (via OSTI + ePIC)
 - Final Property Report (via ePIC)
 - Software Deliverable Submission (via OSTI + ePIC)

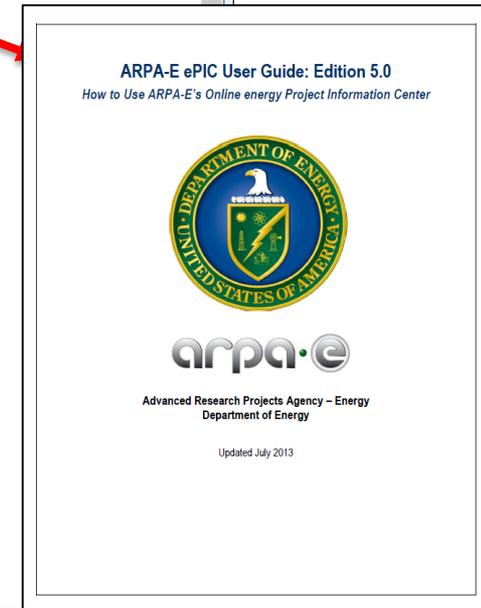
(Don't worry, we'll remind you about these when they're more relevant)

Quarterly reports and ePIC Project Management System

▶ arpa-e-epic.energy.gov



- ▶ Submit QRs 30 days after the close of the quarter, per ARPA-E wide schedule
 - Quarterly technical reports (milestone + overall)
 - Quarterly financial report (SF-425)
- ▶ Review ARPA-E technical/T2M status feedback
- ▶ Submit most annual reports + closeout reports
- ▶ View ARPA-E tracking of expenditures, invoice status



Expectations for all technical/T2M reports

- ▶ Always orient reporting around the milestones in your Attachment 3
- ▶ Please be succinct, use charts/figures, provide key data
- ▶ The report is a document of record. It should be written such that an unbiased reader, with no knowledge of the project, could make a clear objective decision on whether or not the milestone was achieved.
- ▶ Data is protected from FOIA for 5 yrs after project end date and can be redacted after that, but it is still best not to disclose proprietary info, or clearly mark it.
- ▶ Highly-sensitive confidential information should be saved for meetings/Webex

PROTECTED RIGHTS NOTICE

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Quarterly technical / T2M reports “walkthrough”

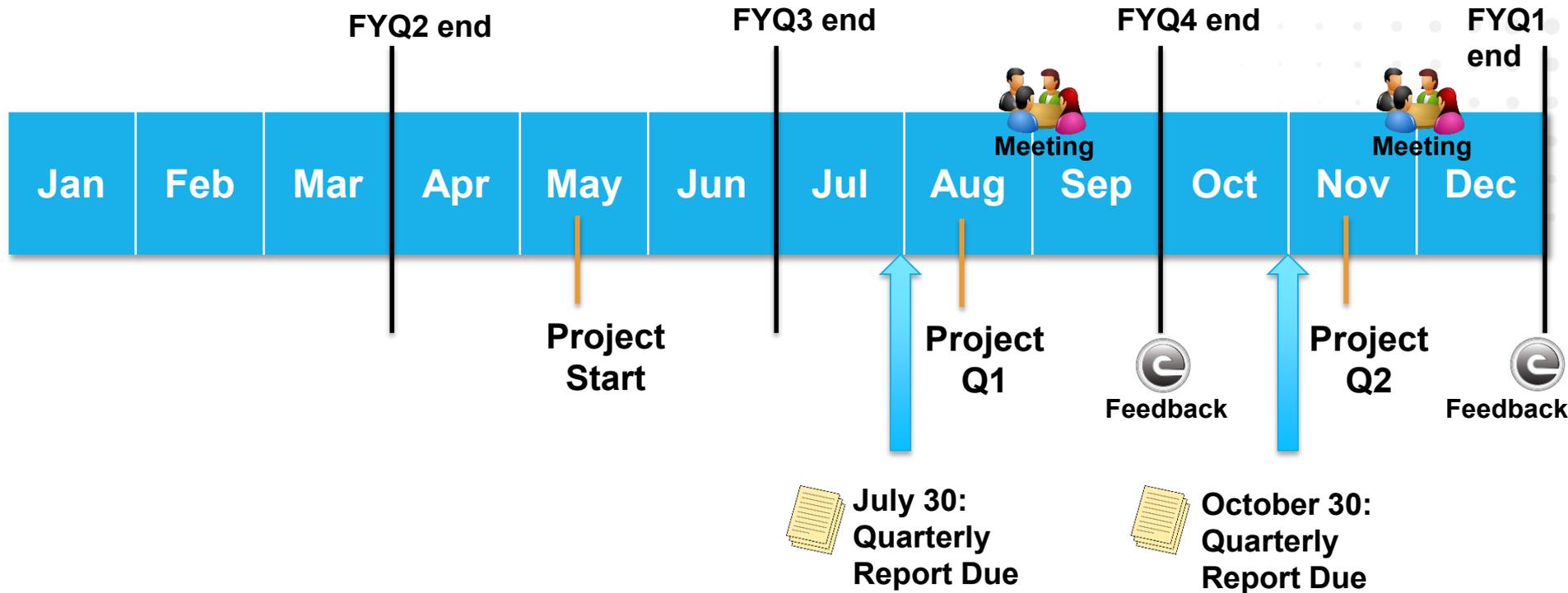
Five Sections, target 13 pages length (more pages is acceptable if needed)

1. Executive summary: (1 page) General state of the project and highlight points of success and/or concern, including those that don't fit neatly within the milestones due.
2. Status of milestones due in the current quarter and status of any overdue milestones: (1 page (2 pages if needed)) briefly report on milestones scheduled to be completed during the quarter/reporting period, including any that are past due.*
3. Supporting data & additional information: (8 pages max.)
4. Activities on future milestones – achievements and newly identified risks: (1 page)
5. Budget Summary: (1 page) Identify if the project was on budget, overspent, or under spent for the period, why, and how this will affect your future management of the project and expenses

Quarterly technical / T2M reports “walkthrough”

WBS	Due Date	Status	Summary
M1.1	2/28/18	Complete	<p>Milestone (from SOPO): At least one reactor design predicted, via high fidelity simulations, to achieve \$1/W and to be capable of load following at $\pm 20\%$ power capacity / min.</p> <p>Milestone (actual achievement): At least one reactor design predicted, via high fidelity simulations, to achieve \$1/W and to be capable of load following at $\pm 25\%$ power capacity / min. (As of most recent modsim results on 1/15/18; see Section III.A, Fig 1 and Fig 2).</p>
M3.1	3/31/18	Incomplete	<p>Milestone (from SOPO): Energy storage unit achieves 100 Wh/kg energy density.</p> <p>Milestone (actual achievement): Energy storage unit achieved 70 Wh/kg energy density, 30% less than the target. (As of most recent experimental results on 2/27/18; See Section III.B, Fig 6)</p>

Project/FY Schedule and Reporting Offset



Quarterly review meetings

Preferred format (3.5 – 4 hr total):

- ▶ 15 min - High level overview (e.g., a Gantt chart with critical milestones noted).
- ▶ 90 min – Discuss individual milestones detailing your work and results.
- ▶ 60 min - Discuss the TEA and T2M and show how/where new results have been integrated. Talk about any implications on system design.
- ▶ 15 min - Discuss next steps, (if necessary) any voluntary corrective actions, and look-ahead to future milestones
- ▶ 30 min - Big picture discussion of ongoing/upcoming challenges, risks, potential pivots, overall project management, budget, etc. Explain what help you need from us.

Add'l notes:

- ▶ Allow plenty of time for questions
- ▶ Please provide briefing slides at least 24 h in advance
- ▶ A “roster” (1-pager with headshots, names, and roles for each team member) is often very helpful for us – especially for big teams.
- ▶ Provide the street address of the meeting location
- ▶ Help us think about parking and arrange passes for us if/when required.

ARPA-E Feedback is Provided Quarterly

- ▶ Provides you with our view of the status of the milestones
 - Output from quarterly report + quarterly review meeting
- ▶ Provides follow-up items and constructive feedback to aid in meeting short/long term goals
- ▶ Accessible in ePIC as “Feedback to Performer” on Technical tab (also sent via email)



ARPA-E MEMORANDUM FOR THE RECORD

TO: John Smith, (john.smith@awesomeenergy.com)

FROM: Dr. Jennifer Getbi, Program Director

DATE: April 5, 2018

SUBJECT: FY2018 Q1 Memo to Awesome Energy, Inc (through end of Project Q2)

OVERALL TECHNICAL STATUS: GREEN (Green/Yellow/Red Scale)

OVERALL COST STATUS: YELLOW

Dear John:

Thank you for participating in our quarterly review meeting on March 1, 2018. This memo is intended to provide you with my feedback on your team's Q1 progress as reported in your quarterly report for the period 10/1/2017 to 12/31/2017 (submitted on 1/30/2018), as well as the additional material you presented during our call. Thank you for efficiently reviewing what appeared to be a productive quarter. Your team seems to be making good progress on your awesome energy converter that will solve all our energy problems...*(continues)*

Below, you will find my assessment of your progress towards meeting your Q2 milestones and follow-up items for the team to bring to a close before our next review.

MI.1.1: ARPA-E acceptance of a refined production cost-performance model based on improved understanding to date.

ARPA-E acceptance of a refined production cost-performance model based on improved understanding of manufacturing process and cost-performance tradeoffs. Cost down plan intended to show pathway to get to an installed cost of < \$1.0/W at the multi-GW scale.

Due Date: 2/20/2018

Feedback to Performer:

Milestone complete: The team provided an update on their cost-performance model demonstrating that we can generate zero-cost energy! The planet is saved...*(continues)*

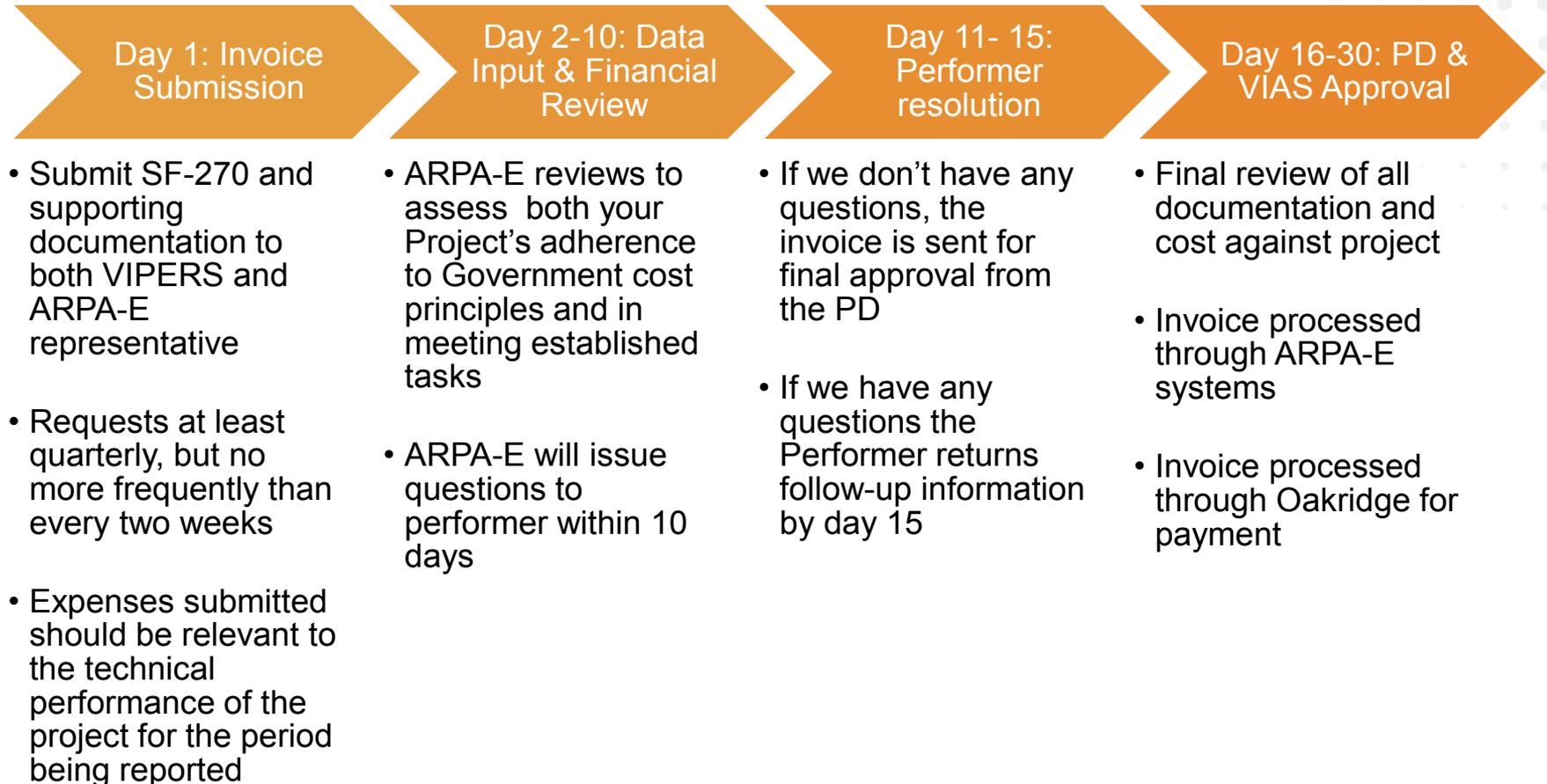
Based upon this progress, I consider this milestone status: GREEN

Project Color Status Interpretations

Rating	CONTEXT	
	<u>Overall Project</u>	<u>Individual Milestone</u>
Green	Project on-track	Milestone complete, all requirements satisfied
Yellow	Behind schedule, problems may have been encountered, but project appears to be recoverable	Milestone is incomplete, but still likely to be met at some time: performance may not quite meet the required target, it may be slightly behind-schedule, or there are outstanding questions about whether the milestone has been achieved.
Red	Overall project is unlikely to meet final targets or is significantly behind schedule, recovery is difficult or unlikely	Milestone not achieved, actual performance significantly worse than required performance, incomplete and significantly behind schedule

Qualitative assessment based on performance data

Invoice 30 day timeline



ARPA-E will work to meet this notional timeline, we ask performer teams to partner with us to achieve it.

Re-emphasis



We want to see that you are **dedicated** to making your technology a reality.
We are (enthusiastically) your **partners**.

Look for...

- ▶ **ePIC sign-up request**
 - From Heather Schmidt and/or EpicHelp@hq.doe.gov

- ▶ **Summary guidance on quarterly reporting**
 - From Caitlin Zoetis

Your support team

Rachel Slaybaugh – MEITNER Program Director

Rachel.Slaybaugh@hq.doe.gov)



- ▶ **Colleen Nehl** (Colleen.Nehl@hq.doe.gov), Physics
 - MEITNER Lead Technical (tech) SETA
 - Program-level technical management
 - Track technical status, advise, prepare quarterly feedback
- ▶ **Joel Fetter** (Joel.Fetter@hq.doe.gov)
 - Tech to Market (T2M) Advisor
 - Track/advise on commercialization efforts
- ▶ **Geoffrey Short** (Geoffrey.Short@hq.doe.gov), Mechanical Eng. & **Zia Rahman** (Ziaur.Rahman@hq.doe.gov), Electrical Eng.
 - Technical SETA
 - Track technical status, advise, prepare quarterly feedback
- ▶ **Caitlin Zoetis** (Caitlin.Zoetis@hq.doe.gov)
 - Program Management (PM) SETA
 - Track project budget status, invoicing, award business related matters

Questions?
