

QUESTIONS AND ANSWERS

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I. FREQUENTLY ASKED QUESTIONS:

A. If I have questions about this funding announcement, who do I contact?

ANSWER: Please see the FOA guidance on submitting FOA content questions and response publication. Applicants may submit questions regarding this ARPA-E's Funding Opportunity Announcement (FOA) to ARPA-E-CO@hq.doe.gov. All emails must include the FOA name and number in the subject line. The cover page and Executive Summary of the Funding Opportunity Announcement state the deadlines for submitting questions to ARPA-E-CO@hq.doe.gov.

B. How will I receive a response to questions submitted to arpa-e-co@hq.doe.gov about this FOA?

ANSWER: Responses are posted in the "Current Funding Opportunities FAQs" section of ARPA-E's website available at <http://arpa-e.energy.gov/?q=faq/current-funding-opportunities>. In addition, general questions about ARPA-E can be found at <http://arpa-e.energy.gov/?q=faq/general-questions>.

ARPA-E will post responses on a weekly basis to questions that are received. ARPA-E will cease to accept questions approximately 5 business days in advance of each submission deadline. Responses to questions received before the cutoff will be posted approximately one business day in advance of the submission deadline. ARPA-E may re-phrase questions or consolidate similar questions for administrative purposes.

C. Will ARPA-E post a response to every question submitted to arpa-e-co@hq.doe.gov?

ANSWER: No. ARPA-E will only post responses to questions that have not already been addressed by a published FAQ. Also, ARPA-E may consolidate similar questions for administrative purposes.

D. If I have questions about ARPA-E exchange, who do I contact?

ANSWER: Applicants may submit questions regarding ARPA-E's online application portal, ARPA-E eXCHANGE, to ExchangeHelp@hq.doe.gov. All emails must include the name and number of the Funding Opportunity Announcement in the subject line.

E. Can I speak or meet with the ARPA-E program director or other ARPA-E personnel about this funding opportunity announcement?

ANSWER: No. Upon the issuance of this Funding Opportunity Announcement (FOA), ARPA-E Program Directors and other ARPA-E personnel are prohibited from communicating (in writing or otherwise) with Applicants, or potential Applicants, regarding the FOA. This "quiet period" remains in effect until ARPA-E's public announcement of its project selections. During the "quiet period," Applicants may submit questions regarding the FOA to ARPA-E-CO@hq.doe.gov with the FOA name and number in the subject line. Applicants may also submit questions regarding ARPA-E's online application portal, ARPA-E eXCHANGE, to ExchangeHelp@hq.doe.gov with the FOA name and number in the subject line. ARPA-E will not accept or respond to communications received by other means (e.g., fax, telephone, mail, hand delivery). Emails sent to other email addresses will be disregarded.

F. Can a person be PI on one proposal and a Co-PI on a second separate proposal?

ANSWER: Yes, an individual may be on more than one submission – either as a lead or member of a Project Team.

G. May applicants submit more than one concept paper to this funding opportunity?

ANSWER: Yes, but each Concept Paper must be “scientifically distinct”. This term is used in Section III.C.3 (Limitation on Number of Applications) of the FOA. In this context, the term “scientifically distinct” is used to emphasize that, in the event an Applicant intends to submit multiple concept papers/application, the applicant should propose distinct technical approaches in each application. This prohibition on duplicative applications involves a fact-based determination by ARPA-E to ensure a focused review of each technical concept, and appropriate use of ARPA-E's limited time/resources.

H. I have developed a technology that may be a good fit for this funding opportunity. Will ARPA-E please review my idea and let me know if it is responsive to this FOA?

ANSWER: ARPA-E will review compliant and responsive concept paper submissions and provide feedback either encouraging or discouraging submission of a Full Application. See Section IV.A (Application Process Overview) of the FOA for Concept Paper review process. Concept Paper submissions are compliant if they meet the requirements of Section III.C.1 (Compliant Criteria) of the FOA, and are responsive if they meet the Program Objectives and other requirements set forth in Section I.C (Program Objectives and Structure) of the FOA and do not fall under Section I.E. (Applications Specifically Not of Interest) of the FOA. Applicants must review the technical requirements of the FOA and independently determine whether their proposed concept warrants a submission.

I. Are foreign entities eligible to apply to this FOA?

ANSWER: Foreign entities are eligible to apply for funding. See Section III.A.3 (Eligibility Information- Foreign Entities) of the FOA. However, if the project is selected for award negotiations and an award is made, all work must be performed in the United States by subsidiaries or affiliates incorporated in the United States or U.S. territories, unless ARPA-E grants a foreign work waiver to allow performance of part of the work outside of the United States. ARPA-E's grant of a foreign work waiver is a fact dependent, case-by-case determination that is made only in exceptional circumstances and only for discrete parts of an award that necessitate foreign work. Applicants that anticipate the need for a foreign work waiver to perform some work outside of the U.S. should review Section 5 of the Business Assurances & Disclosures Form.

J. Are individuals eligible to apply to this FOA?

ANSWER: Yes. Individuals are eligible to apply for funding. See Section III.A. (Eligibility Information) of the FOA. However, any ARPA-E award funding would need to be made to a business entity formed by the Applicant, if selected for award negotiations.

K. Are we required to register for the Teaming List for this FOA?

ANSWER: No. ARPA-E set up the Teaming Partner List for this FOA to facilitate formation of new project teams. There is no requirement for applicants or any team member to sign up/register for the Teaming Partner List. In addition, ARPA-E does not endorse or otherwise evaluate the qualifications of the entities that self-identify themselves for placement on the Teaming Partner List.

L. I missed the last Concept Paper deadline. Can I still submit a Full Application?

ANSWER: No. Only applicants who have successfully submitted a Concept Paper in eXCHANGE by the published deadline are eligible to submit a Full Application to the FOA.

M. Our project team includes several team members. Does each team member need to contribute cost share equally?

ANSWER: Although the cost share requirement applies to the Project Team as a whole, the funding agreement makes the Prime Recipient legally responsible for paying the entire cost share. See Section III.B.4 for more information on cost sharing. Each Project Team is free to determine how much each team member will contribute towards the cost share requirement. The amount contributed by individual Project Team members may vary, so long as the cost share requirement for the project as a whole is met.

N. Can you tell me whether my project team qualifies for reduced cost share?

ANSWER: ARPA-E may not provide pre-submission assessments on a project team's specific cost sharing requirement.

O. Will in-kind contributions count towards meeting our cost share requirements?

ANSWER: Yes, if the in-kind contribution is determined to be allowable, allocable and reasonable by the ARPA-E Contracting Officer. Since this is necessarily fact determinative inquiry, these types of questions are answered based on a review of all relevant information by the Contracting Officer during award negotiations. For general guidance on acceptable cost share contributions and corresponding cost principles used by the ARPA-E Contracting Officer to make these determinations, see 10 C.F.R § 600.313 and § 600.317 (Cost Matching/Sharing and Cost Principles for For-Profit Organizations), 2 C.F.R. § 200.306 and 2 C.F.R. Part 200, Subpart E (Cost Matching/Sharing and Cost Principles for Institutes of Higher Education, Hospitals, Other Nonprofit Organizations, State and Local Governments).

P. We have a question concerning the impact of a large business seeking patent rights under a class waiver if our team qualifies for reduced cost share of 10%. Does this mean the entire team project is subject to 20% cost share or only the large business' portion of the project will be subject to 20% cost share?

ANSWER: Per Section II.B.3 (Reduced Cost Share Requirement) of the FOA, under this scenario, only the large business' portion of the work under this scenario is subject to the 20% minimum cost share requirement. Please see Section III.B.3 (Reduced Cost Share Requirement), Section III.B.4 (Legal Responsibility), and Section III.B.5 (Cost Share Allocation) of the FOA for more details on the cost sharing requirements. NOTE: If the large business' portion of Total Project Costs is greater than 20%, then the project team's total cost share minimum is 20% since the team as a whole would no longer qualify for the 80/20 labor distribution for reduced cost share, per Section III.B.3 of the FOA.

Q. Can you tell us whether our project team qualifies for reduced cost share based on the following scenario: []?

ANSWER: ARPA-E may not provide pre-submission assessments on a project team's specific cost sharing requirement.

R. How should we include references in our Full Application? Do they count towards the overall page limitation for the Technical Volume?

ANSWER: Applicants may provide a list of references in a separate bibliography. Only bibliographic information may be contained in the references, and no additional text or commentary

should be included. There is no page limit for the bibliographic references section of the Full Application.

S. Our team originally submitted a Concept Paper that listed [organization name 1] as the Prime Recipient. For our Full Application, can we change the lead organization to ** [organization name 2] instead?**

ANSWER: Yes, the ARPA-E eXCHANGE system will allow applicants to expand or otherwise modify the Project Team for their Full Applications.

T. Can I include new Co-PIs and/or sub-recipients in my Full Application?

ANSWER: Yes. Applicants may expand or otherwise modify the Project Team for their Full Applications.

U. My Concept Paper was encouraged. What are my chances of being selected for award negotiations by ARPA-E?

ANSWER: ARPA-E does not provide pre-submission assessments of Applicants' likelihood to receive funding.

V. Do sub-recipients also need to fill out the Business Assurances & Disclosures Form or is this filled out only by the Prime Recipient?

ANSWER: The Business Assurances & Disclosures Form requests information regarding the legal entity submitting the application as the Prime Recipient, the legal entities and/or individuals that are proposed to be Sub-recipients, and the PI/Co-PIs in their individual capacity. The Prime Recipient may submit one Business Assurances & Disclosures Form covering all of the Project Team members if it has authorization and information to answer on their behalf. Alternatively, the Prime Recipient may request Sub-recipients to complete and sign individual Business Assurances & Disclosures Forms that the Prime Recipient will append to its form.

II. Questions for week ending: SEPTEMBER 5, 2014

Q1. Will additional specifications be provided for a partial solution/proof of concept submission for the concept paper or full proposal stage? Will there be specified values that a partial solution submission must include?

ANSWER: Applicants submitting partial solution/proof-of-concept ideas for plasma formation technologies or low-cost drivers that are not yet fully integrated into a conceptual fusion approach are not required to fully quantify the performance levels and constraints on all components of the conceptual fusion system. However, as stated in Section II.A (Award Overview) of the FOA, Applicants who submit partial solutions are required to provide a convincing vision of how these partial solutions can enable the realization of the program metrics with further development. (e.g. make a persuasive case that their approach, if further developed beyond proof of concept, will enable fusion reactors that will meet the metrics in Table 1 of the FOA).

Q2. What are typical proof-of-concept funding levels?

ANSWER: Typically, proof-of-concept funding levels are smaller than the average funding levels for "full" projects, and depending on the scope and complexity of the particular work proposed, project duration may be shorter than 36 months. As there is no pre-defined funding level for proof-

of-concept efforts, applicants should propose based on the time and resources required to successfully perform the particular proof-of-concept project.

Q3. My idea does not exactly fit this FOA, but I still believe it is relevant. Should I submit a concept paper to this FOA or should I wait for a forthcoming FOA on other fusion topics?

ANSWER: Applicants should carefully review the FOA for all of the compliance and responsiveness criteria. See, e.g., Sections I.D (Technical Categories of Interest), I.E (Technical Performance Targets), I.F (Applications Specifically Not of Interest), III.C.1 and III.C.2 (Compliant Criteria and Responsiveness Criteria) to determine whether to submit the idea under this FOA. In addition, please see the answer to Question 8 above

Q4. Why is there a minimum η G requirement of 5?

ANSWER: The η G requirement is intended to enable a practical recirculating electrical power ratio after conversion of thermal energy to electricity. If a proposed concept can achieve higher efficiency conversion (for example, through direct conversion of charged products), or if energy recovery can reduce the required recirculating power, lower η G systems may still be considered provided that no more than half of the generated electricity from a reactor must be recirculated. Teams proposing a relaxed η G requirement must demonstrate quantitatively, with references where appropriate, that the proposed energy conversion or recovery systems are based on proven technologies.

FOA Modification 02 will be issued to reflect this clarification.

III. Questions for week ending: SEPTEMBER 26, 2014 – UPDATED 1/21/15

Q5.A (Updated 1/21/15): Would a team consisting of an FFRDC (**), one or more universities, and one or more small businesses (where the small businesses perform >20% but less than 80% of the total work as measured by project cost), qualify for the 10% reduced cost sharing requirement?**

ANSWER: ARPA-E may not provide pre-submission assessments on a project team's specific cost sharing requirement. See Section III.B.3 (Reduced Cost Share Requirement) of the FOA for more details on the cost sharing requirements for this FOA. To qualify for reduced cost share of 10%, domestic educational institutions, domestic nonprofits, and/or FFRDCs must perform greater than or equal to 80%, but less than 100%, of the total work under the funding agreement (as measured by the Total Project Cost). Projects that do not meet the this criteria, or any other criteria set forth in the FOA to receive reduced cost share, are subject to the minimum cost share requirement of 20% of the Total Project Cost. **For the exception to this general rule, please see the answer provided for Question 5.B below.**

Q5.B (NEW 1/21/15): My Project Team consists exclusively of entities that would qualify for reduced cost share if each had applied separately. However, if applying jointly as one Project Team, it appears that this team would not qualify for reduced cost share. What cost share percentage should we propose?

ANSWER: ARPA-E may not provide pre-submission assessments on a project team's specific cost sharing requirement. However, for the situation described above, ARPA-E will consider applying reduced cost share requirements to a project team comprised exclusively of entities that would have qualified for a reduced cost share had they not submitted a joint application. For example, a Project Team consisting of FFRDCs and universities (collectively doing 75% of the work) and small businesses (collectively doing 25% of the work), may propose to provide less than 20% cost share and at least 10% cost share.

Q5.C (NEW 1/21/15): My project team is not led by a small business, but includes small businesses. Does our Project Team qualify for the 12 month deferred cost share ("Grace Period")?

ANSWER: The cost share Grace Period applies only to projects led by a small business AND on which small businesses perform greater than 80% of the work. See Section III.B.3 (Reduced Cost Share Requirement) of the FOA for more details on the cost sharing requirements for this FOA.

Q6. Is the entire project team (Prime Recipient and all Sub-recipients) required to sign-up on ARPA-E's Teaming List for this FOA?

ANSWER: No. ARPA-E set up the ALPHA Teaming Partner List to help facilitate formation of new project teams. There is no requirement for applicants or any team member to sign up/register for the Teaming Partner List. In addition, ARPA-E does not endorse or otherwise evaluate the qualifications of the entities that self-identify themselves for placement on the Teaming Partner List.

Q7. Under what conditions will a small business be able to charge a fee? If so, what maximum fee is allowed?

ANSWER: DOE Regulation 10 C.F.R. § 600.318 prohibits ARPA-E from paying a fee or profit on grants or cooperative agreements to recipients or sub-recipients.

Q8. If a small business waives or reduces the license cost of using their computer software (e.g., a simulation code) to other team members, can this count toward cost-sharing, and how would the value of this be calculated?

ANSWER: Every cost share contribution (e.g., amount, type, and source of cost share), must be approved in advance by the Contracting Officer during award negotiations and incorporated into the project budget before the expenditures are incurred. If approved by the Contracting Officer during award negotiations, the value of the cost share contribution would be the fair market value/established commercial price of the license less the cost actually charged.

Q9. How are payments made to each team member? What kind of delays are to be expected between spending, invoicing, and reimbursement?

ANSWER: ARPA-E reimburses the Prime Recipient by electronic funds transfer. The Prime Recipient is responsible for reimbursing other project team members. ARPA-E typically approves properly submitted invoices within 30 calendar days.

Q10. Who will select reviewers of proposals, and what criteria will be applied to the selection of reviewers?

ANSWER: Please see Section V.B.2 (ARPA-E Reviewers) of the FOA.

IV. Questions through week ending: OCTOBER 10, 2014

Q11. Will there be external reviewers (i.e. members of the plasma physics community not submitting a proposal) for the concept paper and/or full proposal submissions, or are reviewers of these projects entirely internal?

ANSWER: Please see Section V.B.2 (ARPA-E Reviewers) of the FOA

Q12. The template for the concept paper includes a boxed disclaimer. If the concept paper contains no proprietary information, is the disclaimer still required?

ANSWER: No. However, applicant should carefully read Section VIII.E (Marking of Confidential Information) of the FOA for full details on including confidential and proprietary information in Concept Paper submissions.

Q13. How is “solid liner” defined? Do thin liners that become plasmas during the implosion qualify? Or does it refer to concepts that use liners that remain solid thru out the implosion?

ANSWER: In the context of the ALPHA FOA, “solid liner” refers to a liner that begins as solid prior to implosion.

Q14. How important are “spin-offs” (i.e. early markets for technology) to the ranking of the proposals?

ANSWER: See Section V of the FOA for criteria to be used to evaluate submissions.

Q15. Given the uncertainty of the cost fusion reactors and the produced COE what do you define as “low cost?” metrics given in the FOA state: driver cost (<\$0.05 /MJ amortized over its lifetime) and target cost < \$0.05/MJ (of fusion energy produced per target) but COE is real metric. Given that, do you have a cost of production of electricity (COE) goal? Must that metric also include a return of investment (ROI)?

ANSWER: Cost of electricity (COE) or return on investment (ROI) analysis is not required at this stage. Applicants are welcome to share COE analysis if desired, but it is not a requirement.

Q16. Since a proposal may utilize several experimental platforms, does shot rate “count” sum over all of these?

ANSWER: No. The number of shots required in Tables 2 and 3 in Section I.E of the FOA are not cumulative across multiple tools.

Q17. Metric of rep-rate >1 Hz is limiting to some concepts-how serious is this limitation? Will concepts that are <1 Hz be eliminated from consideration even if they project to meet the economic goals of the FOA?

ANSWER: Rep rate is the long term goal, but it is not necessary to demonstrate in a three year project. However, the concept should have a clearly described path to a rep-rate >1 Hz.

Q18. If a driver technology can pair with multiple targets, must each target be described?

ANSWER: This is at the discretion of the applicant. Applicants may choose to focus on a single driver and a single target, or a single driver and multiple targets.

Q19. Does concept paper length requirement include references?

ANSWER: Yes. See Section IV.C (Content and Form of Concept Papers) of the FOA.

Q20. If we submit one concept paper for ALPHA, and it is later invited for full proposal, will it be possible to break up the scope of work described in the successful concept paper into two separate full proposals?

ANSWER: No. To have a compliant Full Application you must have first submitted a compliant Concept Paper. See Section III.C.1 (Compliant Criteria) of the FOA for the Full Application compliance criteria.

V. Questions for week ending: DECEMBER 26, 2014

Q21. We have non-government owned hardware developed on a DOE grant (SBIR Phase II). We want to use this prototype in our proposed ALPHA project. Is such hardware allowable as a cost share?

ANSWER: A portion of the value of prototype (i.e., excluding relevant DoE funding/cost share for the prototype under the SBIR grant) might serve as a cost-share if determined to be allowable, allocable and reasonable by the ARPA-E Contracting Officer. Since this is necessarily fact determinative inquiry, these types of questions are answered based on a review of all relevant information by the Contracting Officer during award negotiations. For general guidance on acceptable cost share contributions and corresponding cost principles used by the ARPA-E Contracting Officer to make these determinations, see 2 C.F.R § 910.130 and § 910.352 (Cost Sharing and Cost Principles for For-Profit Organizations), 2 C.F.R. § 200.306 and 2 C.F.R. Part 200, Subpart E (Cost Matching/Sharing and Cost Principles for Institutes of Higher Education, Hospitals, Other Nonprofit Organizations, State and Local Governments).

VI. Questions for week ending: JANUARY 9, 2015

Q22. The ALPHA proposal regime is interested in fusion plasmas intermediate between traditional inertial confinement fusion (ICF) and magnetic confinement fusion regimes. Our target concept is at the high-density end of the ALPHA regime. It is unclear how far into the ALPHA regime the current ICF classification guidance extends. Depending upon how strictly the guidelines are applied to our concept (e.g., limits on target dimensions), this may force us to submit a classified proposal. How should we proceed?

ANSWER: ARPA-E does not plan to support classified work in the ALPHA program. No classified information should be included in the application and no additional documents of support that include classified information should be submitted to ARPA-E.

Q23. I have a question regarding the disclaimers vs the page limits. From the template, the title and the disclaimers take up over 4 inches of the allotted 9 inches allowed for the executive summary. Was this the intention or may we put the disclaimers on a second page? Presumably, the disclaimers are not required if the proposal contains no trade secrets etc.

ANSWER: Full Applications that contain confidential, proprietary, or privileged information should be marked as described in Section VIII.E (Marking of Confidential Information) of the FOA. The Technical Volume template provided by ARPA-E follows the marking guidelines contained in Section VIII.E of the FOA for such submissions. Applicants may adjust the size of the disclaimer box in the Technical Volume template as needed, however, applicants should not exceed the 1 page limit (which equates to approximately 500 words single spaced) for the Executive Summary. ARPA-E strongly encourages potential applicants to carefully review the complete marking guidance provided in Section VIII.E of the FOA.

VII. Second deadline for questions: JANUARY 15, 2015

Q24. I downloaded the budget Justification/SF424A Workbook from ARPA-E Exchange. In the personnel worksheet, I noticed that once we enter hourly rate and # of hours, the salary requests automatically calculate. These cells are also password protected and locked. Our university's policy is to provide the PI's % and we calculate the salary requests based on effort and annual rates. I do have a similar workbook with cells that are not protected. Is it ok to use our version and change these cells, or must we use the format that was downloaded?

ANSWER: The Budget Justification Workbook/SF-424A ("Workbook") is a protected document so that ARPA-E can ensure consistency in budgetary calculations from applicants. Per Section IV.D.3 (Budget Justification Workbook/SF-424A) of the FOA, applicants are required to complete the Workbook available on ARPA-E eXCHANGE. Applicants should not create and submit alternate versions of the Workbook to satisfy this requirement. Applicants may refer to Section IV.D.3 of the FOA for more information on the Workbook.

Q25. In what section do we include text describing what we plan to do for the Technology Transfer and Outreach (TT&O) requirement? The instructions say that we must dedicate 5% of the budget to these activities, but we are not sure where to include information on this topic. Is it only included in the budget justification or is there a section in the main body of the application where it should also be included?

ANSWER: Applicants should include information related to TT&O activities in Section 4 (Technology to Market) of the Technical Volume, as well as provide TT&O budget information in the "Other Direct Costs" worksheet in the Budget Justification. Please see Section IV.D.1 (First

Component: Technical Volume) of the FOA for a complete description of information that should be included in Section 4 of the Technical Volume.

VIII. Questions for week ending: JANUARY 23, 2015

Q26. In addition to the direct cost of TT&O activities, can the (real) financial and administrative (F&A) indirect costs associated with these activities be included in meeting the requirement that applicants spend at least 5% of ARPA-E funding on TT&O activities? (If so, where should we report this indirect cost? The budget justification form does not have a specific entry for indirect F&A costs for TT&O activities.

ANSWER: Applicants may include indirect costs associated with direct TT&O costs on the “Indirect Costs” worksheet in the Budget Justification Workbook/SF-424A, but these indirect costs will not count towards the 5% TT&O requirement. TT&O activities must relate to achieving specific objectives, technical milestones and deliverables, and must be included in the Budget Justification Workbook/SF-424A on the “Other Direct Costs” Worksheet. Please See Section IV.G.8 (Technology Transfer and Outreach) of the FOA for examples of allowable TT&O expenditures.

Q27. As a sub recipient, we will be incurring greater than or equal to 10% of the Total Project Cost, therefore, should we submit our sensitive cost info contained in the SF-424A package to ARPA-E-CO@hq.doe.gov? Please confirm.

ANSWER: Detailed cost data may be provided in a separate SF-424 and Budget Justification Workbook/SF-424A directly to ARPA-E via email to ARPA-E-CO@hq.doe.gov by the submission deadline stated in the FOA. Any files sent by email should be clearly marked with the application control number, name of the Prime Recipient, and the title of the application.

Q28. As a sub recipient, we wish to submit a separate Business Assurances & Disclosures Form. Can this be sent as a direct submission to ARPA-E-CO@hq.doe.gov?

ANSWER: No. Sub recipients may complete and sign individual Business Assurances & Disclosures Forms; however, these should be provided to the Prime Recipient and appended to its form. Please see the response provided to Frequently Asked Question V above for more information.

Q29. Aside from the Business Assurances & Disclosures Form, are there any additional required forms for the sub recipient?

ANSWER: No.

Q30. As a sub recipient submitting sensitive cost information directly to ARPA-E-CO@hq.doe.gov (see Question 27 above), will we be required to submit anything via the ARPA-E exchange portal?

ANSWER: Other than sensitive cost information contained in the Budget Justification Workbook/SF-424A, sub recipients should not submit any information separately from the proposed Prime Recipient. Therefore, sub recipients are not required to make submissions in eXCHANGE.