

SDG&E 2014 All Source RFO
Questions & Answers / FAQs

Energy Storage Product Type Specific Questions

11-20-2014 Note: Questions that relate to behind-the-meter energy storage and demand response have been moved to the 'demand response' question and answer document.

- 1. Can you explain SDG&E's "Counting rules for energy limited resources (like energy storage) that requires four hours of discharge for three consecutive days? Does this mean that a storage facility needs to be able to have 12 hours of dispatch over three days with no charging?"**

SDG&E's understanding of the RA counting rules for use limited resources is as follows: the resource must be available for four (4) hours on three (3) consecutive days. This means that the storage facility must be able to discharge for four (4) consecutive hours on three (3) consecutive days. There can be charging in between the discharges on each of those days.

- 2. For a respondent bidding ESSPPTA or ESSBOT is there any limitation to the number of projects?**

Yes, no more than six priced projects will be allowed. Multiple locations or multiple installations of energy storage can be considered a single project. For example, the respondent may intend to install numerous 100 KW / 400 KWh energy storage systems (for example 10 or 15) within the San Diego local sub-area. Such a multiple location project would be considered a single project if priced as single project.

- 3. If a respondent bids an ESSPPTA project which has multiple locations in a specific sub area of SDG&E service territory, is that considered one project and the respondent can bid any number of other sub areas as a different project?**

Yes, multiple locations associated with an ESSPPTA offer would be considered a single priced project if priced as such. Up to six priced projects will be allowed. All components (individual energy storage systems) need to interconnect within the San Diego local sub area. Within the San Diego local sub-area, the CAISO local effectiveness factor study for SDG&E showed that all areas are equally effective, so there is no further differentiation by area being considered.

- 4. If an ESSPPTA respondent bids a project which has 6 hours of storage capacity, can the same respondent offer 4 hours of storage capacity and have that considered a different project if both of the projects are located in the same defined sub area?**

Yes, an ESSPPTA respondent may bid 6 hours of capacity and 4 hours of capacity or any other duration that conforms with RA counting rules. These would be considered two separate bids as described and would be evaluated separately since each is separately priced.

- 5. Can an ESSPPTA bid storage with a 3 hour discharge?**

Yes. As stated in SDG&E's ESS RFO, respondents may bid a non-conforming offer (in this case due to not meeting the use limited resource RA counting rules), but should flag that in their offer. Then, if the RA counting rules change such that the offer would then count for

RA and thus be conforming, the respondent is responsible for notifying SDG&E of that fact. If that notification is provided before SDG&E has shortlisted, the offer will then be evaluated along with the other conforming offers.

- 6. Can an ESSPTA bidder bid a single bid that includes Energy Storage, Demand Response, Energy Efficiency and would that be counted as one bid or as 1 ESSPTA bid, 1 Demand Response bid, 1 Energy Efficiency bid.**

Depending on the nature of the bid, it may be considered a single bid (and based on its nature, it would be categorized into one of the mentioned product types) and evaluated as a single offer, or it may be considered separate bids and evaluated separately - again, depending on the nature of the offer, including the pricing and operational intent). SDG&E would need to understand the specifics of this case in order to give a specific answer.

- 7. Will the Lake Hodges hydro project count towards the 25 MW of ES required under this All Source RFO?**

No, Lake Hodges is existing energy storage facility and would therefore not meet the incremental requirement.

- 8. How much of the minimum 25 MW for ES associated with this All Source RFO could come from UOG?**

SDG&E can own 100% of the 25 MW.

- 9. As it relates to the Energy Storage Decision (D.13-10-040), can SDG&E own 50% overall of the 165 MW ES target, or 50% of each domain?**

Yes, SDG&E can own 50% overall target. There is no ownership limitation by domain.

- 10. Moved to Q57, DR document**

- 11. Is there a term rate for (round trip) ES efficiency?**

No minimum round trip efficiency will be required.

- 12. Will SDG&E specify the MWh duration that the ES system must run?**

The project must meet the RA counting rules (4 consecutive hours for 3 consecutive days) as a minimum requirement.

- 13. Is there a typical cycle requirement for ES?**

No, there is no minimum cycle requirement. However, SDG&E prefers systems with a capability for a minimum of 50 cycles per year.

- 14. Will there be additional information on ES cycling to account for degradation, or further information regarding full cycles?**

No, Respondents should provide this information in the offer form. In the Energy Storage offer form, SDG&E requests information on degradation of both capacity and system efficiency; it is up to the Respondent to accurately describe their system in this regard. Additionally in the ES offer form, limits on the number of deep and shallow discharges is requested (on a daily, weekly, monthly and annual basis as well as for the contract term or useful life). The Respondent defines deep and shallow discharges.

15. If a developer increases the capacity of an existing ES facility, would that count as incremental?

SDG&E would have to review the bid specifics to determine if this would be incremental. Potentially the additional capacity could be incremental.

16. Is replacing a CCGT with ES considered incremental?

Probably not as it would just be replacing existing capacity. SDG&E would need to understand the offer specifics (ie: how it was shown/counted in the ISO studies, whether or not it shifts load, and the structure of the offer) in order to answer authoritatively.

17. What is the ES installation deadline?

This All Source RFO requires that the delivery term for the resource encompass all of calendar year 2022. This is sooner than the Energy Storage Decision deadline of year-end, 2024.

18. Can new ES come online as early as 2016?

Yes. However, the contract term must encompass all of calendar year 2022, but SDG&E will accept bids from projects that would begin deliveries prior to 2022.

19. Are 16 MW of ES required to be on prior to 2016?

No. In its Energy Storage application (A.14-02-006) SDG&E specifies a 16 MW solicitation goal for the 2014 storage procurement cycle (See table LK-8, p. LSK-15 in the testimony of Mr. Lee Krevat – available here: <http://www.sdge.com/regulatory-filing/10246/sdge%E2%80%99s-energy-storage-procurement-application>). 12 MW referred to there (Local and Flexible Capacity Requirements – Transmission and Distribution connected) are intended to be met with this All Source RFO. The remaining 4 MW (Distribution Reliability/Power Quality) will be procured via a separate RFO to be issued no later than December 1, 2014.

20. Will ES output prior to 2017 be modeled or just included as cash flows?

SDG&E will model deliveries as described in the offer documents. As a practical matter, SDG&E believes it would be very difficult to get the application associated with the All Source RFO contracts approved by the CPUC in time to support deliveries beginning in 2016.

21. Does ES need to obtain a CAISO deliverability study prior to bidding?

No, but SDG&E does require that the developer pursue and obtain such a deliverability study to ensure that the resource counts for RA.

22. How will SDG&E value energy to charge ES?

SDG&E will value energy to charge ES based on the best forecast of such costs available at the time that it evaluates bids.

23. Will ES EPC and ES tolling agreements be treated the same in terms of modeling the resource?

Yes, a net market value will be calculated for each. For utility owned assets, the cost stream will be largely based on the revenue requirement associated with the asset. For third party owned assets, contract costs will be utilized in the calculation.

24. What is the process for determining ES risk? Will cutting edge technology be considered?

PU Code 2835 (and following sections) require that “commercially available technology” be utilized. SDG&E interprets this to mean technologically mature and widely available resources. This means that R&D projects or proof of concept projects/technologies will not meet this standard.

25. Is there a locational preference for ES?

All systems must interconnect within the San Diego Local subarea as defined by the CAISO. For a ESSBOT or ESSPPA project, the developer will need to find the location, and for an ESSEPC project, SDG&E will provide siting.

26. Some people think ES reduces the need for interconnection upgrades, will that be considered in this process?

These types of potential benefits will not be included in SDG&E’s evaluation methodology for this solicitation.

27. If there were multiple batteries behind a distribution feeder, would they go through the interconnection study process as a single amount of capacity?

Yes, they will be combined and studied from the closest connected transmission substation.

28. Will the technical specifications specify ES size?

There are minimum size restrictions for SDG&E’s ES RFO. For utility owned (ESSBOT or ESSEPC), it is 10MW; for third party owned (ESSPPA) it is 500 kW.

29. For Energy Storage, what information will developers have about the site and what type of equipment it can support?

For ESSBOT or ESSPPA offers, the developer/respondent is responsible for finding/securing sites. For ESSEPC offers, on or before October 31, SDG&E will provide information on sites as follows: SDG&E sends out information on utility owned land including buildable area, environmental limitations (if any), interconnection capacity limitations (if known), expected permitting complexity.

30. Will there be a proforma for ESSEPC and ESSBOT projects?

Due to the unique nature of various energy storage systems coupled with the complexities of commercial arrangements, there will not be a pro forma contract for ESSEPC or ESSBOT. SDG&E shall provide shortlisted entities with a term sheet or a contract as a starting point for negotiations.

31. Can a company that expresses interest (that is, provides a written expression of interest) by the 10/1 (ESSEPC) or 10/17 (ESSBOT) deadline later transfer the project to another company, or merge with another company?

It depends. If the new entity is bound by the terms of the NDA (as applicable), then perhaps. SDG&E would need to see the specifics in order to respond in an absolute manner.

32. Who will the SDG&E site locations be made available to?

Only those interested in the ESSEPC offer and who have entered into an NDA with SDG&E

33. Other than credit requirements are there any deposits or fees for providing an ESSEPC offer?

No. SDG&E had been considering a bid deposit for this offer type but will not require any such bid deposit. The only fee involved with the RFO is the Shortlist Acceptance Fee, which is the greater of \$100,000 or \$2 per kW of project nameplate / aggregate program capacity and shall be required to be paid to SDG&E within ten (10) business days of notification by SDG&E that the offer has been shortlisted.

34. Please explain what O&M services should be included in the energy storage offer pricing?

If the technology requires active operations personnel, SDG&E seeks those to be vendor supplied. SDG&E envisions many installations being automated so the storage responds to dispatch orders from SDG&E without the need for operations personnel. Similarly, SDG&E envisions requisite maintenance activities being provided by the vendor commensurate with the maintenance requirements needed to meet warranty and guarantees.

35. Unless we can supply this O&M services, what would happen to us for bidding?

This applies only to ESSEPC bids. The EPC contractor could find another company to partner with for the bid or SDG&E would assess if it were able to provide the O&M services, but in any case SDG&E requires that the Respondent provide pricing for O&M throughout the useful life of the asset.

36. According to PPT presented 9/26 pre-bid meeting, on page 81, it says December 10: ESSEPC bidders NOT seeking life duration O&M contracts submit O&M costs to RFO Mailbox...Allows SDG&E to validate before bids due. Does this mean that we would propose the O&M cost?

Yes. SDG&E sees the vendor/bidder as the most knowledgeable of the product offered and best suited to estimate life of facility O&M costs. SDG&E needs these submitted prior to the overall offer due date (January 5) so it can validate the forecast as this will be part of the overall cost of ownership forecast.

37. If that is the case, how can we calculate the O&M cost ?

If the Respondent is unable to identify expected O&M costs independently or with the assistance of a partner, then the product is not likely commercially proven. If O&M costs cannot be reasonably estimated or are unknown, then SDG&E would likely not want the product.

38. Does Sempra require that the EPC contractor meet the specified criteria, or does Sempra require that the combined team meet the specified criteria?

SDG&E requires the team lead that has been signatory to the previously submitted NDA meet the specified criteria. Please particularly see commercial viability items 5 & 6 which provide guidance to the specific criteria that must be met by bidders using third party technologies. EPC contractors would be considered "integrators" in this context.

39. Can ESSEPC bidders propose more than one technology for SDG&E to review?

Yes

40. Does the expression of interest deadline apply to energy storage (battery) equipment suppliers also? We were under the impression that it applies for "respondents" meaning those submitting proposal to SDG&E, not companies that supply equipment to the respondents/developers.

The expression of interest should come from and NDA will be with respondents. Neither have to do with equipment suppliers. Equipment suppliers should not submit anything. SDG&E will not be procuring equipment, the EPC or BOT bidders will do so.

41. If XYZ Company has a ¼ MW system versus a 1 MW system in place with a solid trialed BMS/EMS, have met other IOU short list criteria, and have up to 1.25 MW/day of mfg capacity, are we disqualified under the ESSBOT Commercial Viability Criteria?

Yes

42. If XYZ Company has chosen to provide an ESSBOT, can we change to an ESSEPC or an ESSPPTA?

Deadline for ESSEPC was 10/1/2014, so you would not be able to change to an ESSEPC (and commercial viability for ESSEPC is the same as ESSBOT). There is no linkage between being an ESSBOT and ESSPPTA. Further, there is no commercial viability screening for ESSPPTA **except as noted in Q&A 24.** ESSPPTA would require your bid submittal by January 5, 2015.

43. Regarding the utility owned storage options, does SDG&E require that the EPC contractor meet the specified criteria, or does SDG&E require that the combined team meet the specified criteria? One possible scenario is the combined team referenced could consist of EPC contractor, ESS Manufacturer, plant control provider, etc.

This question is moot for ESSEPC as it has already been addressed with respondents. For ESSBOT, SDG&E will accept a joint venture amongst two parties. Those two parties must meet all commercial viability requirements. Bidders that elect to form a joint venture do not need to form a separate LLC or other company. Both bidders may execute the EPC contract as joint venturers, with joint and several liability between the two parties.

44. If we formed a joint venture between XYZ and ABC, to provide EPC services, do we meet the intent of items 5 and 6 of the viability criteria?

SDG&E would accept a formal joint venture in such circumstances per the above.

- 45. As a potential respondent, we are advising SDG&E that we are not able to submit certain information on behalf of all of the battery vendors that we have requested quotes from. Please confirm that we can still submit an offer.**

The first step was to provide an expression of interest and then to complete / execute an NDA. Second, equipment only vendors (companies that are solely equipment suppliers) are not suitable to be respondents for utility owned storage offers unless they are part of a joint venture. If the equipment / battery supplier is not the lead "EPC" or in a joint -venture, it is the responsibility of the bidder (respondent) to include the equipment information in their package and not the equipment manufacturer. SDG&E will not accept information from equipment suppliers that simply want to sell equipment. SDG&E intends for the utility owned storage offers to be EPC or BOT offers.

- 46. Moved to DR Q&A document, Q58.**

- 47. What was the registration deadline of October 1st for?**

The 10/1/2014 deadline was for the Utility owned storage, EPC approach, to provide their expression of interest. A similar deadline of 10/17 has passed for providing an expression of interest for the Utility owned storage, BOT approach.

- 48. Regarding shorter duration resources that don't meet the 3 day / 4 hour per day requirement. How will such resources be evaluated? If the shorter duration is acceptable, we could bid a lower price....**

As stated in the RFO for ESSPPTA only, to the degree a storage resource does not meet the RA counting rules respondents are directed to complete and submit their offer and indicate that it is non-conforming but that you believe the RA Counting rules will change. If and when they do change, notify SDG&E via the RFO e-mail box (AllSourceRFO@SempraUtilities.com) of the rule change and if that occurs prior to shortlisting, assuming the offer is conforming in all other regards, it will be evaluated alongside the other conforming offers. If you believe a shorter duration resource can be priced lower, provide such an offer (indicating that it is currently non-conforming) using one of the allowed six priced offers.

For ESSEPC and ESSBOT (utility owned) bids, such technology will not be accepted.

- 49. How many days per year should the energy storage resource be able to dispatch?**

See the Energy Storage RFO document. SDG&E has expressed a preference for at least 50 times per year. As stated in the RFO: "SDG&E will not require a minimum amount of annual cycles. However, SDG&E will give priority to ESS capable of at least 50 cycles per year."

50. For the ESSEPC option, how do we obtain approval to visit the sites?

Most sites do not require an approval to visit by SDG&E. The site list/maps that will be provided will be clear on the properties as to which sites can be visited with or without approval. Those entities that met the deadline for the expression of interest, that have executed an NDA, and have passed commercial viability screening will be provided with this information.

51. With regard to the 2014 All Source RFO, I would like to know, for the project described here, which RFO contract type would be appropriate in which to submit the project into the RFO. Project Description: A 2 MW battery storage project combined with a 2 MW solar PV project. The solar project would be used to charge the batteries.

Assuming the battery is not used to serve any pre-existing behind-the-meter customer load and the battery is dispatchable, the RFO contract type would be the storage agreement, which is a tolling contract. Solar output in excess of charging (and not used to serve load) may be purchased through the renewable PPA template. If the battery is not dispatchable, but is only used to firm up the delivery profile of the solar plant and remove the intermittency of the solar resource, SDG&E will provide any shortlisted bidder with an RPS PPA template for use with unit firm deliveries.

52. We have questions about the suitability of our potential energy storage offer related to the 2014 all source RFO. It includes distributed energy storage located near customer sites but connected to the grid from the line side of the customer meter. <Note: SDG&E assumes this means on the utility side of the meter, not on the customer side of the meter> Our intent is to pool or aggregate numerous small storage systems into a MW scale resource but individually each site/meter will be less than 10 kW.

Questions:

1) Is this potential offer conforming?

The minimum size for energy storage systems is 500kW at each installation. If the storage system is installed on the customer side of the meter, it may be smaller than 500kW but would then fall under the DR RFO. Please see the DR RFO document for conformance requirements and other details regarding utilizing energy storage as DR.

2) Our idea is to aggregate numerous, small storage systems and we therefore do not expect to have site control at all sites at the time of bidding. Can we get a waiver on the site control requirement?

No. If the offer is a grid side energy storage resource, the site control requirements detailed in the energy storage RFO are still applicable (respondents must have site control at the time of bidding for the duration of the term proposed).

3) Will there be an opportunity to combine and enhance the resources of this offer with the value offer from the upcoming Reliability RFO?

SDG&E understands that this proposal involves utilizing the ESS for both market operations and potentially other uses. SDG&E believes there will be a must offer obligation for use limited resources such as energy storage (see: <http://www.caiso.com/informed/Pages/StakeholderProcesses/FlexibleResourceAdequacyCriteria-MustOfferObligations.aspx>) and therefore is not intending to utilize

storage for dual usage such as that described here.

4) Would the inclusion of solar connected to the system and offered as a firm DG resource be more or less attractive than strictly storage?

The attractiveness of an offer from a quantitative standpoint is related to its net market value. To the degree that the addition of the solar system improves the overall NMV of the offer, it would be more attractive. Whether or not this is the case will depend on the cost of adding solar and the additional energy and capacity benefits the solar system represents. SDG&E will also consider qualitative factors. See the Energy Storage RFO document for details.

5) What, if any, additional requirements must be satisfied to qualify these small scale resources with respect to interconnection and CAISO integration?

Please see the energy storage RFO. As stated, the resource must meet all applicable RA counting rules. Again, assuming the energy storage system(s) is (are) on the utility side of the meter, this means CAISO interconnection studies for deliverability (must NOT be for energy only) and meeting the 3 day / 4 hours per day requirement.

53. Can a bidder develop its site at the same interconnection location as SDG&E?

“as SDG&E” is a very broad category. If the question is: Can an ESSPPTA or ESSBOT bidder co-locate and share an interconnection with an SDG&E ESSEPC, the answer is no. If the question is: Can an ESSPPTA or ESSBOT bidder interconnect on the same circuit as an ESSEPC, the answer is yes, but both projects will be bound to interconnection studies and resulting requirements.

54. How would you compare a PPTA storage proposal interconnecting at the same location as that of EPC storage project?

The same net market value analysis described in the evaluation section of the Energy Storage RFO would be used to evaluate these offers (see section 5.0 of the RFO, p. 14). For the EPC offer, SDG&E’s cost development team will develop the utility related costs associated with siting, interconnection and permitting to go along with the costs provided by the respondent in their offer form. These will be evaluated utilizing the same methodology as costs provided by ESSPPTA respondents.

55. Is the Miguel site discussion related to BOT or EPC type storage?

EPC

56. Please explain the difference between BOT and EPC.

For EPC, SDG&E already owns the property. Therefore, SDG&E is required to be the legal entity filing for environmental permits. For ESSEPC, SDG&E shall pay for and undertake environmental permitting and pay for and provide environmental mitigation for the project. For interconnection, it will pay for and be the “customer” for interconnection studies (i.e. SDG&E follows tariffed interconnection requirements...the utility energy storage team will be responsible for preparing and paying for interconnection study requests) . The ESSEPC shall provide technical support for such applications as it relates to providing specific

electrical information about its proposed technologies. The SDG&E energy storage team will be responsible for the costs of interconnection from the grid to the high side of the project's step-up transformer, specifics of which will be clearly identified in the formal contract.

For BOT, the respondent, and not SDG&E, is responsible for all of the above.

57. How do we need to book the property?

ESSEPC would not be booking property as it is owned by SDG&E. Because title to the property and assets would not be transferred to SDG&E until commercial operation is achieved and performance tests met, the ESSBOT would book the property following proper accounting practices.

58. SDG&E allocated only 25MW to Storage? How much MW is EPC and BOT?

Decision (D.) 14-03-004 (the "Track 4 Decision") authorized SDG&E to procure a minimum of 25 MW of energy storage. Additional details are on the main RFO webpage <http://www.sdge.com/all-source-2014-rfo>. There is no allocation between ESSEPC, ESSBOT, or ESSPPTA. Further, SDG&E does not have a minimum that will be required to be utility owned.

59. What is the max MW EPC project size?

As stated in the Energy Storage RFO, section 1.0, Table 1 (and elsewhere), the maximum EPC project size is 787.5 MW. While SDG&E has identified that it may add or subtract properties as future circumstances may present, properties offered thus far, if developed, offer less than 250 MW of opportunity due to physical constraints of the available properties.

60. How will the NMV account for SDG&E rate base considerations (e.g. financing costs) and land costs/value in economics such that the offers are evaluated on a level footing? Or will BOTs only be compared with BOTs, and PPAs with PPAs under the separate utility-owned and 3rd party procured sections delineated in the CPUC's Rulemaking 10-12-007?"

All bids will be assessed relative to cost to SDG&E customers.

61. Moved to DR Q&As, Q61.

62. Can we modify the layout of the sheets on the ES_Offer_Form.xlsx so that page breaks allow it to print in a logical manner?

The form must be submitted in its original format. You are welcome to keep a modified copy for your own use.

63. Under an ESSPPTA, are eligible resources able to apply for and receive funds under the Self-Generation Incentive Program (SGIP)? Does applying for these funds preclude eligibility under this RFO?

Eligible resources for ESSPPTA offers are limited to those connected in the transmission and distribution domains, as defined by the Energy Storage Decision (see Energy Storage RFO document at page 5, paragraph 4). SGIP incentives apply only to energy storage systems that are behind the meter, at customer premises, and for the purposes of this RFO are being

considered in the DR product type. However, projects receiving SGIP incentives are not incremental, and therefore non-conforming to the RFO requirements. Please see DR FAQ #11.

64. For the Energy Storage solicitation, please specify from page 10 what is meant by “include evidence that necessary permits have... or are in progress.” What information is required for proof of progress?

Evidence that necessary permits have either been received or are in progress might include (but is not limited to): copy of the permit(s) itself, copy of the application for the permit(s), correspondence with the permitting agency regarding the project, or statements from officials from the permitting agency regarding the application.

65. Do stand alone energy storage devices need to complete Section I of the Project Description Form, “Fuel Source Plan”?

A statement that the energy storage resource will charge from the grid will suffice in this case.

66. Will ESSPPTA applicants be provided guidance on necessary permits (Section L of the Project Description Form), if requested?

Permitting for ESSPPTA projects is the responsibility of the Bidder. SDG&E is not able to provide consulting services to Bidders needing guidance on permitting issues.

67. Can we edit the contents of Section M - Project Schedule to fit to a specific project?

Yes, the contents of the project / program description form, section M (project schedule) can be edited to fit a specific project.

68. The Proforma Agreement notes that Flexible RA, once finalized by CAISO, will be added to the definition of “Product” under the agreement. While FERC’s approval for the program is pending, CAISO did propose three different categories of flexible capacity. How does SDG&E plan on attributing value for this portion of “Product” that will be conveyed to SDG&E under the Proforma Agreement, given that different storage technologies will vary in their ability to offer flexible capacity?

The ESSPPTA, as a tolling agreement, means that SDG&E will provide the energy to charge the energy storage facility; the resource will be bid into the CAISO by SDG&E (as the scheduling coordinator) and the plant will be dispatched by the CAISO. SDG&E will have the rights to everything the plant can produce; and as SC will settle with the CAISO. In the ESSPPTA, the capacity payment (and any variable O&M or other payments) is the compensation that the counterparty to the agreement will receive. In its evaluation of offers, SDG&E is not attributing any value to a flexible capacity attribute.

69. Does SDG&E have preference for storage proposals that give ownership of the project to SDG&E (ESSBOT and ESSEPC)?

No

70. Would SDG&E view having started the NEPA process on federal lands as sufficient evidence for site control? If not, would this stop the proposal from being evaluated further?

No. Having started the NEPA process on federal lands does not imply the Respondent has site control. Such an offer would be a nonconforming bid. SDG&E, at its sole discretion will consider nonconforming bids when offered with related conforming bids.

71. On the ES_Offer_Form, Operational Constraints tab, what is SDG&E's definition of "Minimum Storage Level sMIN (MWh)" (Row 11)?

Enter the minimum stored charge level during "normal" operations, inclusive of reserve capacity. May also be called the minimum useable capacity.

72. On the ES_Offer_Form, Operational Constraints tab, what is SDG&E's definition of "Maximum Storage Level sMAX (MWh)" (Row 12)?

Enter the maximum stored charge level during "normal" operations, inclusive of reserve capacity. May also be called the maximum useable capacity.

73. On the ES_Offer_Form, Operational Constraints tab, what is SDG&E's definition of "Average" for "Average Discharge Rate" (Row 13), which is unclear since this asset will ultimately be dispatched by SDG&E / CAISO?

The respondent should enter an average rate that reflects their technology's lifetime average. This is an informational field and will not affect the optimized dispatch calculated during the evaluation process.

74. On the ES_Offer_Form, Operational Constraints tab, what is SDG&E's definition of "Minimum" and "Average" for "Max Charge Rate" (Row 15), which is unclear since this asset will ultimately be dispatched by SDG&E / CAISO?

The "Max" label here is an error. It should be simply, "Charge Rate". A revision to the form will be uploaded to the SDG&E RFO site.

The respondent should enter an average rate that reflects their technology's lifetime average. This is an informational field and will not affect the optimized dispatch calculated during the evaluation process.

75. On the ES_Offer_Form, Operational Constraints tab, what is SDG&E's definition of "Minimum" and "Average" for "System Efficiency Range" (Row 17)? Since efficiency is a function of the duty cycle and this asset will ultimately be dispatched by SDG&E / CAISO, efficiency does not seem to be under full control of the vendor. If there is a particular measurement location and reference duty cycle for measuring efficiency, please provide the details.

The respondent should enter an average rate that reflects their technology's lifetime average.

For Minimum - Enter the amount of energy, as a %, that is available for discharge, after charging. This is the MINIMUM guaranteed efficiency.

76. On the ES_Offer_Form, Operational Constraints tab, how should a respondent treat the "A/S Ramp Rate (MW/min)" value, if the storage technology can move through its entire output power range in < 1 second?

Enter the best possible ramp rate in this field.

77. There is a footnote that indicates that the energy storage RFO might be considered by a respondent interested in providing a permanent load shifting result from an energy storage device.

a. In particular, does this potential consideration include customer side storage that provides permanent load shifting?

Behind the meter energy storage projects should be bid into the DR product type. Please see DR FAQ #11 for additional guidance on permanent load shifting.

78. Is it theoretically possible that the outcome of the SDG&E 2014 All-Source RFO process be a combination of (1) a bilateral PPTA agreement for the 600 MW at the Carlsbad repower; and (2) 200 MW of utility-owned energy storage projects (i.e., BOT and EPC bids)? How would this theoretical result comply with the CPUC order for SDG&E to procure at least 50% of its mandated energy storage requirements from IPPs?

SDG&E will not speculate on theoretical results of this RFO.

79. D.13-10-040 requires SDG&E to acquire 165 MW of energy storage resources through three RFOs in 2014, 2016, and 2018. Does SDG&E interpret D.13-10-040 to state that SDG&E can own up to 50% of each of the 2014, 2016, and 2018 requirements, or up to 50% of the total of 165 MW?

This question is outside the scope of the 2014 All Source RFO.

80. Can SDG&E procure utility-owned storage in the 2014 and 2016 All-Source and Energy Storage RFOs and delay the mandated minimum of 82.5MW of IPP energy storage projects to the 2018 solicitation?

SDG&E has already procured 40 MW of the 82.5 MW target for 3rd party owned storage. The remaining requirement may be met via procurement through the 2014 All Source RFO, or subsequent solicitations in future energy storage procurements.

81. If SDG&E procures more than 165 MW of energy storage as required by D.13-10-040, is it SDG&E's position that 100% of the amount of energy storage acquired above the 165 MW requirement can be utility owned?

This question is outside the scope of the 2014 All Source RFO.

82. Please explain why SDG&E is not offering utility-owned sites to energy storage PPTA or ESSBOT bidders, but is offering these utility owned sites to energy storage EPC bidders.

The encumbrance of utility owned property by third parties requires CPUC approval of an 851 application. A commercial transaction with such a requirement is more complex and has greater schedule implications, in SDG&E's opinion, than EPC. While SDG&E has no obligation to offer its land to anyone, it has elected to seek ESSEPC as one of the allowable commercial arrangements for this solicitation. Please see Q&A 57 for related information.

83. What cost of land will SDG&E assign to EPC bids in determining the overall cost of those types of bids versus PPTA bids?

See above answer to question 60.

84. How is SDG&E going to evaluate PPTA vs. BOT and EPC energy storage bids? Are there different metrics for evaluating each of these types of bids?

See above answer to question 54.

85. What tariff will SDG&E use for tolling energy (i.e., charging energy) for energy storage projects? Will the same tariff assumptions be used for ESSBOT, ESSEPC and ESSPPTA proposals?

The same assumptions will be used for all proposals.

86. What tariff will SDG&E use for station source energy and station load / parasitic load for energy storage projects? Will the same tariff assumptions be used for ESSBOT, ESSEPC and ESSPPTA proposals?

The same assumptions with regard to energy pricing will be used for all proposals including third party (ESSPPTA) and utility owned (BOT and EPC).

87. In addition to meeting RA counting rules, what other preferred characteristics will SDG&E seek for energy storage projects (e.g., the ability to charge and discharge multiple times per day, rate of charge or discharge, etc.)?

ESSEPC and ESSBOT offers must include technologies that meet SDG&E's commercial viability criteria.

Item 13(f)i of the ESS RFO document states the following:

“SDG&E will not require a minimum amount of annual cycles. However, SDG&E will give priority to ESS capable of at least 50 cycles per year.”

88. Does SDG&E have a preferred number of discharge cycles per year for an energy storage project (in addition to the minimum requirement of 50 cycles per year)?

Item 13(f)i of the ESS RFO document states the following:

“SDG&E will not require a minimum amount of annual cycles. However, SDG&E will give priority to ESS capable of at least 50 cycles per year.”

To the extent that the cost to provide a capacity guarantee will vary with the number of annual equivalent cycles (e.g. 25 vs. 50 annual equivalent cycles) these costs should be discussed with SDG&E prior to finalization of the bid.

89. All other things held equal, will energy storage bids that provide more cycles per year (greater than the minimum of 50) be considered superior to bids that have fewer annual cycles (but still greater than 50)?

It depends. Assuming that a resource provides greater variable benefits than variable costs, then a greater number of cycles would provide greater net energy benefit and therefore enhance the overall value of the proposal.

90. Does SDG&E have a preference for energy storage projects with greater flexibility characteristics but a shorter useful life, or longer life and less flexibility?

SDG&E has not stated a preference with regard to the factors mentioned here.

91. How will SDG&E evaluate operating risk for BOT and EPC projects, versus operating risk for PPTA projects?

SDG&E has required commercial viability in its acceptance of BOT and EPC bidders. It has not done so for PPTA. Further, SDG&E will require proper O&M to keep facilities maintained in order to comply with warranties and guarantees. Operating risk for BOT and EPC will be embedded in cost and it presumes PPTA would likewise reflect operating risk in its pricing.

92. In addition to the All Source RFO / LCR RFO for Energy Storage Systems released by SDG&E on September 5, will SDG&E also be issuing another RFO for energy storage projects this year to satisfy AB 2514 requirements?

Yes, SDG&E plans to issue an RFP for energy storage for distribution reliability / power quality in December 2014.

93. Can you please explain the apparent inconsistency between Item A below from SDG&E's "Questions & Answers / FAQs" and Item B below from SDG&E's ESPPTA? That is, Item A states that the facility must be able to discharge for four (4) consecutive hours on three (3) consecutive days, while Item B appears to require five (5) consecutive discharge/charge cycles within three (3) days as part of the annual Commercial Operations Test. (We believe that the provisions in Item B are much more severe than those in Item A and would impose an onerous requirement on energy storage systems.)

The following from, "SDG&E 2014 All Source RFO, Questions & Answers / FAQs"

1. Can you explain SDG&E's "Counting rules for energy limited resources (like energy storage) that requires four hours of discharge for three consecutive days? Does this mean that a storage facility needs to be able to have 12 hours of dispatch over three days with no charging?

SDG&E's understanding of the RA counting rules for use limited resources is as follows: the resource must be available for four (4) hours on three (3) consecutive days. This means that the storage facility must be able to discharge for four (4) consecutive hours on three (3) consecutive days. There can be charging in between the discharges on each of those days.

The following from: SDG&E's Energy Storage System Power Purchase Tolling Agreement, Appendix 7, Testing Protocols

Reliability/Availability Test

Seller shall demonstrate to Buyer the Energy Storage System's reliability and availability as follows:

- Each Energy Storage System shall start, run without tripping at **one hundred percent (100%) Contract Capacity for four (4) hours and perform a normal shutdown five (5) consecutive times within three (3) days.**

Item B from the ESSPPTA is an annual testing protocol in which the project demonstrates to SDG&E its reliability. In contrast, Item A (the RA counting rule requirement) is an availability requirement. Once the project has met the reliability protocol in Item B, it must thereafter meet the availability requirements of Item A.

94. What is the warranty term of the contract relative to name plate capacity? Do batteries need to be sized for degradation over the cycle life of the system?

Per the ESS RFO document, Table 1, for ESSBOT or ESSEPC: SDG&E requires a warranty/guarantee of minimum 10 years or useful life of the asset.

Additional information regarding system warranties is within the RFO document at 13(b), which states

Respondents shall state their preferred warranty period and nature of the warranty. Additionally, a warranty period of ten (10) years or useful life period, whatever is shorter, shall be included in at least one offer. If the expected useful life of the equipment exceeds ten years, additional warranty periods priced out to the end of the expected useful life shall be included.

For ESSBOT and ESSEPC projects, SDG&E will prioritize ESS offers with a capacity guarantee that will ensure the ESS will be capable of delivering its rated power (MW) and energy (MWh) for the useful life of the system.

Item 13(f) in the RFO document discusses annual cycle requirements and that SDG&E will give priority to ESS "capable of at least 50 cycles per year". To the extent that the cost to provide a capacity guarantee will vary with the number of annual equivalent cycles (e.g. 25 vs. 50 annual equivalent cycles) these costs should be discussed with SDG&E prior to finalization of the bid.

95. What is the applicable NEC version?

SDG&E requires compliance to the latest version of the applicable standards.

96. What are the local noise requirement?

From 2.3.2.3 in the Technical Specification:

Noise produced by any ESS operation shall be less than 65dB LDN (day-night average sound level), measured at a distance of 50 feet from any ESS container or structure at a maximum. The local jurisdiction zoning laws shall mandate noise maximums at property lines.

97. What are building codes required by SDGE and other agencies involved?

Bidders are responsible for determining and complying with applicable codes and regulations.

98. Should our January 5th proposal reflect 2017 forward looking, or overnight pricing?

Proposals should reflect pricing that the Respondent believes will be available when equipment must be procured in support of the project timeline being proposed. Respondents will be held to their pricing proposal.

99. Clarify site costs such as fencing, paving, roads, landscaping, and fire loop are whose responsibilities?

These costs are part of construction, and therefore the responsibilities of Bidders.

100. Is Miguel substation capable of 50MW interconnection?

Yes.

101. We request 3 weeks extension from January 5, 2015 due to the magnitude and number of projects and the holiday season in between

We are unable to accommodate this request. Bids for all product types in the 2014 All Source RFO are due January 5, 2015.

102. Could you provide the location of the Miguel 12kV circuit that is the preferred interconnection point?

This is shown in a map provided to qualified ESSEPC bidders.

103. Does SDG&E require a capacity guarantee so the project provides the capacity and duration for the life of the project?

Please see ESS FAQ #94.

104. For the EPC sites (energy storage), can you please clarify assumptions for demolition and remediation on the sites with existing infrastructure? For example, the Miramar and Kearney sites. Who will be responsible for that activity?

ESSEPC is not responsible for demolition and remediation at Miramar and Kearney. ESSEPC will be responsible for re-locating existing entrance to Friars substation with an equivalent gate along the western wall of the existing substation.

105. For the EPC projects (energy storage), can you please provide clarity around the warranty/guarantee for performance in outer years? What are the specifically desired terms of that warranty?

Please see ESS FAQ #94.

106. For the EPC projects (energy storage), will the EPC company be responsible for permitting or will serve as support for SDG&E permitting the projects?

EPC will serve as support to SDG&E for permitting. Support would be in the form of providing technical information needed for environmental studies and site plans for its project.

- 107. In the EPC track (energy storage), Section 2.4 of the specification states SDG&E will be responsible for the design and installation of the foundations and the EPC contractor will provide SDG&E with the equipment loads. Please confirm this.**

SDG&E has revised the Energy Storage System Specification to clarify this issue.

- 108. In the EPC track (energy storage), Section 5.1.1: Please confirm the EPC scope ends at the 277/480 VAC side of the inverters and that no transformers or medium voltage equipment is included in the EPC Scope of Work.**

SDG&E acknowledges that the Energy Storage System Specification, section 5.1.1 and its reference to the conceptual diagram in Appendix C does not make it clear that the step-up transformer is within the scope of an EPC project.

However, the 2014 All Source RFO - Energy Storage System RFO document, section 13(c) states

ESSEPC will be responsible for design and construction to the high side of the step up transformer and requisite CAISO communications and should price this information into their offer.

When there are inconsistencies between the information provided in the Energy Storage System Specification (or other documents or presentations) and the requirements in the RFO materials, the RFO materials shall govern.

- 109. What stage of the development process do distributed storage projects need to be in? Distributed storage projects need to meet the requirements set forth in the RFO.**

- 110. Section 3.0A12c, it states "ESSEPC Respondents should include installation and any associated services, but NOT including site costs, permitting costs or interconnection costs. ESSEPC shall be responsible for and price in all building permit costs including storm permitting. SDGE shall only be responsible for environmental permitting associated with environmental impact analysis. ESSEPC will be responsible for design and construction to the high side of the step up transformer and requisite CAISO communications and should price this information into this offer."**

Is there an underlying assumption that site costs will be similar for various battery technologies, thus SDG&E is requesting bidders exclude the site improvement costs from their EPC pricing? Please clarify: Do "site costs" include:

- **Grading (design and construction)** - SDG&E Response: No
 - **Drainage (design and construction)** - SDG&E Response: No
 - **Interior roads (design and construction)** - SDG&E Response: No
 - **Security fencing and gates (design and construction)** - SDG&E Response: No
- "Site Costs" in this instance was intended to be the cost of land.

111. **Section 3.0-A-12-c, it states “ESSEPC Respondents should include installation and any associated services, but NOT including site costs, permitting costs or interconnection costs. ESSEPC shall be responsible for and price in all building permit costs including storm permitting. SDGE shall only be responsible for environmental permitting associated with environmental impact analysis. ESSEPC will be responsible for design and construction to the high side of the step up transformer and requisite CAISO communications and should price this information into this offer.”**

Section 5.2.2 of the Energy Storage Specification implies, and the one-line diagram in Appendix C states the step up transformer will be provided by the utility. Please clarify the scope of the supplier and SDG&E.

When there are inconsistencies between the information provided in the Energy Storage System Specification (or other documents or presentations) and the requirements in the RFO materials, the RFO materials shall govern. Switch gear and step-up transformer[s] are to be provided by the ESSEPC.

112. **Section 2.4.2 of the Energy Storage Specifications states, “Container anchoring provisions to the foundations shall be the responsibility of SDG&E. Supplier shall provide physical data (weights, dimensions, centers of gravity, etc.) as required for foundation and anchoring design.”**

Is there an underlying assumption that foundation costs will be similar for various battery technologies, thus SDG&E is requesting bidders exclude the site improvement costs from their EPC pricing?

SDG&E has revised the Energy Storage System Specification to clarify this issue.

113. **Questions regarding Friar site:**

a. Can we relocate the access to the substation, and if so, are the associated site costs the responsibility of the Supplier?

Yes, the ESSEPC shall relocate the existing access to the west side of the existing substation. Access gate will be of same form and fashion as existing.

b. Is an easement required over the underground transmission lines running through the parcel, and if so, how wide?

No formal easement is required, but the design of the energy storage facilities must avoid the alignment of the underground conductors as well as allow for future access to these conduits.

114. **Additional Variable Costs (\$/MWh): Does this input metric refer to energy throughput in MWh, or to rated energy available in MWh?**

This refers to any variable costs payable by SDG&E for the energy throughput in MWh.

115. **Is a performance and payment bond required for this project?**

Yes

116. Will O&M services be provided under a contract separate from the ESSEPC contract?

Yes, separate contract to be negotiated in parallel or immediately after the ESSEPC contract.

117. What in particular is required for the Conceptual Design currently due on 12/1?

Conceptual design information must include, at a minimum:

- a. An initial site layout for the selected project site[s] indicating any new civil/structural features and the components of the proposed energy storage system, including electrical equipment required for power conversion and interconnection (e.g. PCS containers, inverters, transformers, etc.)
- b. A high level bill of materials listing major components required for the proposed project[s] (e.g. ESS container units, transformers, switches, etc.)
- c. A one-line diagram indicating how the major components will be electrically connected in the proposed project[s]

No specific form is required; documents should be uploaded in PDF format and diagrams should be drawn to scale. BOM information can be supplied in a simple table format.

Additional information that you think will help us gain a better understanding of your proposed project[s] may also be provided at the bidder's discretion.

118. When does SDGE intend to release a copy of the EPC contract that would govern this project?

Upon shortlisting.

119. Will there be any union or other labor / wage requirements for these projects?

Union labor is required.