1. **Please clarify "State Energy Program Data Sources" on p3.**

   "State Energy Program Data Sources" is a general term to describe any programs or entities that collect home energy information in the HELIX states (New England plus New York) as the exact set of data sources that will transmit information into HELIX has not yet been rigidly defined. These data sources may be at the national, regional, state, or local level: in addition to DOE's HEScore and RESNET's HERS, which are mentioned specifically within the RFI, several national and state green/efficient home certification programs have been cited as priorities for inclusion in HELIX by regional stakeholders. The HELIX team is also interested in methods to incorporate information regarding renewable energy information as well as building permit and energy code compliance information to the degree such data sources are available.

   In conclusion, there are some known sources of residential home energy performance data at the state level, but HELIX seeks to be a robust repository for all potential sources of data. Ideally, HELIX will be built in such a way to be flexible to input of new data sources through APIs, web services, etc.

2. **Who is expected to activate the push/pull or data into HELIX?**

   The HELIX team has not yet determined a standard process for importing data into HELIX. For data providers capable of automating data transfer processes, the HELIX team expects to come to agreements with each data provider governing the frequency of this transfer and whether it is triggered by HELIX "pulling" from a data source or the data source "pushing" to HELIX. For data that cannot be automatically imported to HELIX, alternative methods for populating HELIX will be required (see #16-17). The HELIX team has found that the potential providers of this data vary widely in their ability to adapt to any API that would be developed as part of the HELIX project, so the selected contractor that ultimately builds HELIX may need to develop one-off integrations with data sources where the need arises. Once again, the application will need be built with this flexibility in mind.

   Regardless of the method employed, it is envisioned that a home's relevant energy information would be imported to HELIX soon after it becomes available. It would continue to reside in HELIX until said home it is listed for sale, at which point the pertinent information would be exported to/pulled from the appropriate MLS in order to populate the listing. While other entities could also pull information out of HELIX for its own uses, MLSs have the most feasible use case currently.

   Note that all processes for importing data into HELIX must honor any privacy restrictions associated with each piece of information (for example, information that has been deemed private will not be stored in HELIX unless the relevant permissions are given by the home owner).

3. **Please define "approved users and systems should have the ability to <u>add</u> to the HELIX data repository"? Are these primarily energy auditors?**

   (See pg 3) The "approved systems" adding data to the HELIX data repository would be programs like Home Energy Score that feature built-in quality assurance and are capable of fully automated data transfer. The "approved users" adding data may include energy auditors (for energy info that cannot be automatically uploaded), but may also include state energy efficiency program administrators, real estate agents, appraisers, MLS staff, and perhaps others. There is no governance protocol for approval at this point, but HELIX would seek some level of quality assurance on the part of data providers inputting information into HELIX.

4. **How do you expect SEED to be expanded to incorporate new energy information fields?**

   The SEED application in its current form can manage energy performance data of large groups of buildings. Because SEED was originally developed to handle commercial building benchmarking data, there are limitations to its ability to manage residential data. LNBL has defined many of the development needs required for SEED to handle the import, management, analysis, and export of a residential use case. U.S. DOE is currently working with SEED Technical Partners to complete some of these tasks, including the ability to accept Third Party Verified data compatible with the RESO Data Dictionary field structure. The selected contractor will work with DOE and the HELIX team to determine what further development is needed for SEED core functionality and what additional enhancements are desired for the HELIX project specifically.

   SEED is an open-source project, and we would expect that the HELIX contractor would be able to contribute to the core code to evolve SEED to be more residential building-compatible. In the product backlog, there are specific references to potential "updates" to SEED to make it the definitive base of the HELIX project, but the HELIX team is open to alternative approaches.

5. **What is the motivation for separate State instances?**

   (See #22) The final ownership and governance model for HELIX has not been defined. It may be that there is one instance of HELIX hosted by a single entity with appropriate user rights/restrictions, or there may be multiple instances by state. The selected contractor should be prepared to deliver the final ownership model as decided by the HELIX team. The selected contractor is encouraged to provide technical insight into the pros and cons of various governance structures.

6. **How does HELIX intend to guarantee the integrity of data uploaded through CSV files?**

   (See #16-17) Currently, SEED identifies errors and outliers according to a set of pre-defined data cleansing rules. The selected contractor will likely need to create additional data cleansing rules for HEScore and other energy performance data. All data providers seeking to upload information to HELIX are expected to have quality assurance activities in place in order to verify data prior to upload. The initial rollout phase of HELIX is expected to focus on Third Party Verified data sources that come from established programs with quality assurance activities in place.

   Alternatively, HELIX could decide to not allow CSV files through import and only allow XML or JSON files to be ingested into the database, as flat file formats, such as CSV fields, may present difficult challenges for HELIX.

7. **How does HELIX envisage integrating other sources of information (latitude, longitude …)?**

   HELIX development is expected to occur in phases. The first phase will focus on Third Party Verified data coming out of established programs such as HEScore, HERS, Energy Star, LEED etc. The HELIX team will work with the selected contractor to map out plans for incorporating additional energy performance data. The method of getting data into HELIX will depend on the data source, and whether it is capable of auto-population or an export/import mechanism needs to be developed.