Request for Consultant Information
(RFI)

Home Energy Labeling Information eXchange (HELIX)

Issued by:

Northeast Energy Efficiency Partnerships, Inc.
January 6, 2016

Questions Due:
~~January 13, 2017~~ EXTENDED to January 20, 2017

Responses Due:
January 29, 2017

RESPONSES TO QUESTIONS AVAILABLE HERE

1. Executive Summary

Northeast Energy Efficiency Partnerships, Inc. (NEEP) has, on behalf of the Home Energy Labeling Information eXchange (HELIX) project, issued this Request for Information (RFI) to provide any and all interested parties with demonstrated proficiency in database development and data systems management (particularly in the energy efficiency and real estate spaces) with the opportunity to suggest and describe possible approaches for achieving the desired functionality of home energy data storage and transfer detailed below. Respondents should review the following Background, HELIX Project Goals and Scope, Assumptions, and Product Backlog (Sections 2-5) before responding to the Questions for Respondents (Section 6) per the guidelines provided in General Submittal Information (Section 7). The HELIX project team will use the information collected from this RFI to refine the features and specifications that NEEP will include in the work scope of any subsequent Requests for Proposals, Request for Quotes, or any other solicitations related to developing HELIX.

2. Background

NEEP was founded in 1996 as a non-profit accelerating energy efficiency in the Northeast and Mid-Atlantic states. Today, it is one of six Regional Energy Efficiency Organizations funded, in part, by U.S. Department of Energy (U.S. DOE) to support state efficiency policies and programs.
Our mission is to accelerate energy efficiency as an essential part of demand-side solutions that enable a sustainable regional energy system.

HELIX Project History
Energy is the highest cost of home maintenance, but homebuyers typically receive little or no information about how much energy they will need to heat, cool, and power the homes they see listed for sale or rent. Historically, this information was simply not available, but programs like the U.S. DOE's Home Energy Score (HEScore) now provide energy consumption and cost estimates for more homes than ever before. Thus, the primary barrier to widespread access to energy information for homes on the market is the lack of a system in place to transmit this data directly from the sellers trying to market their homes to the real estate listings buyers use to compare them.

In 2016 NEEP assembled a team to develop a database, HELIX, capable of automatically populating real-estate listings - whether they are accessed through local Multiple Listing Services (MLS) or portals like Trulia and Zillow - with home energy information from: (1) Home Energy Score; (2) building rating/certification programs like RESNET's Home Energy Rating System (HERS), Energy Star, and LEED; and (3) perhaps other sources of useful, relevant information to the extent it is available.

HELIX focuses on the Northeast region – the six New England states and New York – while also aiming to provide a replicable, open-source model that can be used elsewhere. The project will include training delivered to real estate professionals as well as continuous engagement with stakeholders in the Northeast real estate market order to ensure a useful product. The project will culminate in full implementation of the HELIX database across the seven-state region in 2018.

The HELIX project is supported by several agencies, including the U.S. Department of Energy, Vermont Public Service Department, and Massachusetts Department of Energy Resources.

3. HELIX Project Goals and Scope

The overall HELIX project goal is to expedite the creation of large-scale home energy labeling policies and programs that support the market valuation of energy efficiency in homes across the northeast by making home energy information accessible to local MLSs and other market interests (e.g., realtors, appraisers, energy efficiency programs and service providers, state energy offices and building departments). Ultimately, the market valuation of energy efficiency in homes will support the use of private financing to build or retrofit homes to achieve high levels of energy efficiency and reduce wasteful use of energy.

HELIX will serve as a database for U.S. DOE HEScore data and other home energy information as well as a conduit for incorporating this information into local MLSs while providing appropriate data security and privacy protections. HELIX will provide an industry-wide, easy to use database of home energy information that enables consistent and correct use of such information in the appraisal and marketing of homes and allow home owners, buyers, landlords, tenants, realtors, appraisers and lenders to incorporate the value of home energy attributes into their financial equations. With ready access to home energy ratings, supported by training and coordinated marketing, such market interests are more likely to value home energy efficiency similar to how vehicle miles per gallon (MPG) has made fuel efficiency a key consideration in the purchase and sale of cars and trucks. Propelled by market demand for such information to guide home sales and purchases, real estate professionals will have a strong incentive to make home energy rating a standard practice in property listing, evaluations and sales.
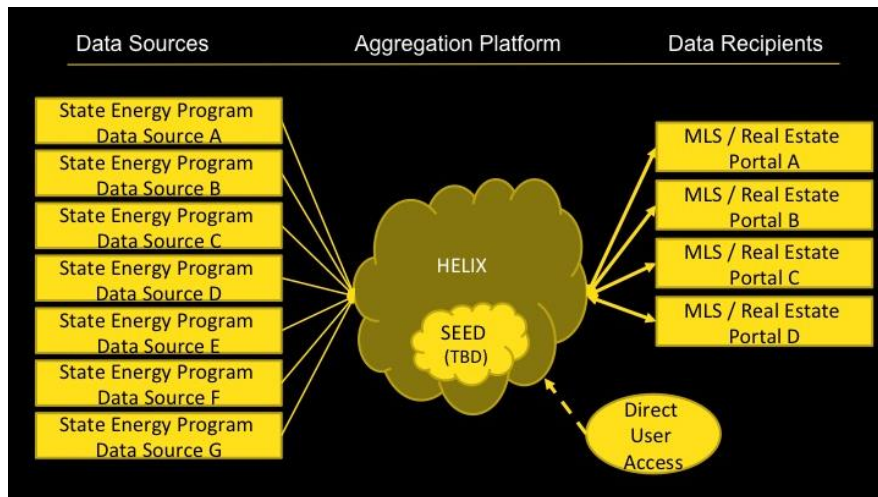
Figure 1. Notional Systems Diagram for HELIX
[Note: National data sources could substitute for the state/local data sources, and a public records data provider/aggregator could substitute for the direct connection to MLSs]

The technical solution for HELIX is envisioned to be a hosted system with the adequate security requirements to store home energy performance data. Approved users and systems should have the ability to add to the HELIX data repository through a user-interface and/or machine-readable web services. Additionally, the same user-interface and web services should allow approved users to extract home energy performance information to other systems to make valuable use of the data.

4. Assumptions

While the following assumptions are provided to help clarify and contextualize the role of HELIX, respondents are encouraged to question them as they deem fit (please include explanations).

Timeline
The initial, high-level timeline would be:

- Contract executed for an initial build: March 2017
- Build first version of HELIX (including internal alpha-testing): September 2017
- Build second version of HELIX (including external beta-testing): December 2017
- Release first full version of HELIX through open-source: March 2018

Architecture/Build: Leveraging Existing Systems
NEEP and its partners believe that the build of HELIX should start with improvements to the Standard Energy Efficiency Data Platform™. The Standard Energy Efficiency Data (SEED) Platform is an open source software application designed to manage building performance data, such as required by a benchmarking ordinance, which can be costly and time consuming for states, local governments and other organizations. The SEED Platform helps users combine data from multiple sources, clean/ validate it, and generate queries and reports. While SEED is predominantly focused on commercial buildings, NEEP and partners believe that this code can be modified to fit the needs of HELIX.

Implementation: Data Consumers
The primary consumers of the data fed into HELIX would be large public records data providers/ aggregators. There are several data providers that feed basic residential property information to the MLSs in the northeast and all over the United States. HELIX should be built with the goal to be compatible with such data providers. However, other important avenues exist for populating real estate listings, including: (1) MLSs which manage their data in-house and do not rely on intermediary data providers; and (2) real estate online portals, which could be populated directly in cases where circumventing the local MLS proves necessary. While populating real estate listings is HELIX's most important functionality, many other use cases would allow individuals (real estate professionals) and entities (state energy offices, utility program administrators, and business interests) to benefit from having access to HELIX's property-specific and aggregated home energy information, respectively.

Operations & Maintenance
The eventual owner of the HELIX database will either provide ongoing hosting and technical support services for HELIX itself or hire another party to provide this service.

5. Product Backlog

Please see Appendix A for an initial product backlog describing HELIX's goals as a technical system. The product backlog is structured through user stories and different themes with respect to the HELIX project with an aim to keep the project's development agile. Responses to this RFI should make direct reference to the content of this backlog by referencing the ID numbers of individual elements therein.

6. Questions for Respondents

Please provide answers to the following questions in your response to this RFI:

1. **Suggested Approach**: What is the best technical approach to HELIX? Please describe your ability to deliver this approach. Also, explain any proposed changes to the assumptions or initial product backlog in this RFI.

2. **Implementation Model**: What model would the suggested technical approach follow for HELIX? (For example, would it follow a professional services model with a custom-build system? Would it follow a software-as-a-service model?)

3. **Development Timeline**: Does the timeline suggested above fit the suggested technical approach? If not, please explain why and suggest an alternative timeline for completion.

4. **Similar Experiences**: Please describe any past performance and/or experiences similar to HELIX in the past three years.

5. [Optional, but highly encouraged] **Rough Budget**: What is a rough order of magnitude estimate for the work suggested by the technical approach?

6. [Optional] **Other Comments**: Please submit any other comments about this document's scope and approach to HELIX.

Responses to this RFI should not exceed ten (10) pages in length.

7. General Submittal Information

This Section of the RFI provides information for respondents concerning the submittal process, general requirements, schedule, and qualifications.

    A. Contact and Communications

All communications between respondents and NEEP are to be directed to:
Kevin Rose, krose@neep.org, 781-860-9177 x 158

    B. Respondents' Q&A

Respondents may submit questions via e-mail for this RFP. **All questions submitted prior to January ~~13~~ 20, 2017 will be answered to the best of our ability**.

    C. RFI Submittal Format and Due Date

Respondents are required to submit electronic versions of their proposal to:
Kevin Rose, krose@neep.org, 781-860-9177 x 158
- **The responses should be submitted in both Microsoft WORD and PDF format.**
- **Responses should be limited to ten (10) pages.**
- A confirmation of receipt will be sent to those who submit responses on time.

    D. RFI Schedule

RFI release	January 6, 2016
Close of RFI question period	January ~~13~~20, 2017
RFI responses due	January 29, 2017
Anticipated work start date	*April 2017*

The above schedule is subject to change by NEEP.

    E. Minimum Qualifications

A single firm or a team of firms under a single primary entity may submit responses. Respondents must have demonstrated expertise in data storage and transfer.

    F. Modifications to the RFI

NEEP may modify the RFI prior to the date fixed for submission of responses by the posting of an addendum online and an issuance of a notice to all known potential respondents.

Appendix A: Product Backlog

This Product Backlog will guide future development for the eventual HELIX. These feature items are compiled through research with several stakeholders associated with the project.

- **ID** - The unique identifying number for each product backlog item.
- **Theme** - The product backlog items are collected into various buckets and/or themes to group them logically for future development. Themes include: SEED improvements, back-end development, front-end development, administration, API development, infrastructure and hosting.
- **As a/an** - This column identifies the role of the requestor of a particular item.
- **I want to…** - This column identifies the core request of the requestor - i.e. what do they really want to get done or achieve?
- **So that…** - This column identifies the cause of their request - i.e. why do they want this feature?
- **Acceptance Criteria** - This column defines what it means to be done. Furthermore, it shows the actual point-of-contact validate when the item has been done, where possible.
- **Priority** - On a MoSCoW scale - must have, should have, could have, and won't have - the product backlog items are sorted for their need to be done for the HELIX project.

ID	Theme	As a/an	I want to…	So that…	Acceptance Criteria	Priority
1	SEED Improvements	developer	ensure that the home energy info can import into SEED in all formats (including CSV, XML, and HPXML. Could also include JSON)	SEED can be the foundation of HELIX's data repository	Manual and web services connection between home energy data and SEED works to present data in SEED.	Must Have
2	SEED Improvements	developer	ensure that MLS and home energy info can be successfully matched algorithmically through SEED	I can be confident that different data point about a common address are successfully consolidated into one record and/or view	Robust testing on currently available home energy info and MLS test data does not lead to low quality data	Must Have

ID	Theme	As a/an	I want to…	So that…	Acceptance Criteria	Priority
3	SEED Improvements	developer	to query SEED for a record based on pieces of information related to a home	I can match my fragmented data with an existing record in SEED	Robust testing of putting querying fragmented data about a home to get the home in SEED	Must Have
4	SEED Improvements	developer	to be able to create properties in SEED using an API	I can automate the creation of properties more easily.	Simple test of creating an API endpoint for creating properties.	Must Have
5	SEED Improvements	developer	allow records to persist beyond tax years	I can keep data longer for homes without recognition of tax codes	Modifying SEED code to not kill old records due to tax records considerations	Must Have
6	SEED Improvements	developer	be able to append fields to property record for all types of home energy information	I can keep more robust data for homes within SEED	Creation of methods for appending information to homes with additional home energy information that we may not have scoped currently	Must Have
7	Administration	administrator	be able to create new users to view data on HELIX	I am able to involve stakeholders in viewing home energy data	Users being able to view data only	Must Have

ID	Theme	As a/an	I want to…	So that…	Acceptance Criteria	Priority
8	Administration	administrator	be able to delete users to view data on HELIX	I am able to revoke stakeholders' privileges in viewing home energy data	Users being able to not view data	Must Have
9	Administration	administrator	be able to edit users' privileges to view data on HELIX	I am able to involve stakeholders in viewing home energy data in different ways	Users being able to view data but also other privileges	Must Have
10	API Development	administrator	be able to create new API users to create data	I am able to involve stakeholders in viewing home energy data	API users are able to create records in HELIX	Must Have
11	API Development	administrator	be able to delete API users to create data	I am able to revoke privileges home energy data	API users are not able to access HELIX	Must Have
12	API Development	administrator	be able to edit API users' privileges to create data	I am able to involve stakeholders in viewing home energy data	API users' privileges are able to be edited	Must Have

ID	Theme	As a/an	I want to…	So that…	Acceptance Criteria	Priority
13	Administration	administrator	be able to see all activity in the HELIX platform through a user interface	I can be able to audit activity within HELIX	Administrator is able to login to an administrative view of the platform	Must Have
14	API Development	public records data provider	extract all information from HELIX in one call (subject to privacy restraints)	I can have one data transaction into my public records repository for MLS's	Bulk download of data possible	Must Have
15	API Development	public records data provider	extract only information that's changed since last bulk download	I can minimize the technical overhead and data overhead of new bulk downloads of data	Delta changes in bulk download possible	Must Have
16	Front-End Development	end user	upload information on home energy performance data to HELIX through a CSV file	I can perform these data transaction through a user interface instead of web services	End user are able to upload CSV files	Must Have
17	Front-End Development	end user	edit information on individual homes	I can update homes individually if need be (as an alternative to automated data pulls from other sources)	End users are able to manipulate individual records through a user interface	Must Have

ID	Theme	As a/an	I want to…	So that…	Acceptance Criteria	Priority
18	Infrastructure & Hosting	system owner	know that the HELIX system is secure	I can have confidence that HELIX does not suffer prolonged downtime though no PII will be stored	Use various security testing tools with clean results	Must Have
19	Infrastructure & Hosting	system owner	know that the HELIX system is available	I can have confidence that HELIX does not suffer prolonged downtime	Keep availability and uptime high, though it is not a mission-critical system	Must Have
20	SEED Improvements	end user of SEED	see sequential home energy info for a home through multiple energy ratings/ certifications and before/after retrofit	I have a historical view of a home over time	Have GUI to see multiple records for one home	Should Have
21	SEED Improvements	developer	add GIS data to SEED to be able to map address to lat/long data	I can map addresses of homes to actual locations on a map	Records should have lat/long coordinates	Should Have
22	Administration	administrator	create multiple instances of HELIX by state	I have an different database for each of the seven states in the Northeast region	Validate different instances of HELIX	Should Have

ID	Theme	As a/an	I want to…	So that…	Acceptance Criteria	Priority
23	Front-End Development	end user	build custom reports within HELIX	extract only the information that I need from HELIX	End users are able to select a limited number of columns for reporting	Should Have
24	Back-end Development	system owner	mash other data with HELIX such as MLS data to match records	I can view how HELIX information coincides with other information available about homes	View HELIX information with other datasets	Should Have
25	Back-end Development	system owner	build HELIX upon open-source technology where feasible	I can release HELIX as a project that other regions of the country can benefit from	Release a publicly-available HELIX project in some form (primary functionality should be open source, if not entire project)	Should Have
26	Infrastructure & Hosting	system owner	know that HELIX can scale for 100,000's of records in one hosted instance	I can help other states in the Northeast have confidence in the system for further investment	Load-test the HELIX system appropriately for multiple users	Should Have