ADDENDUM ONE

Request for Proposal 16001

Liquefied Natural Gas (LNG) Feasibility Study

June 25, 2015

FAX TO: All RFP recipients on record.

The Invitation to Bid (ITB) is hereby clarified or changed as follows:

1. The RFP deadline remains the same.
2. The preproposal conference teleconference information is as follows:
    - Dial 1-888-585-9008 and enter the conference code 789-295-032#

    QUESTIONS AND ANSWERS:

3. **Q:** I've gone through the RFP and note the in-process model (page 3, section 3.2). Since it is the preferred model for economic modeling, is there any way we can learn more about it?

    A: Please see attached.

4. **Q:** It's possible that another contractor is building this, and if so, perhaps we could get a copy of their Scope of Work?

    A: No, it is still being worked on and is incomplete.

All other terms and conditions remain the same.

END OF ADDENDUM

We appreciate your participation in this solicitation.

 Sincerely,

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Community energy economic and forecasting model

An addendum to the AEA LNG RFP

6/24/2015

The community energy economic and forecasting model is being developed by a team under a contract through the Alaska Energy Authority. The model is currently in an Excel workbook, which needs further QA/QC before public release. It pulls from a diverse range of sources to estimate current energy demand, future energy demand, and the economic viability of a range of potential projects in a community. The intent is for the community-level estimates to be aggregated regionally and statewide to determine what opportunities exist for bringing more affordable energy to communities in the AkAES study region. The final version will integrate data from publically available data sources to allow for automatic updating of the data to run the model. The final version will be available via the internet, both as a outreach tool and to assist communities make improved energy decisions. To support this, a suite of decision support tools, still to be determined, will be developed.

Two purposes for the model:

1. Estimate and forecast energy demand on a community level to be aggregated over the Alaska Affordable Energy Strategy (AkAES) study area
    a. Heat & electricity demand by sector: residential, commercial (public & private), water & wastewater
2. Economic evaluation and comparison of potential projects at the community level to be aggregated over the AkAES study area
    a. Economic potential of project types
        i. Compare project types to determine what are the types of projects will have the highest likelihood of being cost-effective (i.e., B/C>1)
    b. Market potential & policy analysis
        i. The model will also be used to estimate the impact of potential policies on the affordability of energy in the AkAES study region, using assumptions for program participation and other variables

If other functionality would be needed to accomplish the goals of this RFP, AEA will work with the contractor of this RFP and the modeling team to determine if it will be feasible to be included in the model.

Methods:

1. How energy demand is modeled at the community level
    a. Electricity models use reported data
        i. Current and historical annual demand from the Power Cost Equalization (PCE) program and/or other utility reporting
        ii. Forecast using linear extrapolation from the past 15 years, and potentially with adjustments based on population projects
    b. Heat estimates developed by aggregating end-use models by sector: residential, commercial, water & wastewater
        i. Residential

1. Current demand estimates
   a. Uses analysis accomplished by Cold Climate Housing Research Center (CCHRC) on data available in the Alaska Retrofit Information System (ARIS) from residential AkWARM files from AHFC's Home Energy Rebate Program and Weatherization program on a community level as reported in the 2014 housing assessment. (AkWARM is a residential energy modeling program)
2. Forecast
   a. Assumes a business as usual (BAU) environment for housing efficiency and people per house, with adjustments based on population estimates

   ii. Commercial: public & private
   1. Current demand estimates
      a. Number of buildings in communities is generally not known. Estimates per community based on a number of sources
      b. Building consumption based on:
         i. Audits, benchmarked buildings, catalogued buildings, assumed buildings
         ii. For buildings that do not have actual data models have been developed to estimate square feet, heating fuel consumption, and electricity consumption
   2. Forecast
      a. Assumes BAU
   iii. Water & wastewater
   1. Current demand estimated through two sources
      a. Audits performed by Alaska Native Tribal Health Consortium
      b. Estimates based on community and sanitation system characteristics
   2. Forecast
      a. Assumes BAU adjusted by population forecasts
2. How the economic evaluation of potential projects is performed
   a. Project types analyzed:
      i. Current models available based on current Alaska programs
      1. residential efficiency, commercial efficiency, water & wastewater efficiency, streetlight efficiency, diesel efficiency, heat recovery, wind, biomass, solar, hydro, increased bulk fuel storage, interties
      ii. LNG assumption to be developed through this RFP
   b. Economic evaluation assumptions
      i. Energy unit prices
      1. Electricity: based on current non-fuel costs, community-level diesel price projections, and diesel efficiency
      2. Heating fuel: based on community-level diesel price projection and a community specific heating fuel adder based on historical trends

     ii. Discount rate: 3%

    iii. Lending rate: 5%

    iv. Economic life of projects: 10-50 years depending on type

     v. Benefits based on present of displaced diesel or heating fuel consumed, decreased O&M or R&R over the economic life of the project

    vi. Costs based on present value of capital, increased O&M and/or R&R, decreased output from other system components (such as heat recovery when integrating renewables) over the economic life of the project

   vii. Project performance assumptions based on data from current and previous projects in Alaska

How the model could be used

1. Phase 1:
   a. AEA will expect that the contractor will
      i. assist in identifying the pertinent variables to include an LNG module in the model
         1. Must able to estimate the costs and benefits of the project
      ii. collect the data and/or develop estimates needed to fill in the LNG module
2. Phase 2:
   a. The model will be run to estimate the economic potential of LNG projects on a community level assuming best case scenarios. The community-level results will be aggregated regionally and across the AkAES study area.
3. Phase 4:
   a. After policy options have been developed, the market potential of those policies, assuming participation rates for the policies, will be estimated.