GENERAL INFORMATION

Project Title: Liquefied Natural Gas (LNG) Feasibility Study

Project Number(s): N/A

RFP #: 16-001

Project Site (City, Village, etc.) Various Alaska Locations

Contracting Agency: Alaska Energy Authority
813 West Northern Lights
Anchorage, AK 99503

Agency Contact: Neil McMahon, Program Manager
Phone: (907) 771-3981 Fax: (907) 771-3044

Estimated Amount of Proposed Contract: ☒ $50,000 to $100,000

REQUIRED SERVICES: ☒ are described in the enclosure consisting of Eight (8) pages, dated 6/16/2015

An optional preproposal conference will be held on July 1, 2015, at 10am, in the Spruce Conference Room, located at the Contracting Agency’s address listed above.

PERIOD OF PERFORMANCE: Begin: August 2015 End: March 2016

PROPOSAL FORMAT

Written proposals to provide the required services shall consist of the enclosed “Part B - Proposal Form”, completed as indicated, plus a letter not to exceed five (8.5” x 11”) pages. If a Price Estimate is required, the page limit does not include the Price Estimate. Proposals that exceed the page limit may be disqualified. Proposals may be faxed or hand delivered to the Contracting Agency.

Note: Offerors shall carefully review this solicitation for defects and questionable or objectionable material. Comments concerning defects and objectionable material must be made in writing and received by the purchasing authority before proposal due date. This will allow issuance of any necessary addenda. It will also help prevent the opening of a defective solicitation and exposure of Offeror’s proposals upon which award could not be made. Protests based upon any omission, error, or the content of the solicitation will be disallowed if not made in writing before the proposal due date.
PRICE AND METHOD OF PAYMENT

☐ A Price Estimate is NOT required with your proposal. The selected Offeror shall submit a Price Estimate within one business day following a request from the Contracting Agency.
☒ A Price Estimate is required with your proposal.

A Price Estimate shall include all tasks to perform the contract and be prepared in the format shown below. Note that a Price Estimate is not a bid. It is a negotiable offer. A Fixed Price contract is desirable; however, a Cost Reimbursement contract may result if a Fixed Price cannot be negotiated.

PRICE ESTIMATE FORMAT (if required per above)

1. * Direct Costs of Direct Labor (DCDL). Provide a table with the following columns (Names required only for key staff and persons “in-responsible-charge”):
   - Job Classification
   - Name
   - Total Hours
   - Rate ($/hr) *
   - Estimated Cost ($)
   - Total DCDL $

2. * Indirect Costs (IDC).
   - IDC Rate: ___ %
   - Total IDC $

3. Subcontracts. List each, the amount for each and attach an estimate in this format for each.
   - Total Subcontracts $

4. Expenses. (Equipment, transportation, food and lodging, reproduction, etc. - if not included in Indirect Costs.) Amounts shall be based on actual cost to the Offeror, without any profit or other markup. Provide a table with the following columns:
   - Item
   - Quantity
   - Cost ($/Unit)
   - Estimated Cost ($)
   - Total Expenses $

   - Total Cost $

6. * Proposed Fee. List a proposed amount (not a percentage) for profit.
   - Fee $

   - Total Price $

* Sole proprietorships and small firms that do not maintain an accounting system that separately identifies costs for “payroll” benefits and overhead, for routine allocation of such costs to jobs, may omit items 2, 5, & 6 if the Rates ($/hr) in Item 1 are proposed as Billing Rates (DCDL + IDC + FEE). Firms that routinely allocate Indirect Costs to projects may not use Billing Rates for this estimate.

SUBMITTAL DEADLINE AND LOCATION

DATE: July 8, 2015
PREVAILING TIME: 3:00 PM
OR Email: RWOOTEN@AIDEA.ORG
Hand deliver proposal directly to following location, and person, if named; or Fax to a number above:

Alaska Energy Authority
Attn: Rich Wooten
813 West Northern Lights
Anchorage, AK 99503

When submitting proposals, please make sure to identify the project title and the RFP number on the outer envelope of the submittal package.

Late proposals will not be considered. Offerors are responsible to assure timely delivery and receipt and are encouraged to respond at least four business hours prior to the above deadline. Any addendum issued less than 24 hours prior to a Deadline will extend that Deadline by a minimum of an additional 24 hours. The Contracting Agency shall not be responsible for any communication equipment failures or congestion and will not extend the deadline for any proposals not received in their entirety prior to the deadline. Except for hand delivered proposals, confirmation of receipt by telephone or other means four hours or less prior to deadline will not be provided. (An out-of-town/state Offeror may electronically transmit their proposal to a local personal representative who may reproduce a copy of it and deliver it “in person” to the submittal location prior to the deadline.)

BASIS OF SELECTION

This solicitation does not guarantee that a contract will be awarded. All proposals may be summarily rejected. Our intent, however, is to select a Contractor based on the following criteria:

1) Project Understanding and Commitment
2) Methodology and Work Plan
3) Personnel & Firm Qualifications, Experience
4) Price Estimate (if required with proposal).
5) Schedule
6) Other (specify): Quality of Proposal

Proposals will be evaluated per Chapter 2 of the DOT&PF PSA Manual.

END OF PART A
1.1 Acronyms/abbreviations Used in this Document

- AEA: Alaska Energy Authority
- AEDG: Alaska Energy Data Gateway
- AkAES: Alaska Affordable Energy Strategy
- B/C: Benefit-Cost ratio
- IEP: Interior Energy Project
- LNG: Liquefied natural gas
- MMBtu: one million British thermal units
- O&M: Operations and maintenance
- R&R: Repair and replacement
- RFP: Request for Proposal

2.1 Purpose of the RFP

The purpose of this RFP is to assist AEA in determining if liquefied natural gas (LNG) can be a viable solution for bringing long-term affordable energy to the communities in the Alaska Affordable Energy Strategy’s geographic area of study, and, if so, what policy options exist that could assist communities in this transition.

In 2014, the Alaska Legislature passed Senate Bill 138 (SB 138), enabling legislation for an Alaska Liquefied Natural Gas Pipeline project. The bill included a mandate for AEA to propose a plan and supporting legislation, by January 1, 2017, for improving energy affordability for Alaska communities that will not have direct access to the proposed North Slope natural gas pipeline. The Alaska Affordable Energy Strategy (AkAES) is AEA’s program to fulfill this mandate.

Additionally, SB 138 established the Affordable Energy Fund, which will use part of the revenue from a North Slope natural gas pipeline to develop infrastructure that will deliver affordable energy to areas of the state that would not have direct access to the gas pipeline. To satisfy this mandate, AEA’s AkAES research and analysis effort will recommend a suite of plans that can be implemented for near-term energy cost savings and prepare the state for revenue from the Affordable Energy Fund.

This RFP will be an important part of the AkAES study plan. Using past research and recommendations as a starting point, the AkAES will compare strategy and policy options across a number of areas that can potentially reduce energy cost including energy efficiency; generation, transmission, and distribution upgrades; management and ownership; and direct subsidies. AEA will evaluate and prioritize the strategies and policy options across all the potential cost reduction areas to come up with the final recommendations and suggested legislation to the Legislature by January 1, 2017.

3.1 Background Information

The mission of the Alaska Energy Authority (AEA) is to reduce the cost of energy in Alaska. To complement this mission, AEA has been tasked by the Legislature to provide recommendations on how to deliver more affordable energy to Alaska’s communities.

As a number of potential options for reducing the high cost of energy to Alaskan communities exist across fields as diverse as energy efficiency to improved utility management, the AkAES aims to compare these options using a common means of analysis. In order to evaluate the potential options, the AkAES program has been developed as a five phase process, as outlined below and shown in Figure 1:
Phase 1: Collect baseline data
Phase 2: Forecast 20-year horizon assuming baseline characteristics remain consistent
Phase 3: Identify and assess strategies to decrease consumer costs by addressing known barriers
Phase 4: Develop potential policies and legislation to implement strategies
  1. Policies using direct and/or indirect funding and requirements (e.g., building energy codes)
  2. Re-forecast 20-year forecast with potential policies to evaluate the effectiveness
Phase 5: Prioritize policy options: The final phase will be accomplished by AEA as a final step to weigh all potential policies options prior to submitting recommendations and proposed legislation to the Legislature.

Alaska Affordable Energy Strategy: Research Overview

<table>
<thead>
<tr>
<th>Phase 1: Data Collection</th>
<th>Phase 2: 20 Year Forecast Based on Status Quo</th>
<th>Phase 3: Strategies for Affordable Energy</th>
<th>Phase 4: Policy &amp; Implementation Plans</th>
<th>Phase 5: Prioritize Policy Options &amp; Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>What has been done?</td>
<td>What will be the energy consumption, generation, costs, and issues in the next 20 years based on current trends?</td>
<td>What should be done on a community/regional/statewide level to deliver affordable energy?</td>
<td>What are potential policies to implement the strategies, and what are the expected outcomes of those policies?</td>
<td>Which policies should be implemented, and how can the results be monitored?</td>
</tr>
</tbody>
</table>

Research Areas

- Community Info
- End-Use Energy Consumption
- Generation, Transmission, & Distribution
- Management & Ownership
- Transportation & Shipping
- Funding & Direct Underwriting
- Energy Emergencies
- Forecasting
- Energy Prices
- Consumption
- Energy Sources
- GT&D Infrastructure
- End Use Efficiency
- Local Management Capacity
- Transportation Needs
- Infrastructure Expenditures
- Direct Underwriting
- Direct Funding
- Indirect Funding
- Requirements
- Update Forecast
- Recommended Policies
- All Policy Options
- Evaluation, Measurement, & Verification Plans

Figure 1: AkAES Program Diagram

With the assistance of tools that will be developed by AEA and under other contracts, the scope of this RFP will include phases 1 through 4. A suggested method is provided in the scope, but it will be the responsibility of the Offeror to develop a feasible and defensible method for achieving the goals and requirements outlined in this RFP.

The economic assumptions that will be used for this analysis will be consistent with the Renewable Energy Fund and other AEA programs. The most recent assumptions for discount rate, diesel and natural gas prices, economic life, and other pertinent variables will be supplied by AEA.
Previous applicable studies:
The greater current world supply of LNG and relatively low cost per MMBtu compared to diesel has opened up the possibility of displacing diesel as the fuel of choice for Alaska’s rural communities. While no comprehensive analysis has been done to assess this possibility, a number of previous studies on propane, LNG, and diesel can provide a primer on some of the potential constraints and benefits. Some of the previous work that AEA has identified as being applicable to this particular study are listed below.

- **Propane:**
  - Fuhs, Paul. “Propane Production, Transportation and Utilization in Rural and Urban Alaska.” Undated presentation

- **LNG:**
  - ACEP. “Screening Level Assessment of LNG for Alaska: SW and SE Alaskan Coastal PCE Communities.” 2/2/2014
  - Northern Economics. "In-state Gas Demand Study" 2010.

- **Diesel:**

### 3.2 Current Information

The Alaska Energy Data Gateway (AEDG) is the best source for community-level data on electricity generated and consumed, diesel consumed for electricity generation, and various costs associated with electricity generation.

As part of the AkAES, AEA is updating its models for thermal energy and electricity in communities—including residential, commercial, and water and wastewater energy needs—and forecasting for future loads. This model will be available for the contractor and will be the preferred platform for economic modeling.

### 4.1 Geographic Area of Study

Areas of the state being specifically targeted by the AkAES are communities and regions that will not have direct access to the natural gas pipeline. Placement of the pipeline’s five required offtake points have not yet been determined; their locations will impact which communities will or will not benefit from the gas pipeline. It is likely that most communities within the area from Fairbanks down the railroad/highway corridor to the Matanuska-Susitna Valley, Anchorage Bowl, and Kenai Peninsula, commonly referred to as the “Railbelt,” will receive direct benefit from the gas pipeline. Therefore, for the purposes of this research, AEA is not including Railbelt communities in the AkAES study area, although it is possible that some of the smaller Railbelt communities will be added at a later date. Per AEA’s regulation 3AAC 108.110, communities with a population below 20 will not be included within the study area.
5.1 Project Goals

The work product resulting from this RFP will be a reconnaissance-level investigation based on realistic best case scenarios to determine where in Alaska LNG may be a cost-effective fuel for electricity generation and/or as a heating fuel. If LNG is determined to be a potentially cost-effective fuel source, the Offeror will be required to develop policy options (be it direct or indirect state funding or utility requirements) to assist communities in using LNG as a fuel.

The project plan, data collection, and analysis must be sufficient to support the following goals:

- Identity which communities and regions are likely to be able to use LNG as a viable source of affordable energy based on current conditions and best case implementation scenarios
- AEA aims to be able to compare LNG to other energy cost reduction options
  - Costs:
    - Capital required: transportation infrastructure, convert or replace gensets, regasification facilities, storage capacity, etc.
    - Recurring: O&M, R&R, etc.
  - Benefits:
    - Economic: measured in diesel displacement, reduced O&M, improved reliability, extended economic life, reduced cost of EPA regulatory compliance, etc.
    - Non-economic such as emissions reductions, challenges in finding Tier 4 final diesel gensets that are efficient and reliable, etc.
- Understand the barriers to LNG use by Alaska communities
  - Market: economy of scale needed, capital requirements, regional and local fuel distribution system,
  - Regulatory requirements: federal, state, and local
  - Infrastructure needs for transportation, intermodal delivery, and conversion to heat and/or electricity
  - Operational differences between natural gas fired or dual fuel systems and diesel generation: required skills and training, O&M and R&R
- How could the state most cost-effectively assist communities and/or regions to use LNG in lieu of diesel for electric generation and/or heat?

5.2 Suggested Project Methodology Overview

The methodology in this section has been developed based on the methods in previous work, as listed in section 3.1, and aims to maintain consistency with the methods used in other research areas of the AkAES. Offerors are encouraged to propose an improved methodology for completing the work under this contract, but their proposals must meet the intent of AEA’s project goals and the deliverables listed in section 5.3 will still be required.

5.2.1 Suggested Phase 1 Methodology

Phase 1 will require coordinating with other contractors on the AkAES, particularly the contractors which will be developing the community-based economic model.

1. Economic evaluation
   a. Estimate the volumes needed by community, sub-region, and region
      i. Use data available from the AEDG and AEA’s community economic and forecasting model to estimate electricity generation and thermal loads
      ii. Investigate if minimum volumes for short- or long-term contracts are required for purchasing LNG
iii. If answer to ii above is “yes”, evaluate if “multiple” region scenarios exist that would lead to minimum volume viability, and/or define the cost impacts

b. LNG transportation costs and requirements
   i. Interview regional shipping companies
      1. Range of costs by region
      2. Limitations on the volume that can be delivered due to barge types, maximum draft in ports and/or rivers, safety requirements, onboard machinery needed to offload containers, etc.
      3. Intermodal limitations present in coastal and riverine communities and potential solutions

c. LNG storage costs and requirements
   i. Infrastructure required: tanks, foundations, safety requirements
   ii. Boil-off constraints: time, temperatures, loss of product
   iii. Regulatory requirements and costs

d. Using LNG for energy
   i. Regasification costs—technical needs and other uses
      1. Ambient and above-ambient regasification
         a. Capital costs
         b. O&M costs
   ii. Electricity
      1. Conversion
         a. Cost of converting existing generators to dual fuel
         b. Replace with spark-ignition units
            i. Will this require new powerhouses?
      2. Thermal efficiency of new spark-ignition and converted dual fuel units
      3. O&M and R&R on natural gas units
      4. Impact on existing diesel genset heat recovery systems
   iii. Heat
      1. Piped distribution system
         a. Conversion costs for businesses and homeowners using data from the IEP as a baseline
         b. Infrastructure costs
            i. Pipes
            ii. Meters
            iii. Other (i.e. regulator stations if needed)

e. Other potential benefits
   i. Potential for using regasification for refrigeration purposes in fish processing

f. Understand the barriers to LNG delivery and use through key informant interviews (LNG suppliers, shipping companies, utilities, regulatory agencies, funding agencies, other stakeholders)
   i. Through structured conversations, identify the real and perceived barriers to LNG delivery and use
   ii. Solicit suggestions from stakeholders on potential strategies to overcome the identified barriers

5.2.2 Suggested Phase 2 Methodology

1. Use AEA’s forecasting assumptions that will be available through the community energy economic model
   a. 20-year forecast for community-level population, electricity, and heating consumption
   b. Forecast energy prices consistent with other AEA programs
5.2.3 Suggested Phase 3 Methodology

1. As an output of the Phase 2 economic model, assess regions & communities on the likelihood of LNG being cost-effective for electricity generation and/or heat
   a. High (B/C>>1), Medium (B/C~1), Low (B/C<<1)
   b. Catalogue the number of communities and population in each category
   c. Volume demand in communities, regions, and the entire study area for electric generation and heat
   d. Total investment needed to exploit the High and Medium areas
   e. Total potential savings in the High and Medium areas
2. Identify the barriers from Phase 1 (or subsequent research) to using LNG in communities and based on where LNG is more likely to be successful, evaluate potential strategies solicited in Phase 1 and, as appropriate, develop and assess strategies to address the barriers
   a. Potential strategies could include technical assistance, infrastructure needs, training, etc.

5.2.4 Suggested Phase 4 Methodology

1. Suggest policy options to implement the strategies to address known barriers identified in Phase 3. AEA has identified three broad categories of policy options:
   a. Direct funding: grants, guaranteed loans, etc.
   b. Indirect funding: technical assistance, logistical assistance, etc.
   c. Requirements: codes, portfolio standards, emission standards
2. Estimate participation rates for policy options
   a. Polling of potential participants, use data of participation from similar programs, or other method
3. Rerun the forecast developed in Phase 2 with new assumptions based on the policy options and participation rates to estimate the savings and costs relative to status quo
4. Estimate additional investment incented / spurred by the state’s investment

5.3 Deliverables

The deliverables defined in this section are the minimum the Authority expects to receive from this project. Offerors should discuss the content of these as well as any other proposed deliverables in their proposal.

5.3.1 Monthly Progress Reports

The contractor shall e-mail the Project Manager a monthly progress report by the last work day of every month. These reports will include a summary of any work completed during the previous month, whether the project is maintaining the expected timeline, any unexpected delays or complications to the project, and what work is anticipated for the following month.

5.3.2 Phase 1

1. Data and metadata for the economic model on a regional and sub-regional level using realistic best case scenario developed in coordination with other AEA contractors, particularly with the team that is developing the community-based economic model that will be the basis of Phase 2.
   a. Investment needed for LNG infrastructure, below is a non-exhaustive list of potential variables
      i. Capital:
         1. Transportation and intermodal
         2. Storage containers
            a. Portable vs. stationary tanks
         3. Regasification
4. Electricity  
   a. Retrofitting current gensets to dual fuel  
   b. New dual fuel or spark-ignition natural gas engines  

5. Heat  
   a. Piped infrastructure  
   b. Residential and commercial conversion costs  
   ii. Recurring: Transportation, O&M, R&R, etc.

2. Summary report addressing  
   a. Safety & regulatory requirements for transportation, delivery, and use of LNG in communities  
   b. Current barriers to LNG use in communities  
   c. Emission changes

5.3.3 Phase 2  
1. Regional, sub-regional, and community forecasts and economic analysis based on realistic best case scenario community conversion to LNG for heat and/or electricity generation  
   a. LNG volumes: electric generation and heat  
   b. Capital and recurring costs  
   c. Potential benefits based on reduced O&M, R&R, and displaced diesel and heating fuel

5.3.4 Phase 3  
1. Based on the analysis in Phase 2 determine where LNG has a high likelihood of success  
   a. Number of communities by region: High, Medium, Low likelihood  
   b. Estimated volume of LNG at community, sub-region, and region assigned a High or Medium rating  
   c. Estimated cost savings and gallons of diesel displaced by community, sub-region and region assigned a High or Medium rating  
2. Strategies to overcome the barriers identified in Phase 1  
   a. Infrastructure needed:  
      i. Transportation and intermodal  
      ii. LNG storage: ISO containers or stationary bulk storage  
   b. Community and regional volumes needed for sufficient economies of scale  
   c. Logistics

5.3.5 Phase 4  
A summary document that will be included as a supporting document for the AkAES recommendations to the Legislature. The summary document must suggest policy options and provide the supporting documentation for the recommendations.

1. Suggest policy options to implement the strategies identified in Phase 3  
   a. Policy options should fit into one of the following three categories  
      i. Direct funding: Grants, guaranteed loans, etc.  
      ii. Indirect funding: technical assistance, logistical assistance, etc.  
      iii. Requirements: codes, portfolio standards, emission standards  
   b. Evaluate options based on financial and physical constraints—local, regional, and state  
      i. Estimates of participation rates for options  
      ii. Forecast with new assumptions to estimate benefits and costs relative to status quo scenario  
      iii. Estimate additional investment that will be spurred by the state’s investment
iv. Evaluate options to maximize total investment and cost savings to communities given a range of budget restraints

5.4 Timeline

Offerors are expected to include a schedule with critical milestones that show how the contractor intends to complete all four phases. It is expected that data and analysis needed for incorporation into the economic and forecasting model in Phase 1 will be completed by September 31, 2015. The final report must be delivered no later than March 31, 2016.
**Alaska Energy Authority**

**SMALL PROCUREMENT DOCUMENTS**

**PART B - PROPOSAL FORM**

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**THIS COMPLETED FORM MUST BE THE FIRST PAGE. NO OTHER COVER SHALL BE USED.**

<table>
<thead>
<tr>
<th>Project Title:</th>
<th>Liquefied Natural Gas (LNG) Feasibility Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFP No.:</td>
<td>16-001</td>
</tr>
</tbody>
</table>

**PROPOSAL REQUIREMENTS**

Proposals shall demonstrate comprehension of the objectives and services for the proposed contract; include a brief overview of what will be done; and show a sequence and schedule for each important task. Assumptions made in formulation of the proposal and the support expected from the Contracting Agency shall be defined. The key individuals who will perform services shall be named (including all who would be “in responsible charge” (Ref: AS 08.48) for Architecture, Engineering and/or Land Surveying with their Alaska registration number). Include a brief -- about one paragraph -- statement for each person named which describes experience directly related to the service(s) they will perform. Proposed subcontracts, if any, shall be explained. Resources -- support personnel, facilities, equipment, etc. -- current and projected workload could be summarized. Any unique qualifications or knowledge of the project, project area, or services to be provided, should be identified.

**ALASKA STATUTORY PREFERENCES**

Are not applicable to this contract.

If applicable, check those preferences that you (Offeror) claim.

- Alaska Bidder (Offeror) **AND**
- Veterans **AND**
- Employment Program **OR**
- Disabled Persons

2 AAC 12.260(d)

AS 36.30.175 **if applicable**

AS 36.30.170(c)  AS 36.30.170 (e & f)

Invalid claim(s) will result in the Offeror’s disqualification for contract award.

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**PROPOSAL**

The undersigned has reviewed Part A - RFP of these documents, understands the instructions, terms, conditions, and requirements contained therein and in the Standard Provisions Booklet, and proposes to provide the required services described in Part A in accordance with the attached letter which constitutes our proposal to complete the project.

By my initials below, I certify that the Offeror and all Subcontractors identified in the Proposal shall comply with all requirements for the following items as explained in the Standard Provisions Booklet:

- [ ] Alaska Licenses and Registrations.
- [ ] Insurance, including Workers’ Compensation, Comprehensive or Commercial General Liability, and Comprehensive Automobile Liability.
- [ ] Professional Liability Insurance as follows:  
  - [ ] As available.  
  - [x] Minimum of $300,000.

I further certify that I am a duly authorized representative of the Offeror; that this Proposal accurately represents capabilities of the Offeror and Subcontractors identified for providing the services indicated. I understand that these Certifications are material representations of fact upon which reliance will be placed if this contract is awarded and that failure to comply with these Certifications is a fraudulent act. The Contracting Agency is hereby authorized to request any entity identified in this proposal to furnish information deemed necessary to verify the reputation and capabilities of the Offeror and Subcontractors. This proposal is valid for at least ninety days.

---

**Signature and Date**

Name :........................................
Title :........................................
Offeror (Firm) :......................
Street or PO Box :..............
City, State, Zip :.............
Telephone - Voice :.............
Telephone - Fax :.............

Federal Tax Identification No :............
Type of Firm (Check one of the following):
- Individual
- Partnership
- Corporation in state of :..............
- Other (specify) :...........................

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**END OF PART B**

spdocs-b (March 2014) DOT&PF Small Procurement Documents for Construction Related Professional Services

PART B - Proposal Form Page 1 of 1