ADVANCE CONTRACT AWARD NOTICE (ACAN)

1. ## Advance Contract Award Notice (ACAN)

   An ACAN is a public notice indicating to the supplier community that a department or agency intends to award a contract for goods, services or construction to a pre-identified supplier, thereby allowing other suppliers to signal their interest in bidding, by submitting a statement of capabilities. If no supplier submits a statement of capabilities that meets the requirements set out in the ACAN, on or before the closing date stated in the ACAN, the contracting officer may then proceed with the award to the pre-identified supplier.

2. ## Definition of the Requirement

   The Canadian Forest Service (CFS) developed the Burn-P3 model in 2005. Since that time, it has been used to evaluate wildfire risk throughout Canada. The model is a Monte Carlo fire simulator: it runs large numbers of iterations (10s to 100s of housands), each burning a variable number of fires using a deterministic fire growth model (Prometheus), but the number of fires, ignition locations and burning conditions (weather, season, length of time it burns) for each fire are drawn from user-defined probability distributions. A recent user-needs assessment of the Burn-P3 program has revealed that while the *method* of the Burn-P3 model is robust, the software itself is outdated, very slow, dependent upon a single fire growth model (FGM), and not flexible enough to address the growing needs of the wildland fire management community. We intend to replace Burn-P3 with a new, modular system that leverages existing, multiple, and interchangeable FGMs that can be instructed to interact with models simulating wildlife habitat, forest insect and disease spread, and climate change. In collaboration with ApexRMS, the CFS has developed a new "proof-of-concept" prototype of the Burn-P3 model as a SyncroSim Package, and would now like to develop this prototype into a fully functional model.

   The new SyncroSim CFS Burn-P3 Package prototype has proven it can address these shortcomings. This prototype preserves the core functionality of the Burn-P3 model, yet increases its flexibility, utility, and processing speed. The CFS intends to continue collaborating with ApexRMS to convert this prototype into a fully functioning version of an open source CFS Burn-P3 Package.

   This work will involve the following in order to link SyncroSim and multiple FGMs and replicate the fundamental methodology underlying the current Burn-P3 model.

   Tasks required:

   1) Provide technical support to the CFS in the use, application and customization of an open source CFS Burn-P3 Package for SyncroSim, as required to support the ongoing program requirements of the CFS.

   2) Support CFS scientists as they work to:

      a. Develop the base functionality of a Burn-P3 SyncroSim Package, which includes:

       i.   incorporate the Cell2Fire fire growth model
      ii.   run CFS Burn-P3 Package on distributed/cloud computing platforms (Windows or Linux)
     iii.   move model datasets and installations back and forth between systems that may be quite different (i.e., Linux and Windows)

b.   develop online CFS Burn-P3 Package documentation/user guide (in English initially)

c.   write custom scripts for a prototype CFS Burn-P3 Package web interface

d.   develop a pre-processing module for CFS Burn-P3 Package

e.   develop a post-processing module for CFS Burn-P3 Package

f.   integrate other fire growth model(s) into CFS Burn-P3 Package (e.g. PsaaS, FireStarr)

g.   add multi-year simulation potential for the CFS Burn-P3 Package with integrated vegetation succession

h.   integrate advanced level correlation between input variables for the CFS Burn-P3 Package

3. Criteria for assessment of the Statement of Capabilities (Minimum Essential Requirements)

Any interested supplier must demonstrate by way of a statement of capabilities that it meets the following requirements:

o Experience:

- 5 years (minimum) deploying scientific models in SyncroSim, including experience developing SyncroSim custom packages.
- 10 years (minimum) in the development of ecological disturbance models (fire, forest insect and disease, and/or vegetation transitions).
- 10 years (minimum) in training scientists and analysts in the use of ecological disturbance models.
- 10 years (minimum) in analyzing data using R and/or Python.
- 10 years (minimum) in spatial and GIS analysis using ESRI, QGIS, and/or R code
- 10 years (minimum) working with US or Canadian Federal government research institutions to develop, implement, and/or modify ecological models.
- 10+ years (minimum) programming model interactions using APIs.
- Leading a minimum of 10 complex modeling-framework workshops involving multiple research scientists in ecological disturbance and/or fire, and programmers.

- Authorship on a minimum of 10 peer reviewed publications in two or more of ecological disturbance, landscape vegetation dynamics, and fire modeling.

- Knowledge and understanding of:

  - SyncroSim model integration platform
  - R and Python, and C++ programming languages
  - Burn probability modeling principles and analytical methods
  - Fire growth models (FGMs)
  - Stochastic vegetation dynamics models
  - Parallel multiprocessing solutions to optimize processing speed, including deployment in cloud and high performance computing (HPC) environments
  - Vegetation and fire modeling with large (i.e. >100 million cell) spatial datasets

- Academic qualifications:

  - PhD from a recognized university in the field of landscape ecology, disturbance ecology, or wildfire

- Professional designation, accreditation, and/or certification:

  - None required.

4. Applicability of the trade agreement(s) to the procurement

This procurement is subject to the following trade agreement(s)

- Canadian Free Trade Agreement (CFTA)
- Canada-Chile Free Trade Agreement (CCFTA)
- Canada-Colombia Free Trade Agreement
- Canada-Honduras Free Trade Agreement
- Canada-Korea Free Trade Agreement
- Canada-Panama Free Trade Agreement
- Canada-Peru Free Trade Agreement (CPFTA)

5. Set-aside under the Procurement Strategy for Aboriginal Business

- Not Applicable

6. Comprehensive Land Claims Agreement(s)

- Not Applicable

7. Justification for the Pre-Identified Supplier

The supplier mentioned in section 13 below is the only known supplier that meets the mandatory criteria set out in section 3 above.

ADVANCE CONTRACT AWARD NOTICE (ACAN)

Should Canada receive a statement of capabilities from a supplier that contains sufficient information to indicate that it meets the requirements set forth in this ACAN, a competitive process will be triggered with a technical and financial evaluation methodology of the bids proposed by the potential bidders

8. Government Contracts Regulations Exception(s)

The following exception(s) to the *Government Contracts Regulations* is (are) invoked for this procurement under subsection 6 (d) – "only one person is capable of performing the work"

The identified supplier, Apex Resource Management Solutions Ltd., is the only one able to meet all of the criteria identified in paragraph 3 above.

9. Exclusions and/or Limited Tendering Reasons

The following exclusion(s) and/or limited tendering reasons are invoked under the:
- Canadian Free Trade Agreement (CFTA) – Article: 513.1(b) (iii);
- Canada-Chile Free Trade Agreement (CCFTA) – Article(s) Kbis-09 (b),Article Kbis-09 (c)
- Canada-Colombia Free Trade Agreement – Article(s): 1409 (b) (iii);
- Canada-Honduras Free Trade Agreement – Article(s): 17.11 2 (b) (iii)
- Canada-Korea Free Trade Agreement – Article 14.3, Under the Revised GPA - Article XIII, 1 (b) (iii);
- Canada-Panama Free Trade Agreement – Article(s) 16.10 (b) (iii)
- Canada-Peru Free Trade Agreement (CPFTA) – Article(s1409 (b) (iii)

10. Ownership of Intellectual Property

Ownership of any Foreground Intellectual Property arising out of the proposed contract will vest in the Contractor.

11. Period of the proposed contract or delivery date

The project duration is from contract award to March 31, 2022.

Optional service, if required.

The contract period may be extended for one (1) additional option year from April 1, 2022 to March 31, 2023.

12. Cost estimate of the proposed contract

The approximate cost of this requirement, including the one (1) option, will not exceed $204,530.00 CAD, including all applicable taxes.

ADVANCE CONTRACT AWARD NOTICE (ACAN)

13. Name and address of the pre-identified supplier

Apex Resource Management Solutions Ltd.
937 Kingsmere Ave.
Ottawa, Ontario K2A 3K2

14. Suppliers' right to submit a statement of capabilities

Suppliers who consider themselves fully qualified and available to provide the goods, services or construction services described in the ACAN may submit a statement of capabilities in writing to the contact person identified in this notice on or before the closing date of this notice. The statement of capabilities must clearly demonstrate how the supplier meets the advertised requirements.

15. Closing date for a submission of a statement of capabilities

Closing Date: January 19, 2021

Closing Time: 2:00 p.m. Pacific Standard Time (PST)

16. Inquiries and submission of statements of capabilities

Inquiries and statements of capabilities are to be directed to:

Name:	Gerald Baran
Title:	Procurement Specialist
Organization:	Natural Resources Canada
Address:	506 West Burnside Road
	Victoria, BC V8Z 1M5
Telephone:	(778) 350 9373
E-mail address:	gerald.baran@nrcan-rncan.gc.ca