

FOR DEPARTMENT OF ENERGY USE ONLY

Grant Contract Number _____

Grants 558-564
OLD YEAR ACCRUALS
209010/00/0000/00000

51825/40

I recommend a grant payment in the amount of \$ 500,000.00

Be provided to THE UNIVERSITY OF CALGARY – SCHOOL OF PUBLIC POLICY

INVOICE #
UOPA March 28/12

Address SUITE 926, EARTH SCIENCES, 2500 UNIVERSITY DRIVE NW, CALGARY, AB T2N 1N4

From funds available in

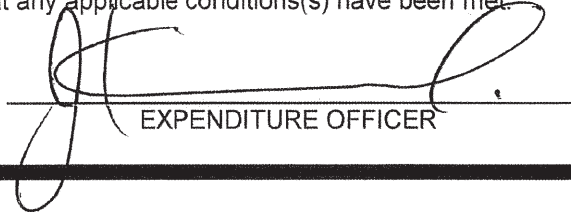
060A	560010	01	0576	02210
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BU Account Fund Org Program

Payment Approval

I approve payment of this Grant and ensure that any applicable conditions(s) have been met.

Mar. 28, 2012
DATE


EXPENDITURE OFFICER

To be completed by Branch:

Grant has been approved on CMS and payment coincides with Grant Agreement.
Payment has been entered on CMS.

VERIFIED

DATE

Initials

Paid

APR 13 2012





ENERGY

GRANT APPROVAL

FOR DEPARTMENT OF ENERGY USE ONLY											
BUDGET SOURCE OF GRANT FUNDS STRATEGIC SERVICES DIVISION ASSISTANT DEPUTY MINISTER'S OFFICE											
PROGRAM OBJECTIVES MET BY PROVIDING GRANT Supports the policy agenda of Alberta Energy; specifically used to assist U of C in developing research and policy papers on important energy topics. The topics will be identified in consultation with the Department of Energy. Research will also inform a minimum of one symposium for senior Government of Alberta staff.											
VERIFICATION OF OTHER GRANT INCOME SOURCES HAVE BEEN CHECKED AND INCOME VERIFIED <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A EXPLAIN: _____											
I recommend a grant in the amount of \$ <u>500,000.00</u>											
Be provided to <u>UNIVERSITY OF CALGARY – THE SCHOOL OF PUBLIC POLICY</u>											
From funds available in	<table border="1" style="width:100%; text-align: center;"> <tr> <td style="width: 15%;">060A</td> <td style="width: 15%;">559010</td> <td style="width: 10%;">01</td> <td style="width: 15%;">0576</td> <td style="width: 15%;">02210</td> </tr> <tr> <td>BU</td> <td>Account</td> <td>Fund</td> <td>Org</td> <td>Program</td> </tr> </table>	060A	559010	01	0576	02210	BU	Account	Fund	Org	Program
060A	559010	01	0576	02210							
BU	Account	Fund	Org	Program							
I certify that the applicant is known to me, that the amount of the grant is reasonable and that the purpose of the grant is consistent with the stated purpose of the available funds.											
Recommended by (Signature): 	Date: <u>Mar. 28, 2012</u>										
Printed Name Jeff Kucharski, ADM	Business Unit Strategic Services Division										
APPLICATION APPROVAL											
<u>March 30 2012</u> DATE	 <u>M.W. Skelton</u> Deputy Minister										
Finance Use Only Entered into Energy Contract Management System Contract Number _____											
<table border="1" style="width: 50px; height: 20px; margin: auto;"> <tr> <td style="text-align: center;">Initials</td> </tr> </table>		Initials									
Initials											

GRANT AGREEMENT
THE UNIVERSITY OF CALGARY—THE SCHOOL OF PUBLIC
POLICY

made March 31, 2012

between:

HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA, as represented by
the Minister of Energy

("the Province")

and:

THE GOVERNORS OF THE UNIVERSITY OF CALGARY,
a corporation created pursuant to the *Post-Secondary Learning Act*, S.A. 2003, C.
P-19.5

(the "UofC")

PREAMBLE:

The Province is a proponent of sound public policy advice particularly as it relates to the development of Alberta's energy policy. The work that is being undertaken by the University of Calgary's School of Public Policy is of interest to the Province as it appears to represent topics and initiatives that are a priority to the Province.

The Province has agreed, subject to the terms and conditions of this agreement, to provide aid in the form of a grant of \$500,000 to support the work being undertaken by the University of Calgary's School of Public Policy (the "School").

The Province and the UofC therefore agree as follows:

1. Definitions – In this Grant Agreement, the following expressions have the following meanings:

"**Grant**" means the grant contemplated by Section 3;

"**Grants Regulation**" means the *Energy Grants Regulation*, A.R. 103/2003, enacted under the *Government Organization Act* (Province of Alberta), and includes any amendments made from time to time;

"**Proposal**" means the UofC's proposal attached to and forming part of this Grant Agreement as Schedule A, including any modifications made in accordance with Section 9;

10. Inspection and Audit – The UofC shall maintain appropriate books and records with respect to the Research Program in Energy Policy, which books and records shall be kept available for inspection and audit by the Province at all reasonable times and upon reasonable notice until one year after March 31, 2013.

11. Entire Agreement – This Grant Agreement, including the attached Proposal and the Grants Regulation, constitutes the entire agreement between the Province and the UofC with respect to the Grant; there are no terms, conditions, promises, assurances or representations other than as set out or referenced herein.

12. Order of Precedence – In the event of any inconsistency or conflict between the body of this Grant Agreement and the attached Proposal, the body of this Grant Agreement shall govern.

13. Amendment and Waiver – No amendment of this Grant Agreement is effective unless made in writing and signed by a duly authorized representative of each of the Province and the UofC. No waiver of any provision of this Agreement is effective unless made in writing, and any such waiver has effect only in respect of the particular provision or circumstance specified in the waiver. No representation by either of the parties with respect to the performance of any obligation under this Grant Agreement is capable of giving rise to an estoppel unless the representation is made in writing.

14. Announcements – The UofC shall not make any public announcement or issue any press release regarding this Agreement or the Grant except in consultation with the Province and with the approval of the Province as to the content of the announcement or press release, which approval shall not be unreasonably withheld.

15. Disclosure – The UofC acknowledges and agrees that the Province may make public disclosure of this Agreement and its contents by any means chosen by the Province including, without limitation, pursuant to a request for access made under the *Freedom of Information and Protection of Privacy Act* (Alberta).

16. Notices – All notices, approvals and other communications under any provision of this Grant Agreement must be in writing to be effective, and may be delivered by any means, including fax transmission or e-mail, to the following respective addresses:

(a) in the case of the Province:

Alberta Energy
 Strategic Services Division
 8th fl Petroleum Plaza, North Tower
 9945 108 Street
 Edmonton, AB, T5K 2G6
 Attention: Jeff Kucharski, Assistant Deputy Minister
 fax: (780) 427-7737
 e-mail: Jeff.Kucharski@gov.ab.ca

Schedule A

Consistent with discussions held between representatives of The University of Calgary School of Public Policy and the Department of Energy, The University of Calgary School of Public Policy proposes to use the Grant for the following:

\$500,000 will be used to support research, publications and dissemination in the area of energy policy.

FOR DEPARTMENT OF ENERGY USE ONLY

Grant Contract Number Non-Conditional

I recommend a grant payment in the amount of \$ 1,000,000.00

*Invoice # Grant March 28/12
515250*

Be provided to INSTITUTE FOR SUSTAINABLE ENERGY, ENVIRONMENT AND ECONOMY, UNIVERSITY OF CALGARY

Address 2500 University Drive NW, Calgary, Alberta Canada T2N 1N4

*Team 00
Re-APP Document*

From funds available in

060A

560030

01

0142

02210

BU

Account

Fund

Org

Program

Payment Approval

I approve payment of this Grant and ensure that any applicable conditions(s) have been met.

March 28 2012
DATE

W/Slin

EXPENDITURE OFFICER

To be completed by Branch:

Grant has been approved on CMS and payment coincides with Grant Agreement.
Payment has been entered on CMS.

VERIFIED

DATE

Initials

Paid

APR 13 2012

Grants 558-564
OLD YEAR ACCRUALS
209010 / 00 / 0000 / 00000



ENERGY

10951

GRANT APPROVAL

FOR DEPARTMENT OF ENERGY USE ONLY

BUDGET SOURCE OF GRANT FUNDS

STRATEGIC INITIATIVES

PROGRAM OBJECTIVES MET BY PROVIDING GRANT

DEVELOPING AN ACROSS CANADA ENERGY MODELING SYSTEM AND SCENARIOS OF HOW CHANGES IN ENERGY USE CAN AFFECT ENERGY EFFICIENCY, SUSTAINABILITY, GHG EMISSIONS AND OTHER FACTORS. THIS WILL PROVIDE INPUT FOR POLICY RECOMMENDATIONS AS WELL AS SUPPORT IN A CANADIAN ENERGY STRATEGY DEVELOPMENT AND THE EE&S INITIATIVE. THIS AMOUNT WILL PROVIDE FOR INITIAL WORK OVER THE FIRST ONE TO TWO YEARS, AND COULD BE SUPPLEMENTED BY FEDERAL FUNDING WHICH HAS NOT YET BEEN DECIDED UPON, BUT IS NOT NECESSARY TO THE SUCCESS OF THE OBJECTIVES OF THIS FUNDING.

VERIFICATION OF OTHER GRANT INCOME

SOURCES HAVE BEEN CHECKED AND INCOME VERIFIED YES NO N/A EXPLAIN: _____

I recommend a grant in the amount of \$ 1,000,000.00

Be provided to: Institute for Sustainable Energy, Environment and Economy, University of Calgary

From funds available in 060A

060	560030	01	0142	02210
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BU Account Fund Org Program

I certify that the applicant is known to me, that the amount of the grant is reasonable and that the purpose of the grant is consistent with the stated purpose of the available funds.

Recommended by (Signature):

[Signature]

Date

March 21/2012

Printed Name

Mike Ekelund

Business Unit

Strategic Initiatives

APPLICATION APPROVAL

March 23, 2012

DATE

[Signature]

DEPUTY MINISTER

Finance Use Only

Entered into Energy Contract Management System

Contract Number _____

Initials

GRANT AGREEMENT

made March 23, 2012

between:

HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA, as represented by
the Minister of Energy
(**“the Province”**)

and:

THE GOVERNORS OF THE UNIVERSITY OF CALGARY,
a corporation created pursuant to the *Post-Secondary Learning Act*, S.A. 2003, C.
P-19.5
(**“the University”**)

PREAMBLE:

The University, through the Institute for Sustainable Energy, Environment and Economy (“ISEEE”) and their Initiative on Energy System Analysis (“IIESA”), has shown a commitment to research and development in the areas of technology and policy assessment, energy system dynamics and decision support science. This work is of interest to the Province as it appears to represent topics and initiatives that are a priority to the Province.

The Province has agreed, subject to the terms and conditions of this agreement, to provide aid in the form of a grant of \$1, 000,000 to support the work being undertaken by the University.

The Province and the University therefore agree as follows:

1. Definitions – In this Grant Agreement, the following expressions have the following meanings:

“Grant” means the grant contemplated by Section 3;

“Grants Regulation” means the *Energy Grants Regulation*, A.R. 103/2003, enacted under the *Government Organization Act* (Province of Alberta), and includes any amendments made from time to time;

“Proposal” means the University’s proposal attached to and forming part of this Grant Agreement as Schedule A, including any modifications made in accordance with Section 9;

and any reference in this Grant Agreement to a "Section" means the correspondingly numbered provision of this Grant Agreement.

2. **Application for Grant** – The Province acknowledges that the Proposal constitutes an application for a grant in a manner and form acceptable to the Minister of Energy, as required by the Grants Regulation.
3. **Grant** – Pursuant to the Grants Regulation, the Province agrees to provide to the University a grant in the amount of \$1, 000,000.
4. **Use of Grant** – The University shall use the Grant solely for the purpose of funding research, publications and dissemination in the area of energy by IIESA. The University may not use the Grant to offset any of the University or IIESA's administrative costs. Any portion of the Grant not expended by the University on or before March 31, 2016 in carrying out the Proposal or other than in accordance with section 5 shall be repaid by the University to the Province on March 31, 2016.
5. **Grants Regulation** – In addition to the terms expressly set out in this Grant Agreement, the University must comply with the Grants Regulation.
6. **Payment of Grant** – The Province will pay \$1,000,000 to the University as soon as practicable following execution of this Grant Agreement.
7. **Deliverables** – In consideration of the Grant, the University undertakes and agrees to provide to the Province as and when requested by the Province, any progress report or other information reasonably requested by the Province regarding the status or progress of the research, publications and dissemination in the area of energy undertaken by IIESA.

The University undertakes its best efforts to ensure that all such deliverables are of reasonable quality and reflect professionalism, detail and thoroughness at least commensurate to the Proposal and to the contribution made by the Province pursuant to this Grant Agreement.
8. **Intellectual Property** – Although the Province is not intended to have ownership of copyright or any other intellectual property generated the Province shall be entitled to make such use as it sees fit of any materials (including excerpts therefrom) delivered to it pursuant to Section 7; and to that end the University shall, upon request, provide to the Province any specific permissions or authorizations as may be required, including if necessary the supply of waivers of moral rights as may be necessary for the use of excerpts from the materials.
9. **Modification of Proposal** – The University may not modify the Proposal in any material respect without the prior approval of the Province, which approval shall not unreasonably be withheld.

10. Inspection and Audit – The University shall maintain appropriate books and records with respect to the Initiative on Energy Systems Analysis, which books and records shall be kept available for inspection and audit by the Province at all reasonable times and upon reasonable notice until one year after March 31, 2016.

11. Entire Agreement – This Grant Agreement, including the attached Proposal and the Grants Regulation, constitutes the entire agreement between the Province and the University with respect to the Grant; there are no terms, conditions, promises, assurances or representations other than as set out or referenced herein.

12. Order of Precedence – In the event of any inconsistency or conflict between the body of this Grant Agreement and the attached Proposal, the body of this Grant Agreement shall govern.

13. Amendment and Waiver – No amendment of this Grant Agreement is effective unless made in writing and signed by a duly authorized representative of each of the Province and the University. No waiver of any provision of this Agreement is effective unless made in writing, and any such waiver has effect only in respect of the particular provision or circumstance specified in the waiver. No representation by either of the parties with respect to the performance of any obligation under this Grant Agreement is capable of giving rise to an estoppel unless the representation is made in writing.

14. Announcements – The University shall not make any public announcement or issue any press release regarding this Agreement or the Grant except in consultation with the Province and with the approval of the Province as to the content of the announcement or press release, which approval shall not be unreasonably withheld.

15. Disclosure – The University acknowledges and agrees that the Province may make public disclosure of this Agreement and its contents by any means chosen by the Province including, without limitation, pursuant to a request for access made under the *Freedom of Information and Protection of Privacy Act* (Alberta).

16. Notices – All notices, approvals and other communications under any provision of this Grant Agreement must be in writing to be effective, and may be delivered by any means, including fax transmission or e-mail, to the following respective addresses:

(a) in the case of the Province:

Alberta Energy
 Strategic Initiatives Division
 8 fl Petroleum Plaza, North Tower
 9945 108 Street
 Edmonton, AB, T5K 2G6
 Attention: Mike Ekelund, Assistant Deputy Minister
 Phone: (780) 422-9119
 fax: (780) 422-0698

e-mail: Mike.Ekelund@gov.ab.ca

(b) in the case of the University

University of Calgary –
Institute for Sustainable Energy, Environment and Economy
Energy, Environment and Experiential Learning (EEEL) Building, Room
467
2500 University Drive NW
Calgary, Alberta Canada T2N 1N4
attention: David Layzell, Executive Director
Telephone: (403) 220-6100
Fax: (403) 220-2400
Email: dlayzell@ucalgary.ca

Either party may change its address information by notice to the other in the above manner.

Either party may rely, in the absence of any notification to the contrary from the other party, upon any notice, approval or communication from the individual named in the other party's current address information as having been duly authorized and given on behalf of that other party.

17. No Assignment – Neither this Grant Agreement nor any right or benefit under it is assignable by the University.

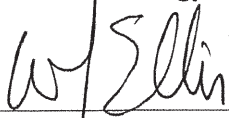
18. Counterpart Execution – This agreement may be executed in counterparts, in which case the counterparts together shall constitute one agreement and communication of execution by fax transmission shall constitute good delivery.

- Signatures to follow -

The parties have therefore signed this Grant Agreement, each by its duly authorized officer, on the respective dates shown below.

**HER MAJESTY THE QUEEN IN
RIGHT OF ALBERTA**, as represented by
the Minister of Energy

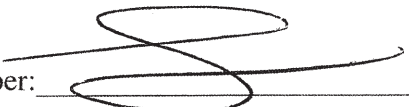
date: March 28, 2012

per:  _____

Jim Ellis, Deputy Minister

**THE GOVERNORS OF THE
UNIVERSITY OF CALGARY**

date: March 26, 2012

per:  _____

Dr. Ed McCauley
Vice-President (Research)

Schedule A

Consistent with discussions held between representatives of the Institute for Sustainable Energy, Environment and Economy and the Department of Energy, the Institute for Sustainable Energy, Environment and Economy proposes to use the Grant in accordance with ISEEE's Initiative on *Energy System Analysis* Proposal and Funding Request issued to the Province, attached hereto.



AB Gov't support for ISEEE's Initiative on Energy System Analysis

Introduction

Climate change, dwindling conventional energy resources, new technology development as well as the rapidly growing populations and economies in the developing countries are among the many forces for transformation of energy systems from around the world.

Unfortunately, there is a lack of consensus concerning the goals of an energy system transformation, let alone the path or timeline for change. Strong voices from all sides paralyze political will and create policy uncertainty that is good for neither the environment nor the economy. To elevate the discussion and move towards thoughtful and defensible decisions about energy system change, we need a better understanding of energy system choices, including the costs, benefits and tradeoffs of technology choices and policy options.

Universities have an important role to play in this discussion as a credible source of balanced insights. *ISEEE's Initiative on Energy System Analysis (IIESA)* is designed to achieve this objective.

Proposal and funding request

This proposal builds on ISEEE's significant investment and rising prominence, especially during the past six years, in Energy & Environmental System research and training. With the Alberta Government support, we seek to leverage major commitments already in place as well as a major project that was submitted to the ecoENERGY Innovation Initiative at Natural Resources Canada (award decision expected at the end of March).

IIESA involves partnerships with researchers from several faculties and schools within the University of Calgary as well as a broad range of partnerships with external individuals/organizations such as Senator Elaine McCoy, WhatIf? Technologies Inc., the Canadian Energy Research Institute (CERI), the Canadian Association of Petroleum Producers (CAPP), Pollution Probe and several others who share our interest in elevating the conversation around energy system choices.

IIESA is divided in 8 different Program Elements that are briefly detailed in the next section. For each one, the amount requested per year from the Alberta Government and the funding already *in place* or *applied for* have been identified. Below is a summary table showing the total request and total commitments from other sources (*in place* or *applied for*):

Total research investment (Modules 1 to 8)

Fiscal Year→	2012-13	2013-14	2014-15	2015-16	TOTAL
Proposed AB government support	\$425,000	\$425,000	\$575,000	\$575,000	\$2,000,000
Other research investment					
• ISEEE internal grants					
• CSEE grant					
• NRCan grant –pending					
TOTAL Potential					

Non-Responsive

Fundraising and applications to research/training programs (such as NSERC CREATE) will provide additional student scholarships and support for postdoctoral fellow positions. These individuals will be working on *technology and policy assessment, energy system dynamics and decision-support science* targeted towards the *Future of Oil, the Future of Natural Gas, the Transformation of the Electrical System, and Low Carbon Communities*. The modules below identify tools and outputs that will be part of IIESA and for which support is requested.

Program Elements in IIESA

1. The CanESS Model

- **Purpose:**
 - To position Alberta and the University of Calgary as the source of a valuable, comprehensive and transparent model of the energy system of Canada.
- **Products:**
 - Create a fully functional version of CanESS on a server in Calgary that is managed by ISEEE;
 - Update the calibration of the model using the latest historical datasets (1980-2010);
 - Validate key assumptions and algorithms of the model including calculation of energy system parameters around the historical data (1980 to 2010)
 - Document origins of all data sets and assumptions behind conversion algorithms;
 - Generate basic scenarios for future energy system alternatives (2010-2060)
 - Create a basic/static Sankey diagram of Canada's energy system at intervals from 1980 to 2060.

- **Total research investment (Module 1. The CanESS model)**

Fiscal /Year→	2012-13	2013-14	2014-15	2015-16	TOTAL
Proposed AB gov't support	\$101,250	\$100,000	\$62,750	\$62,750	\$326,750
Other research investment					
• ISEEE internal grants					
• CSEE grant					
• NRCan grant – <i>pending</i>					
	Non-Responsive				

2. Interactive website for CanESS.

- **Purpose:**
 - To create a website that provides ready access to the results of the CanESS model.
- **Products:**
 - A open, freely accessible website with a content management system;
 - A very large database of output from CanESS that can be accessed by the website, including both historical data (1980 to 2010) and some basic scenarios for 2010 -60.
 - Access to details on the source of data and the assumptions / algorithms used by CanESS;
 - An interactive graphical interface for CanESS data;
 - An interactive ability to export CanESS data in an XL file format.;
 - Access to one or more Sankey diagrams of the Canadian energy system.

- **Total research investment (Module 2. Interactive website for CanESS)**

Fiscal /Year→	2012-13	2013-14	2014-15	2015-16	TOTAL
Proposed AB gov't support			\$150,000	\$150,000	\$300,000
Other research investment					
• ISEEE internal grants					
• CSEE grant					
• NRCan grant – <i>pending</i>					
	Non-Responsive				

3. Visualization of Energy System Sankey Diagram

- **Purpose:**
 - To create an easy to understand, dynamic visualization of the energy system of Canada and its provinces
- **Products:**

- Visualization software to convert CanESS data into a 'moving/ morphing Sankey diagram showing dynamic changes with time from 1980 to 2010 (historical data) and from 2010 to 2060 under a variety of scenarios
 - Ability to display energy flows as GJ, GJ/capita and GJ/GDP
 - A 3-dimensional version of the Sankey diagram showing the flow of energy and GHG emissions coming off various stages in the energy system.
 - Videos of prepackaged energy system scenarios will be made available on the website
- **Total research investment (Module 3. Visualization of Energy System Sankey Diagram)**

Fiscal /Year→	2012-13	2013-14	2014-15	2015-16	TOTAL
Proposed AB gov't support	\$100,000	\$100,000	\$50,000	\$50,000	\$300,000
Other research investment					
● ISEEE internal grants	Non-Responsive				
● CSEE grant					
● NRCan grant – <i>pending</i>					

4. Modelling and Analysis of Energy system components

- **Purpose:**
 - To generate insights on the technology or policy assessments of key elements in the Canadian energy system so they can be ultimately incorporated into the CanESS model.
- **Products:**
 - Spatial Economic Energy System Integrated Model for the City of Calgary
 - Life Cycle Analysis of a wide range of energy or environmental technologies (e.g. in the areas of Oil Sands, Natural Gas; Building materials, renewable energies)
 - Electrical system models (e.g. Household electricity use and demand management; Energy supply generation and transmission; smart grids; carbon capture and sources)
 - Energy efficiency analysis – residential (e.g. Building energy use and emissions, Building heat loss)
 - Financial and economical models associated with energy system choices
 - Risk analysis models
 - Best practices in urban/community design (incl. pricing structures, density, transportation mobility options);
- **Total research investment (Module 4. Analysis of Energy system components)**

Fiscal /Year→	2012-13	2013-14	2014-15	2015-16	TOTAL
Proposed AB gov't support	\$175,000	\$175,000	\$175,000	\$175,000	\$700,000
Other research investment					
● ISEEE internal grants	Non-Responsive				
● CSEE grant					
● NRCan grant – <i>pending</i>					

5. CanESS Advanced Scenarios

- **Purpose:**
 - To expand and refine the CanESS scenarios by incorporating insights from the various component models to assess cost, benefits and tradeoffs of energy system choices for Canada and its regions.
- **Products:**
 - Generate a family of scenarios exploring alternatives for transforming Alberta's and Canada's energy system, and the costs, benefits and tradeoffs for each;

- A valuable tool for decision makers in government and industry to communicate energy system choices and the implications of each.
- Simulation of provincial and national energy and greenhouse gas flows in provinces and nationally
- Forecast changes in energy domestic demand
- Impact of energy production for both domestic and international use
- Other scenarios may include: Bio-based energy, agricultural and landfill emission reduction technologies, bio-based fuels and carbon sinks; Carbon capture and storage; An east-west electrical grid; Transforming the urban energy system to achieve low carbon communities; natural gas market shift to power and transportation, and Coupling fossil energy export to a domestic energy system transformation.

• **Total research investment (Module 5. CanESS Advanced Scenarios)**

Fiscal /Year→	2012-13	2013-14	2014-15	2015-16	TOTAL
Proposed AB gov't support		\$50,000	\$50,000	\$50,000	\$150,000
Other research investment					
• ISEEE internal grants			Non-		
• CSEE grant			Responsive		
• NRCan grant – <i>pending</i>					

6. Decision support Tools for Cdn Energy Strat.

- **Purpose:** To generate tools and insights for how to present energy system choices in order to get public support for the best choices..
- **Products:**
 - Decision-making tools and methods to analyze alternative actions or policies
 - Best practices for Public engagement
 - Risk management and risk communication strategies

• **Total research investment (Module 6. Decision support tools)**

Fiscal /Year→	2012-13	2013-14	2014-15	2015-16	TOTAL
Proposed AB gov't support			\$50,000	\$50,000	\$100,000
Other research investment					
• ISEEE internal grants			Non-		
• CSEE grant			Responsive		
• NRCan grant – <i>pending</i>					

7. Knowledge Transfer / Outreach

- **Purpose:** To ensure that results and outputs will be broadly communicated through various communication activities. The project will gain much visibility through the large network of local, national and international partners and affiliated members of the institute.
- **Products:**
 - Information about the project will be regularly updated and made available on ISEEE website
 - Reports, theses and scientific papers published in the peer reviewed literature
 - Scientific oral papers and posters at national and international conferences
 - ISEEE's biannual "Conference on the Assessment of Future Energy Systems (CAFES) meeting in 2013 and 2015.
 - Workshops with partners and related groups to explore specific technologies / options
 - Public engagement events such as an Urban/Community Design competition (professional or student)

- Incorporate secure web access to the 'CanESS Model' for selected policy-makers and researchers, so as to allow them the opportunity to run simulations across the net.
- **Total research investment (Module 7. Knowledge Transfer/Outreach)**

Fiscal /Year→	2012-13	2013-14	2014-15	2015-16	TOTAL
Proposed AB gov't support	\$37,260		\$17,250	\$17,250	\$71,760
Other research investment					
● ISEEE internal grants	Non-Responsive				
● CSEE grant					
● NRCan grant – <i>pending</i>					

8. Project Management /Administration

- **Purpose:** To oversee the major implementation tasks and coordinate the recruitment of students, technical and professional staff, planning of meetings, reporting, communication with the funding partners and collaborators. The project will be managed within ISEEE where there is a long experience in initiating and coordinating major R&D initiatives.
- **Products:**
 - Proper administrative and accounting procedures
 - Progress and final reports to the funding partners
 - Regular team meetings
- **Total research investment (Module 8. Project Management/Administration)**

Fiscal /Year→	2012-13	2013-14	2014-15	2015-16	TOTAL
Proposed AB gov't support	\$11,490		\$20,000	\$20,000	\$51,490
Other research investment					
● ISEEE internal grants	Non-Responsive				
● CSEE grant					
● NRCan grant – <i>pending</i>					

Bus. Unit: 060		Source: YEC		GRANTS					
Fiscal Year: 2012				ACCOUNT CODES 558 - 564					
Journal Date: 03/31/2012		Division & Branch: STRATEGIC INITIATIVES							
JV Descr: Q4ACCRUALS		Contact Name: Darcee Andrews 780-427-1944							
Line #	B.U.	Ledger	Account	Fund	Deptid	Program	PROJECT	Amount	Description: 30 CHARACTERS WILL SHOW ON 7001 REPORT (USE CAPS ONLY - NO PUNCTUATION OTHER THAN DASHES)
01	060	ACTUALS	209010	00	0000	00000	Q4	- 1,000,000.00	Q4ACCRUAL--TOTAL
02	060	ACTUALS	560030	01	0142	02210	Q4	1000000	INSTITUTE FOR SUSTAINABLE ENERGY ENVIRONMENT AND ECONOMY, UNIVERSITY OF CALGARY
03	060	ACTUALS		01			Q4		
04	060	ACTUALS		01			Q4		
05	060	ACTUALS		01			Q4		
06	060	ACTUALS		01			Q4		
07	060	ACTUALS		01			Q4		
08	060	ACTUALS		01			Q4		
09	060	ACTUALS		01			Q4		
10	060	ACTUALS		01			Q4		
11	060	ACTUALS		01			Q4		
12	060	ACTUALS		01			Q4		
13	060	ACTUALS		01			Q4		
14	060	ACTUALS		01			Q4		
15	060	ACTUALS		01			Q4		
16	060	ACTUALS		01			Q4		
17	060	ACTUALS		01			Q4		
18	060	ACTUALS		01			Q4		
19	060	ACTUALS		01			Q4		
20	060	ACTUALS		01			Q4		
21	060	ACTUALS		01			Q4		
22	060	ACTUALS		01			Q4		
23	060	ACTUALS		01			Q4		
24	060	ACTUALS		01			Q4		



001896

GRANT APPROVAL

ENERGY

VERIFICATION OF OTHER GRANT INCOME SOURCES HAVE BEEN CHECKED AND INCOME VERIFIED YES NO N/A EXPLAIN: _____

I recommend a grant in the amount of \$ 44,500.00 CAD

Be provided to THE UNIVERSITY OF CALGARY – THE SCHOOL OF PUBLIC POLICY

From funds available in

060A	559010	01	0406	02210
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BU Account Fund Org Program

I certify that the applicant is known to me, that the amount of the grant is reasonable and that the purpose of the grant is consistent with the stated purpose of the available funds.

Recommended by (Signature) 	Date <u>Dec 7/2009</u>
Printed Name BARRY RODGERS, Executive Director	Business Unit Economics and Markets Branch

APPLICATION APPROVAL

Dec. 11/09
DATE

DEPUTY MINISTER

Finance Use Only Entered into Energy Contract Management System	Contract Number _____
 Initials	

FOR DEPARTMENT OF ENERGY USE ONLY

BUDGET SOURCE OF GRANT FUNDS

ECONOMICS AND MARKETS 2009-2010 BUDGET DEPTID 0406 NATURAL GAS/CONVENTIONAL OIL

PROGRAM OBJECTIVES MET BY PROVIDING GRANT

The overall objective of the proposed study is to provide a quantitative assessment of the role and performance of the junior oil and gas component of Alberta's petroleum sector.

The specific objective of this study is to answer the following questions:

1. How large is the junior oil and gas component in Alberta in terms of numbers of companies, share of oil and gas investment and share of oil and gas production? (Juniors are tentatively defined here as companies with production less than 25,000 boed).
2. How do these shares compare to the shares for the majors (tentatively defined as those with production of more than 500,000 boed)?
3. How has the size and relative contributions¹ of the junior oil and gas segment changed over time, what explains these relative changes (considering factors such as changes in energy prices, in technology, in the development of unconventional oil, and in the maturation of the WCSB and average size of new discoveries) and what secular or long term trends are evident?
4. How much does the junior oil and gas component contribute to oil and gas royalties and to corporate income tax revenues for the province?
5. How does the share of these contributions compare to that for the majors, how have the absolute and relative contributions changed over time and what trends are evident?
6. What percentage of gross revenue from production in Alberta is paid by the junior oil and gas segment to the province and how does this compare to that for the majors?
7. What percentage of after-royalty and after-tax revenues are invested in Alberta by the junior oil and gas component, how does this compare to that for the majors and what trends are evident?
8. Within Alberta what is the geographical distribution of exploration and development activity of the junior oil and gas segment and how does it compare to that for the majors? For example, is there evidence to suggest that the activity of this sector is more widely dispersed throughout the province compared to that for the majors?
9. What is the average cost per boed for the junior oil and gas segment compared to that for the majors and how has this changed over time?
10. What is the average cost of capital and average hurdle rates for the junior oil and gas companies compared to those for the majors?

**CMS Contract Management System
Contract Payment Voucher**

Contract Information:

Business Unit:	060
Contract:	001896 - The University of Alberta
Vendor:	0000051525 - UNIVERSITY OF CALGARY
Remit to Vendor:	0000051525 - UNIVERSITY OF CALGARY
Start Date:	Dec 01, 2009
End Date:	Mar 31, 2010
Status:	Approved
Type:	Grants

Revised Contract Value:	\$44,500.00	Outstanding Balance:	\$0.00
(Less Total Payment):	\$44,500.00	(Less Payment Pending):	\$0.00
Outstanding Balance:	\$0.00	Estimated Remaining Balance:	\$0.00

Holdback	\$0.00	Accrual O/S Balance:	\$44,500.00
(Less Holdbacks Balance):	\$0.00	(Less Accrual Payment)	\$44,500.00
Estimated Holdback Remaining	\$0.00	Estimated Accrual Remaining:	\$0.00

Balance:

Balance:

Voucher Header:

Voucher ID:	A0002628	Description:	XX001896	Status:	Approved
Invoice ID:	001896-ACCM001595	Invoice Date:	Mar 31, 2010	Accounting Date:	
Net Amount Payable:	\$44,500.00	Currency:	Canadian Dollars	Payment Terms:	30 Days
Payment Handling	Mail	Separate Payment:	N		
Payment Message:		Entered By:	BOUVIED		Apr 09, 2010
Number of times this voucher has been printed	2				

Voucher Distributions:

Line	Account	Fund	Org	Program	Project	Amount
Total:						\$0.00

Holdbacks:

Contract ID	Account	Fund	Org	Program	Holdback Amount
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Accruals:

Line	Year	Accrual ID	Accrual Amount	Payment Amount
1	2010	ACCM001595	\$44,500.00	\$44,500.00

Error(s):

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Warning(s):

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FOR DEPARTMENT OF ENERGY USE ONLY

Grant Contract Number 001896

I recommend a grant payment in the amount of \$ 44,500.00

The University of Calgary – The School of Public Policy

Be provided to

Earth Sciences Building – Suite 926
2500 University Drive NW
Calgary, AF, T2N 1N4

Address

From funds available in

060A

BU

559010

Account

01

Fund

0406

Org

02210

Program

Payment Approval

I approve payment of this Grant and ensure that any applicable conditions(s) have been met.

March 24/2010

DATE

Barry Rodgers

EXPENDITURE OFFICER

BARRY RODGERS, Executive Director

To be completed by Branch:

Grant has been approved on CMS and payment coincides with Grant Agreement.
Payment has been entered on CMS.

VERIFIED

BR

Initials

DATE

Mar 26-10

2009/10 CONTRACT PAYMENT

Contract #: 001896

ACCM 001595

GRANT AGREEMENT
THE UNIVERSITY OF CALGARY – ENERGY FOR LIFE
ENVELOPE OF THE SCHOOL OF PUBLIC POLICY

made December 11, 2009

between:

HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA, as represented by
the Minister of Energy

("the Province")

and:

THE GOVERNORS OF THE UNIVERSITY OF CALGARY,
a corporation created pursuant to the *Post-Secondary Learning Act*, S.A. 2003, C.
P-19.5

(the "UofC")

PREAMBLE:

The Province is a proponent of sound public policy advice particularly as it relates to the development of Alberta's energy and mineral resources, the recommendation and implementation of energy and mineral related policy, the granting of rights for exploration and development to industry and the establishment and administration of fiscal regimes and royalty systems. The Energy for Life envelope with The School of Public Policy and the work that is being undertaken by Energy for Life in the junior oil and gas sector is of interest to the Province as it appears to represent topics and initiatives that are a priority to the Province.

The Province has agreed, subject to the terms and conditions of this agreement, to provide aid in the form of a grant of \$44,500 to support the work being undertaken by Energy for Life.

The Province and the UofC therefore agree as follows:

1. Definitions – In this Grant Agreement, the following expressions have the following meanings:

“**Grant**” means the grant contemplated by Section 3;

“**Grants Regulation**” means the *Energy Grants Regulation*, A.R. 103/2003, enacted under the *Government Organization Act* (Province of Alberta), and includes any amendments made from time to time;

“**Proposal**” means the UofC’s proposal attached to and forming part of this Grant Agreement as Schedule A, including any modifications made in accordance with Section 9;

and any reference in this Grant Agreement to a “Section” means the correspondingly numbered provision of this Grant Agreement.

2. Application for Grant – The Province acknowledges that the Proposal constitutes an application for a grant in a manner and form acceptable to the Minister of Energy, as required by the Grants Regulation.

3. Grant – Pursuant to the Grants Regulation, the Province agrees to provide to the UofC a grant in the amount of \$44,500. The Grant is to be used for the purpose of offsetting general costs within the Energy for Life envelope of The School of Public Policy related to the study of the role and performance of the junior oil and gas component of Alberta’s petroleum sector.

4. Use of Grant – The UofC shall use the Grant solely for the purpose of offsetting general costs within the Energy for Life envelope of The School of Public Policy related to the study of the role and performance of the junior oil and gas component of Alberta’s petroleum sector during the Province’s fiscal year ending March 31, 2010. Any portion of the Grant not expended by the UofC on or before March 31, 2010 in carrying out the Proposal or other than in accordance with section 5 shall be repaid by the UofC to the Province on March 31, 2010.

5. Grants Regulation – In addition to the terms expressly set out in this Grant Agreement, the UofC must comply with the Grants Regulation.

6. Payment of Grant – The Province will pay \$44,500 to the UofC as soon as practicable following execution of this Grant Agreement provided the Province, acting reasonably, is satisfied that the UofC has the resources in place within the Energy for Life envelope of The School of Public Policy to begin studying the role and performance of the junior oil and gas component of Alberta’s petroleum sector. ↗

7. **Deliverables** – In consideration of the Grant, the UofC undertakes and agrees to provide to the Province as and when requested by the Province, any progress report or other information reasonably requested by the Province regarding the status or progress of the work contemplated by the Proposal.

The UofC undertakes its best efforts to ensure that all such deliverables are of reasonable quality and reflect professionalism, detail and thoroughness at least commensurate to the Proposal and to the contribution made by the Province pursuant to this Grant Agreement.

8. **Intellectual Property** – Although the Province is not intended to have ownership of copyright or any other intellectual property generated in the carrying out of the Proposal, the Province shall be entitled to make such use as it sees fit of any materials (including excerpts therefrom) delivered to it pursuant to Section 7; and to that end the UofC shall, upon request, provide to the Province any specific permissions or authorizations as may be required, including if necessary the supply of waivers of moral rights as may be necessary for the use of excerpts from the materials.

9. **Modification of Proposal** – The UofC may not modify the Proposal in any material respect without the prior approval of the Province, which approval shall not unreasonably be withheld.

10. **Inspection and Audit** – The UofC shall maintain appropriate books and records with respect to its carrying out of the Proposal, which books and records shall be kept available for inspection and audit by the Province at all reasonable times and upon reasonable notice until one year after March 31, 2010.

11. **Entire Agreement** – This Grant Agreement, including the attached Proposal and the Grants Regulation, constitutes the entire agreement between the Province and the UofC with respect to the Grant; there are no terms, conditions, promises, assurances or representations other than as set out or referenced herein.

12. **Order of Precedence** – In the event of any inconsistency or conflict between the body of this Grant Agreement and the attached Proposal, the body of this Grant Agreement shall govern.

13. **Amendment and Waiver** – No amendment of this Grant Agreement is effective unless made in writing and signed by a duly authorized representative of each of the Province and the UofC. No waiver of any provision of this Agreement is effective unless made in writing, and any such waiver has effect only in respect of the particular provision

or circumstance specified in the waiver. No representation by either of the parties with respect to the performance of any obligation under this Grant Agreement is capable of giving rise to an estoppel unless the representation is made in writing.

14. Announcements – The UofC shall not make any public announcement or issue any press release regarding this Agreement or the Grant except in consultation with the Province and with the approval of the Province as to the content of the announcement or press release, which approval shall not be unreasonably withheld.

15. Disclosure – The UofC acknowledges and agrees that the Province may make public disclosure of this Agreement and its contents by any means chosen by the Province including, without limitation, pursuant to a request for access made under the *Freedom of Information and Protection of Privacy Act* (Alberta).

16. Notices – All notices, approvals and other communications under any provision of this Grant Agreement must be in writing to be effective, and may be delivered by any means, including fax transmission or e-mail, to the following respective addresses:

(a) in the case of the Province:

Alberta Energy
Economics and Markets Branch
Energy and Policy and Research Division
5th fl Petroleum Plaza, North Tower
9945 108 Street
Edmonton, AB, T5K 2G6
Attention: Barry Rodgers, Executive Director
fax: (780) 422-9677
e-mail: barry.rodgers@gov.ab.ca

(b) in the case of the UofC

University of Calgary –
School of Public Policy
Suite 926 Earth Sciences Building
2500 University Drive NW
Calgary, AB, T2N 1N4
attention: Gary Durbeniuk, Vice President, Development
fax: (403) – 210-6939
e-mail:

Either party may change its address information by notice to the other in the above manner.

Either party may rely, in the absence of any notification to the contrary from the other party, upon any notice, approval or communication from the individual named in the other party's current address information as having been duly authorized and given on behalf of that other party.

17. No Assignment – Neither this Grant Agreement nor any right or benefit under it is assignable by the UofC.

The parties have therefore signed this Grant Agreement, each by its duly authorized officer, on the respective dates shown below.

**HER MAJESTY THE QUEEN IN
RIGHT OF ALBERTA**, as represented by
the Minister of Energy

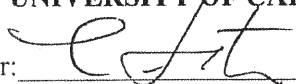
date: December 11, 2009

per:  _____

C. Peter Watson, Deputy Minister

**THE GOVERNORS OF THE
UNIVERSITY OF CALGARY**

date: December __, 2009

per:  _____

LORI FOSTER
Director, Research Grants
and Administration
Research Services

MAR 19 2010