

McGill Engineering Competition 2013

**Consulting Engineering**

Judging Guide

Dear Judges,

I would like to thank you in the name of the Executive Team of MEC 2013 for participating as judges this year in the event. With your involvement, you increase the value of the event significantly by providing participants with experience and feedback in their performance. Also, by connecting with them you can share your experience in industry to help them grow as better engineering and better professionals. I hope that this experience is also enjoyable for you and you find interesting way in connecting with the top talent of our faculty.

This year, we are providing better venues in which you can connect to the participants and get to know them better. Your involvement as judges will give you a first hand exposure to their skills and talents. Later, you will be able to evaluate and select the top performers, who will represent McGill University at the Quebec Engineering Competition. Ultimately, you will be able to participate in a networking event with the winners of the competition, other fellow industry leaders and the organizers of the event.

You will be able to find enclosed in this document all the information regarding the competition, including the theme of the case, the details regarding the context of the situation and the evaluation criteria. Thanks again for your unconditional support to the McGill Engineering Competition 2013. We hope that we will be able to collaborate in the future.

Yours Sincerely,

**Carlos Marin Capriles**

*President*

**Engineering Undergraduate Society of McGill University**

**Introduction**

**Context**

The Gentilly nuclear power plant has been closed since December 28, 2012. The social, environmental and economical impacts are already being felt in the region. Along with the approximately 800 jobs lost, a financial strain has settled on the regional economy. This situation has indeed created a crisis in the Bécancour and Nicolet-Yamaska region. Since the province of Quebec does not foresee the use of increasing its production of energy, the Government has decided to launch an industrial development campaign. This campaign thus plans to use the disused land of the plant for industrial and manufacturing projects in 10 years. Hence, in 2024, all installations pertaining to the Gentilly power plant will be completely demolished and the land will be decontaminated. Considering the critical condition in which the region is in, and the support from the Government for the economical stimulus, a new beer brewery has decided to settle on the disaffected site. This brewery has appointed your firm for the project management and design of this new Bécancour Brewery.

**Technical Requirements**

**Energy**

In order to reduce the energy needs applicable to this project, the use of renewable energies must be integrated. Your team will have to design a system that will supply the industrial components in order for them to be autonomous energy-wise. Approximately 100 MW per day is needed for the whole of the brewery.

**Industrial Components**

The installation must have one brewery section including enough tanks to produce 250 000 hectoliters, one bottling section to produce 6 million 12 bottle packs, a distribution system for the product, all installations required for 800 employees and an energy supply system.

**Implementation Plan**

Considering that you have a limited area on which to place the installation, you must ensure that the geographical area will be used in the best possible way. Your client has also asked for a detailed plan of the installations and the placement of the components.

**General Instructions**

In teams of maximum 4 engineering students, you have 4 hours to find a solution and produce the required report and presentation. You must quote all sources of information and documents used. Any team not presenting this last information will be greatly penalized. Any document received after this period will not be accepted.

**REPORT**

A 3 to 5 page report, excluding any appendices, must be handed in before the end of the competition period. The following items must be found in the report:

* One complete solution for the site with a detailed plan;
* One detailed calendar presenting the projects steps;
* One financial analysis;
* One environmental impact evaluation;
* One plan for the involvement and approval of the public (social impact assessment).

**PRESENTATION**

Using the PowerPoint format as a visual aid, you will be giving a 10 minute oral presentation summarizing your complete solution, and presenting the information that your team decides is the most important to consider. A 5 minute question period will be given for use by the judges.

**Evaluation Criteria**

**Solution (60%)**

* Solution meets the requirements
* Justification of the solution
* Social, environmental and financial impacts
* Feasibility and real world application
* Innovation

**Oral Presentation (20%)**

* Voice, articulation and time management
* Visual aid
* Equal participation of team members
* Ability and easiness for answering questions

**Written Report (20%)**

* Language Quality
* Professionalism
* Structure

**Appendices**

**Site Coordinates**

46˚ 23’42” North 72˚ 21’21” West

**Site Plan**

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*Satellite view of site (Google Maps)*

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*Site Plan (Google Maps)*

**Team 1**

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| --- | --- |
| **Solution Meets Requirements** |  |
| **Justification of the Solution** |  |
| **Social, Environmental & Financial Impacts** |  |
| **Feasibility & Real World Application** |  |
| **Innovation** |  |
| **Voice, Articulation & Time Management** |  |
| **Visual Aid** |  |
| **Equal Participation of Team Members** |  |
| **Ability to Answer Questions** |  |
| **Language Quality** |  |
| **Professionalism** |  |
| **Structure** |  |

**Team 2**

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| **Solution Meets Requirements** |  |
| **Justification of the Solution** |  |
| **Social, Environmental & Financial Impacts** |  |
| **Feasibility & Real World Application** |  |
| **Innovation** |  |
| **Voice, Articulation & Time Management** |  |
| **Visual Aid** |  |
| **Equal Participation of Team Members** |  |
| **Ability to Answer Questions** |  |
| **Language Quality** |  |
| **Professionalism** |  |
| **Structure** |  |

**Team 3**

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| **Solution Meets Requirements** |  |
| **Justification of the Solution** |  |
| **Social, Environmental & Financial Impacts** |  |
| **Feasibility & Real World Application** |  |
| **Innovation** |  |
| **Voice, Articulation & Time Management** |  |
| **Visual Aid** |  |
| **Equal Participation of Team Members** |  |
| **Ability to Answer Questions** |  |
| **Language Quality** |  |
| **Professionalism** |  |
| **Structure** |  |

**Team 4**

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| **Solution Meets Requirements** |  |
| **Justification of the Solution** |  |
| **Social, Environmental & Financial Impacts** |  |
| **Feasibility & Real World Application** |  |
| **Innovation** |  |
| **Voice, Articulation & Time Management** |  |
| **Visual Aid** |  |
| **Equal Participation of Team Members** |  |
| **Ability to Answer Questions** |  |
| **Language Quality** |  |
| **Professionalism** |  |
| **Structure** |  |

**Team 5**

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| **Solution Meets Requirements** |  |
| **Justification of the Solution** |  |
| **Social, Environmental & Financial Impacts** |  |
| **Feasibility & Real World Application** |  |
| **Innovation** |  |
| **Voice, Articulation & Time Management** |  |
| **Visual Aid** |  |
| **Equal Participation of Team Members** |  |
| **Ability to Answer Questions** |  |
| **Language Quality** |  |
| **Professionalism** |  |
| **Structure** |  |

**Team 6**

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| **Solution Meets Requirements** |  |
| **Justification of the Solution** |  |
| **Social, Environmental & Financial Impacts** |  |
| **Feasibility & Real World Application** |  |
| **Innovation** |  |
| **Voice, Articulation & Time Management** |  |
| **Visual Aid** |  |
| **Equal Participation of Team Members** |  |
| **Ability to Answer Questions** |  |
| **Language Quality** |  |
| **Professionalism** |  |
| **Structure** |  |

**Team 7**

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| **Solution Meets Requirements** |  |
| **Justification of the Solution** |  |
| **Social, Environmental & Financial Impacts** |  |
| **Feasibility & Real World Application** |  |
| **Innovation** |  |
| **Voice, Articulation & Time Management** |  |
| **Visual Aid** |  |
| **Equal Participation of Team Members** |  |
| **Ability to Answer Questions** |  |
| **Language Quality** |  |
| **Professionalism** |  |
| **Structure** |  |

**Team 8**

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| **Solution Meets Requirements** |  |
| **Justification of the Solution** |  |
| **Social, Environmental & Financial Impacts** |  |
| **Feasibility & Real World Application** |  |
| **Innovation** |  |
| **Voice, Articulation & Time Management** |  |
| **Visual Aid** |  |
| **Equal Participation of Team Members** |  |
| **Ability to Answer Questions** |  |
| **Language Quality** |  |
| **Professionalism** |  |
| **Structure** |  |

**Team 9**

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| **Solution Meets Requirements** |  |
| **Justification of the Solution** |  |
| **Social, Environmental & Financial Impacts** |  |
| **Feasibility & Real World Application** |  |
| **Innovation** |  |
| **Voice, Articulation & Time Management** |  |
| **Visual Aid** |  |
| **Equal Participation of Team Members** |  |
| **Ability to Answer Questions** |  |
| **Language Quality** |  |
| **Professionalism** |  |
| **Structure** |  |

**Team 10**

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| **Solution Meets Requirements** |  |
| **Justification of the Solution** |  |
| **Social, Environmental & Financial Impacts** |  |
| **Feasibility & Real World Application** |  |
| **Innovation** |  |
| **Voice, Articulation & Time Management** |  |
| **Visual Aid** |  |
| **Equal Participation of Team Members** |  |
| **Ability to Answer Questions** |  |
| **Language Quality** |  |
| **Professionalism** |  |
| **Structure** |  |