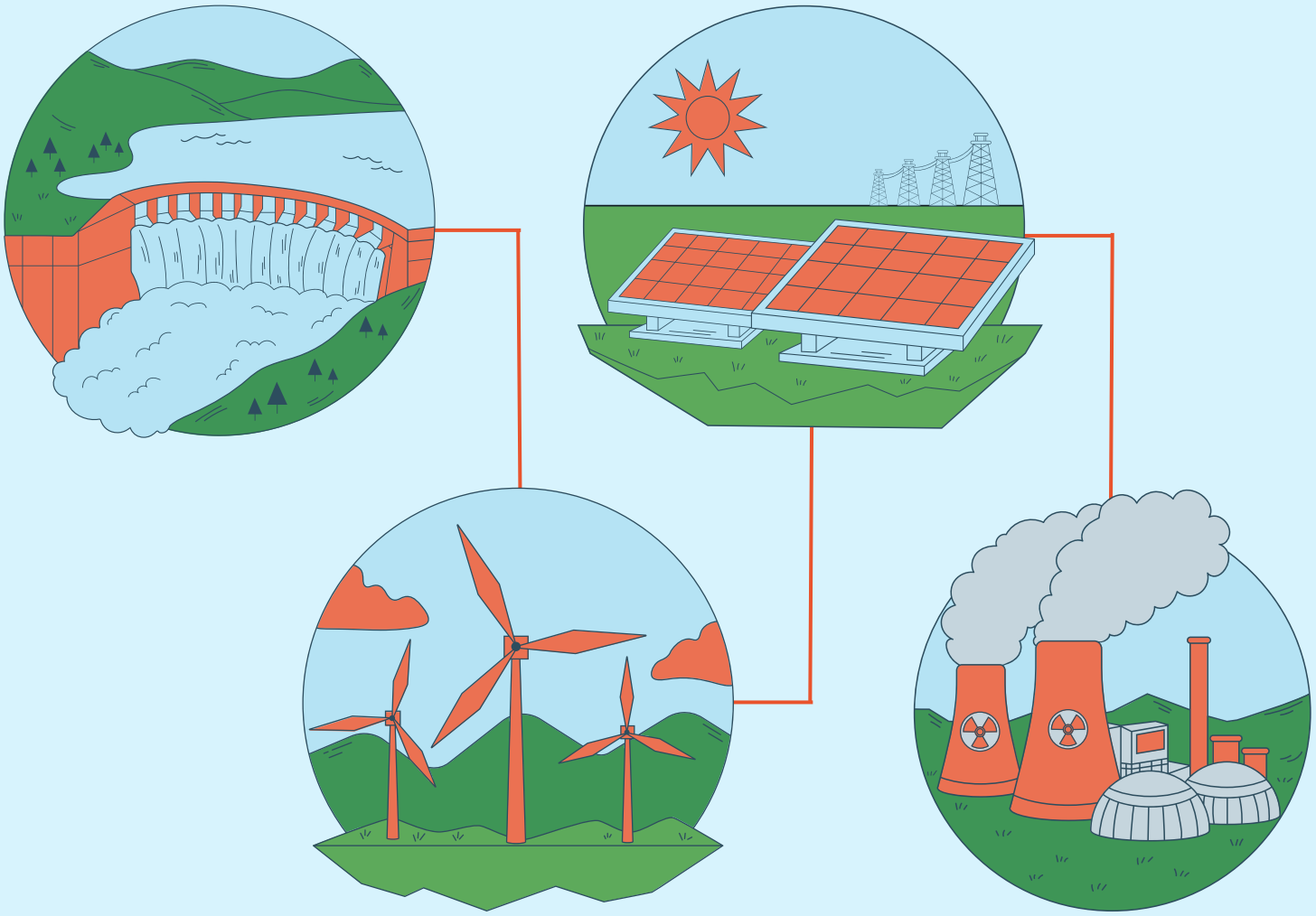
ENGINEERING GAMES 2026
From dream to reality

MACHINE RULEBOOK

JANUARY 3RD TO 7TH 2026 | POLYTECHNIQUE MONTREAL

35TH EDITION OF THE ENGINEERING GAMES



SEPTEMBER 8TH 2025

ENGLISH VERSION

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THE MACHINE CHALLENGE

A true pillar of the Games, the Machine competition tests the technical rigor, creativity, and problem-solving ability of future engineers.

For several months, teams will work tirelessly to design, build, and test a robotic machine capable of tackling a series of technical challenges on a predefined course. Every mechanism, every component, and every line of code must be carefully designed to meet the strict evaluation criteria set by the jury.

Beyond mechanical performance, teams will need to demonstrate flawless coordination, resilience, and a strong ability to adapt. This multidisciplinary challenge is a unique opportunity to put their technical skills into practice while developing an unshakable team spirit.

The projects will then be presented at the Engineering Games in January 2026, before a panel of experts who will no doubt be impressed by the ingenuity of the participants.

Get ready to push the limits of innovation!

The Machine Team

THANK YOU TO THE OFFICIAL SPONSOR OF THE MACHINE COMPETITION!

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1. A GREEN DREAM

Quebec, rich in natural resources and proud of its hydroelectric-based energy model, stands at a historic crossroads. In the face of global climate challenges and growing energy demand, a new government reform has been launched. This ambitious reform aims to radically diversify the province's energy mix by massively integrating new green energy sources such as wind and solar power, while optimizing existing infrastructure and committing to an enhanced policy of environmental cleanup across the territory. The goal is no longer simply to meet the needs of Quebecers, but to expand this capacity to support all of Canada, thus positioning Quebec as an essential leader in sustainable energy.

However, bringing this grand vision to life does not come without enormous technical challenges. Building new power plants, modernizing aging infrastructure, and removing the remnants of past polluting practices require an unprecedented mobilization of engineering efforts. Conventional technologies face constraints related to time, cost, and sometimes access to remote or difficult areas. It is in this context that the government has entrusted your team with the mandate.

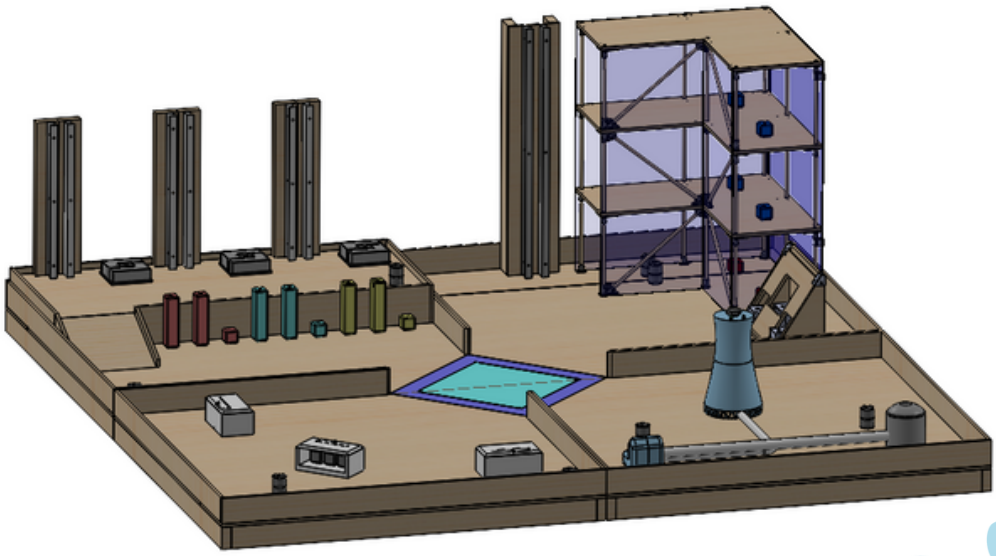
Your team is therefore mandated to develop a robotic solution capable of meeting these challenges. Your mission is to design, build, and program a robotic solution that demonstrates its ability to:

- **Decontaminate areas polluted by hydrocarbons.**
- **Repair damaged hydroelectric infrastructure.**
- **Build new wind power production units.**
- **Optimize the performance of existing solar power plants.**
- **Repair existing nuclear power plants.**

The success of your robot in carrying out these complex tasks will be a tangible demonstration of the ingenuity our future generation of engineers can offer and will contribute to making the vision of a Quebec and a Canada powered by green energy a reality.

2. CHALLENGE ELEMENTS

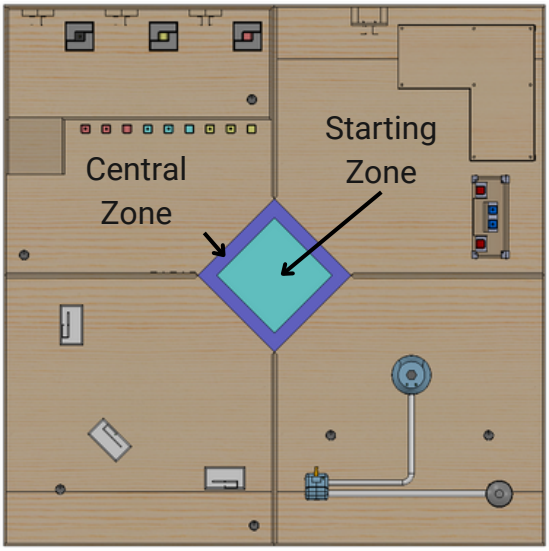
The course below represents the different zones in which your robotic solution will operate in order to demonstrate its capabilities.



CENTRAL ZONE

The Central Zone is your team's headquarters. Located between all the power plants, it will serve to deploy your robotic solution, store the oil barrels that will be collected, and move between the power plants.

Within the Central Zone is the Starting Zone, where your robotic solution will begin its course. This is zone of 1.5' by 1.5'. There is a height limit of 2'. Before starting the trial, your robotic solution must be completely contained within this zone.



Course from above

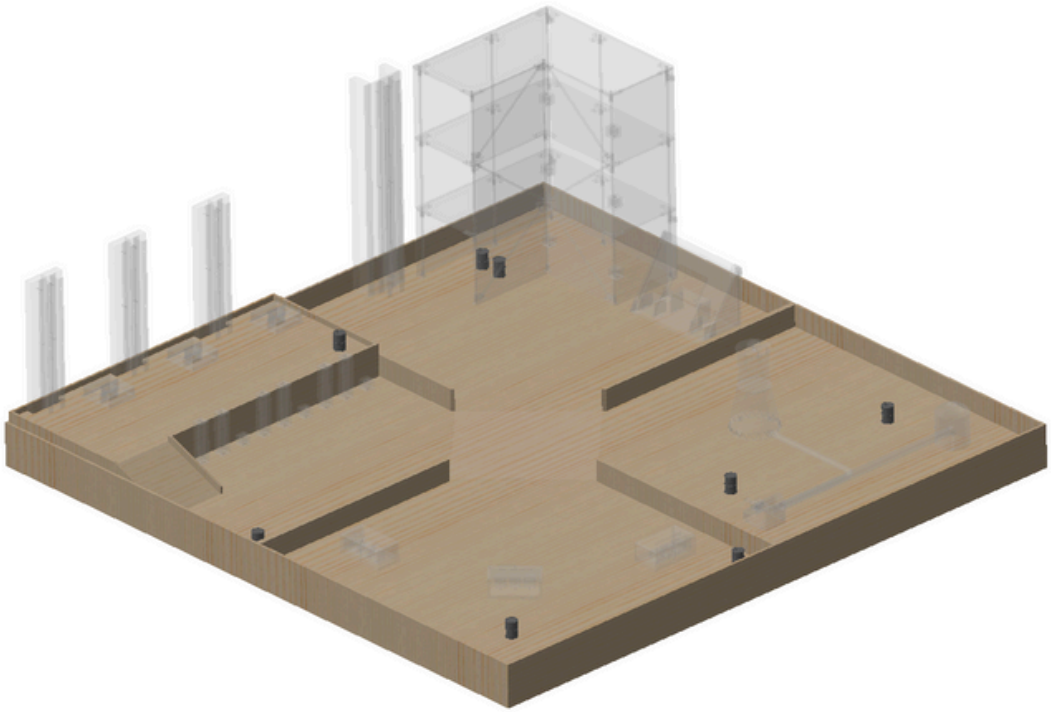
3. DECONTAMINATION OF QUEBEC LANDS

3.1 CONTEXT

Many areas, sometimes remote or difficult to access, still bear the scars of past fossil fuel exploitation. As part of the new government reform, a massive decontamination initiative has been launched. You are tasked with collecting these scattered “oil barrels,” symbolizing the cleanup effort and the transition toward a cleaner future.

3.2 OBJECTIVE

The robotic solution must retrieve the oil barrels from their respective locations and transport them to the Central Zone. Multiple barrels may be transported at the same time by the robotic solution. A barrel is considered valid if the entirety of the barrel is located within the Central Zone. If any part of the barrel is outside the Central Zone, it will be considered invalid.



3. 3. DECONTAMINATION OF QUEBEC LANDS

3.3 CHARACTERISTICS

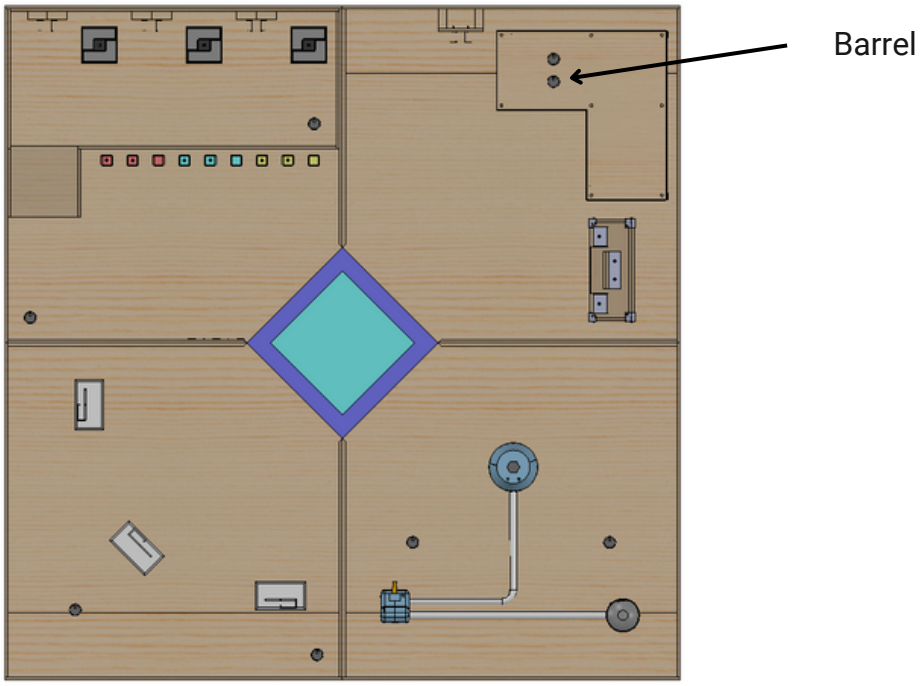
The oil barrels are faithful miniature replicas, cylindrical in shape. They are made of lightweight, durable plastic. There are exactly two oil barrels in each plant zone (hydroelectric, wind, solar, and nuclear). This means a total of 8 barrels to be collected along the course. The barrels are placed in precise, predefined locations within each plant zone.

3.3.1 SCORING OF THE BARRELS

The number of points earned from the collected barrels increases exponentially according to the following function:

$$N = floor\left(3 \times 1.645^{x}\right)$$

where N is the number of points that will be accumulated for land decontamination, and x is the number of barrels collected at the end of the challenge. Consequently, collecting the last barrel will yield many more points than collecting the first barrel for this section. More details are provided in the Scoring section.



Positioning of the barrels

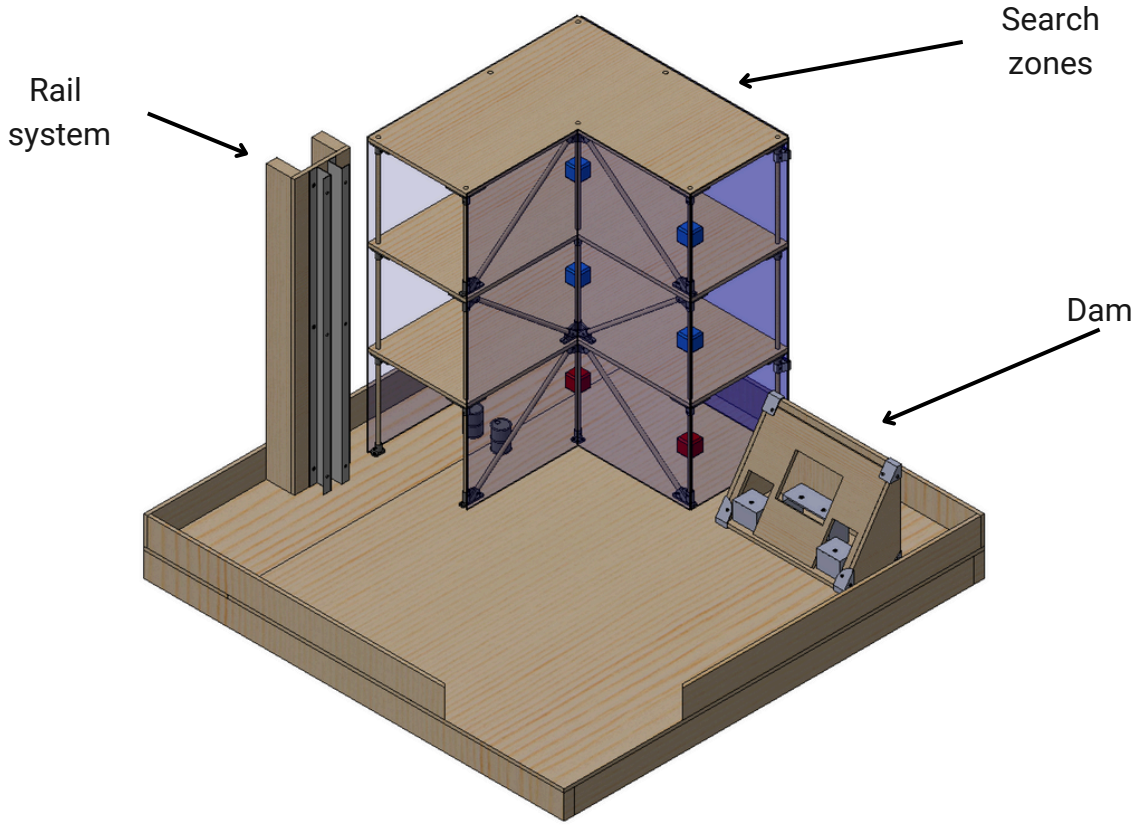
4. HYDROELECTRIC POWER PLANT

4.1 CONTEXT

Hydroelectric power is the cornerstone of Quebec's energy system. However, even the most robust infrastructure can fall victim to the forces of nature. Following a simulated storm, the main turbines and part of the dam were damaged by a rockslide near the plant. Your robot must retrieve the new turbines (red blocks) and the new wall sections (blue blocks) in order to install them on the dam and complete the repairs. These blocks will have a magnetic side to make their installation easier.

4.2 OBJECTIVE

The robotic solution must retrieve the blocks from the tiered search zones and place them on the dam. The blocks are initially located in the tiered areas and must be transported to the dam. There are 2 blocks per level, including ground level. Two barrels are located at ground level in addition to the blocks.



4. HYDROELECTRIC POWER PLANT

4.3 CHARACTERISTICS

The tiered research zones are composed of three levels, allowing passage for a robotic solution 305 mm (12 in) high and 305 mm (12 in) wide. The research zones are accessible via a rail system. The dam to be repaired is located at ground level.

4.3.1 RAIL SYSTEM

A vertical rail system has been integrated into the power plant by the government as a safety measure to comply with CNESST regulations. Operating such systems requires significant safety precautions. This system is composed of parallel C-shaped metal beams, securely fixed to the support anchored to the ground. In an effort to improve safety conditions during the work, CNESST standards require the robotic solution to attach itself to the rails and use them as a propulsion system to ensure its mobility.

Thus, your solution is not allowed to touch the ground once it has begun climbing using the rails. This means that your solution must only be able to ascend by using the rails and their supports.

Vertical rail system

4.3.2 SEARCH ZONES

Each level is L-shaped, measuring 762 mm (30 in) by 762 mm (30 in). All sides of the search zones are enclosed with transparent panels to prevent a robotic solution from falling during the challenge. The total height of the levels is 1029 mm (40.5 in).

4.3.3 DAM

The dam is located next to the search zones. It is composed of three openings to be filled with the blocks. The central opening is designed to hold the 4 blue blocks, while each side opening is designated for the red blocks. Each opening contains magnets similar to those in the blocks to ensure proper placement.

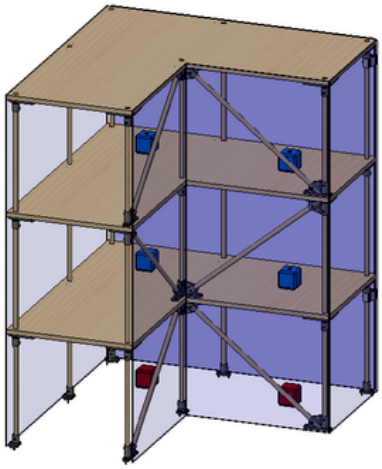
4. HYDROELECTRIC POWER PLANT

4.4 COMPLETION OF THE CHALLENGE

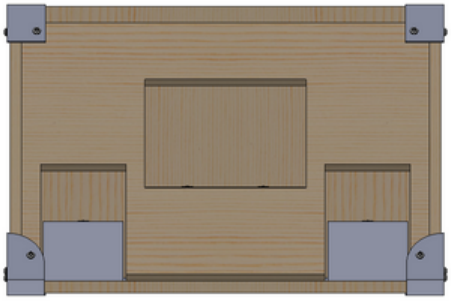
The challenge will begin as shown in the diagram below and must end as shown below. The number of points associated with the hydroelectric power plant depends on the blocks that have been placed on the dam. For a block to be considered placed, it must correspond to at least one of the blocks indicated in the final position diagram.

INITIAL POSITION

Initialement, les blocs du barrage sont situés dans la zone de recherche et le barrage est vide.

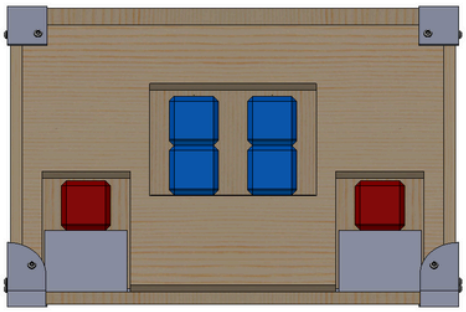


Initial block positioning

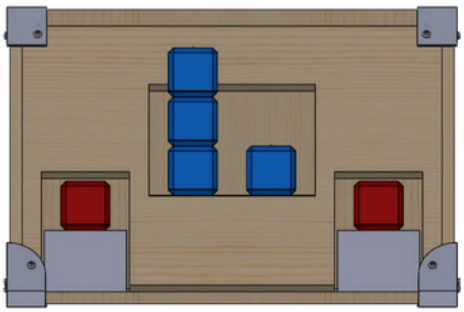


Initial dam state

FINAL POSITION



Valid dam configuration



Invalid dam configuration
(Only the 2 red blocks and the 3 legal blue blocks will be counted towards points)

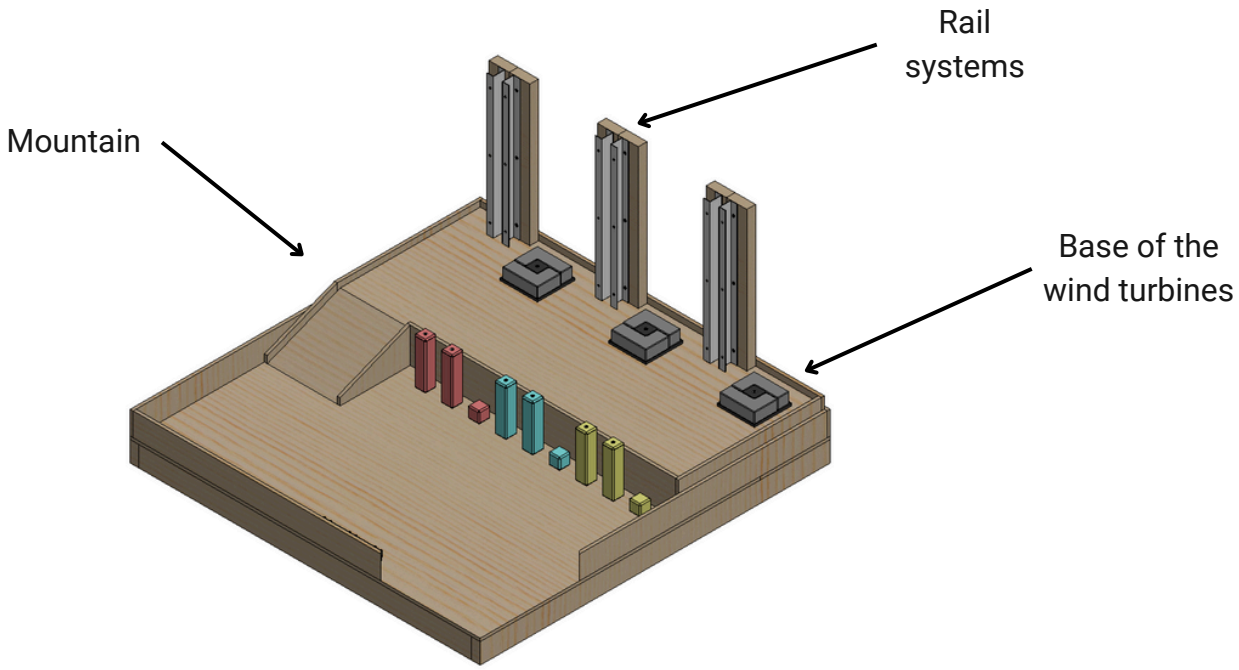
5. WIND POWER PLANT

5.1 CONTEXT

To complete Quebec's energy mix, wind energy is included in the project. In fact, due to the drastic temperature changes of recent years, certain areas in Quebec have become exposed to extremely strong winds. As a result, the government is considering installing wind turbines in these regions. Your team is responsible for assembling new wind turbines in Gaspésie, demonstrating the ability of robotic engineering solutions to maximize green energy production. You must finalize the construction of wind turbines on the bases already located at the top of the cliff using the parts that have been delivered at the bottom.

5.2 OBJECTIVE

The objective is to build a total of three wind turbines on the bases at the top of the cliff. For a wind turbine to be considered complete, it must be built with two tower blocks stacked vertically and a nacelle block placed on top of them. If the wind turbine is built entirely from blocks of the same color, it will earn more points. If your solution is able to read the manufacturer's instructions (NFC) and thus place the correct color wind turbine on the correct base, it will earn you even more points.

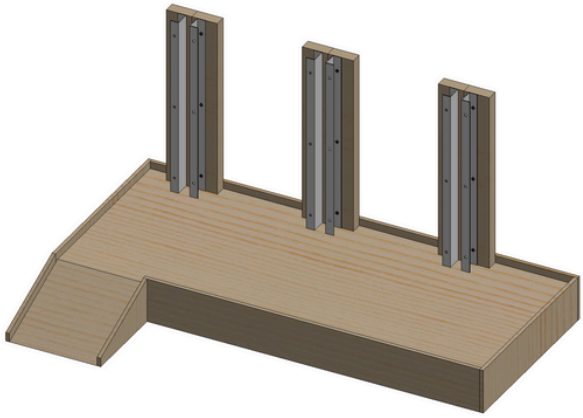


5. WIND POWER PLANT

5.3 CHARACTERISTICS

5.3.1 RAIL SYSTEM

The same rail system as in the hydroelectric section is present to help you build the wind turbines. The same constraints apply with respect to CNESST regulations.

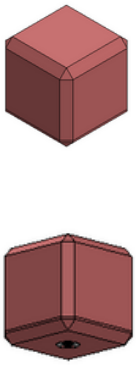


Rail systems present on the mountain

5.3.2 WIND TURBINE CONSTRUCTION BLOCKS

The wind turbines are built from 2 types of blocks: “tower blocks” and “nacelle blocks,” which are located at the base of the cliff. Your solution must transport a total of 9 blocks (6 tower blocks and 3 nacelle blocks) to build the first three wind turbines of the new farm. Each turbine block will have a color code (red, yellow, and blue). The color of the block will allow judges and teams to validate the assembly. The blocks will be placed randomly in the zone in order to mix the different types.

Tower block with pogo pins at tips

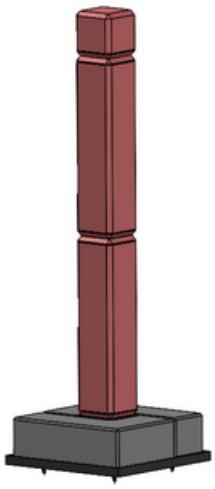


Nacelle block with pogo pin on lower side

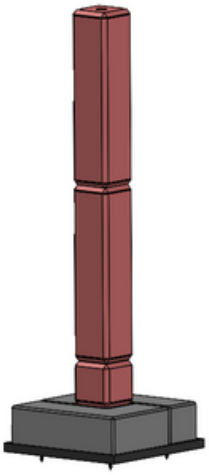
5. WIND POWER PLANT

5.3.3 WIND TURBINE CONSTRUCTION BLOCKS

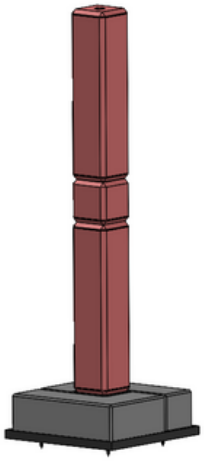
The tower blocks are longer (2" by 2" by 8") and contain magnetic pogo pins for power supply. A wind turbine is made up of two towers, one on top of the other, which must be stacked vertically on the already constructed concrete bases.



Good block configuration earning full points



Invalid wind turbine: no points will be earned



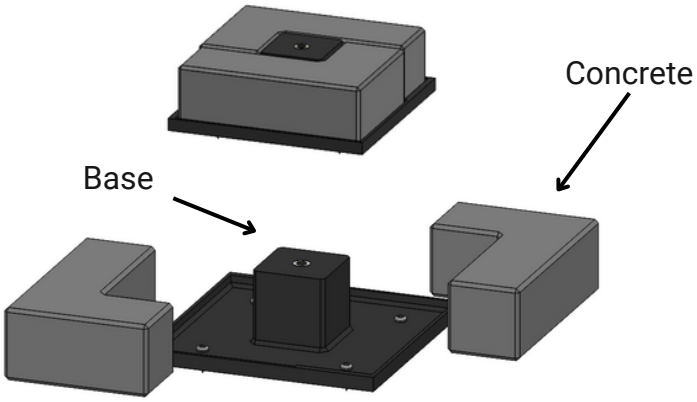
Partially completed wind turbine: only the first tower block will be counted

The nacelle blocks have the same dimensions as the rocks in the hydroelectric power plant zone (2" by 2" by 2") and also contain magnetic pogo pins to connect them to the tower. The nacelle contains the generator and must therefore be placed on top of the tower for the wind turbine to produce electricity and be considered complete. The nacelle is equipped with an LED that will light up once the wind turbine is assembled.

5. WIND POWER PLANT

5.3.4 CONSTRUCTION PLATFORMS

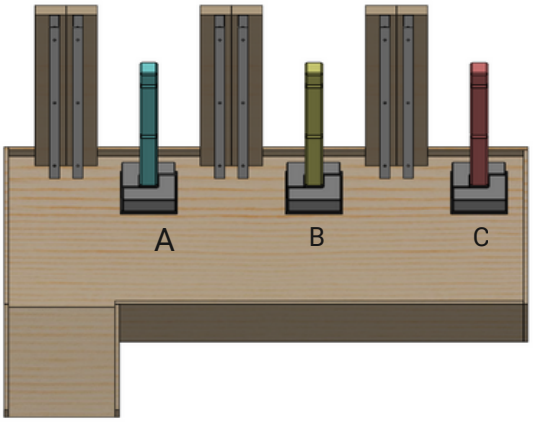
The wind power plant zone is equipped with three square concrete bases at the top of the cliff, intended to serve as foundations for the wind turbines. These platforms are 6" by 6" squares with a height of 2". The bases are each identified by the letters A, B, and C. You must not move the foundations, otherwise the points associated with that wind turbine will be divided by two.



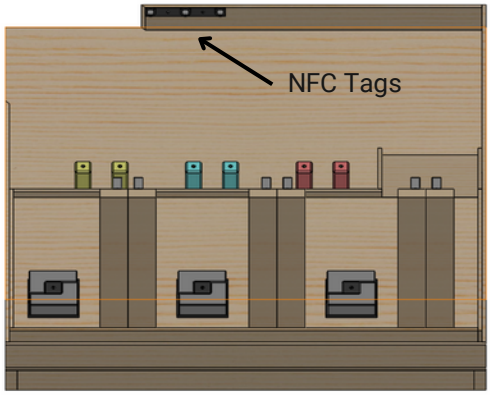
Concrete bases of the wind turbines

5.3.5 NFC TAGS

At the base of the cliff, there are three NFC tags located on the wall to the left of the entrance. These represent the manufacturer's instructions for optimizing energy production. The NFC tags indicate which color wind turbine must be assembled on which platform. For example, if your solution reads the first NFC and it says *A - Bleu*, that means the 3 blue blocks making up one wind turbine must be assembled on concrete base A. There are 3 different types of NFC: A – Blue, B – Red, and C – Yellow. The letters and colors of the bases will be chosen randomly for each university during the competition. In addition, the color of each NFC will be written in a randomly chosen language from the following list: French, English, Spanish, Portuguese, Italian, Romanian, Turkish, Albanian, Dutch, German, Huron-Wendat, Swahili, Creole, Indonesian, Hawaiian. For example, on one NFC it could say: *A - Bleu*.



Wind turbine configuration



Vue of the NFC tags

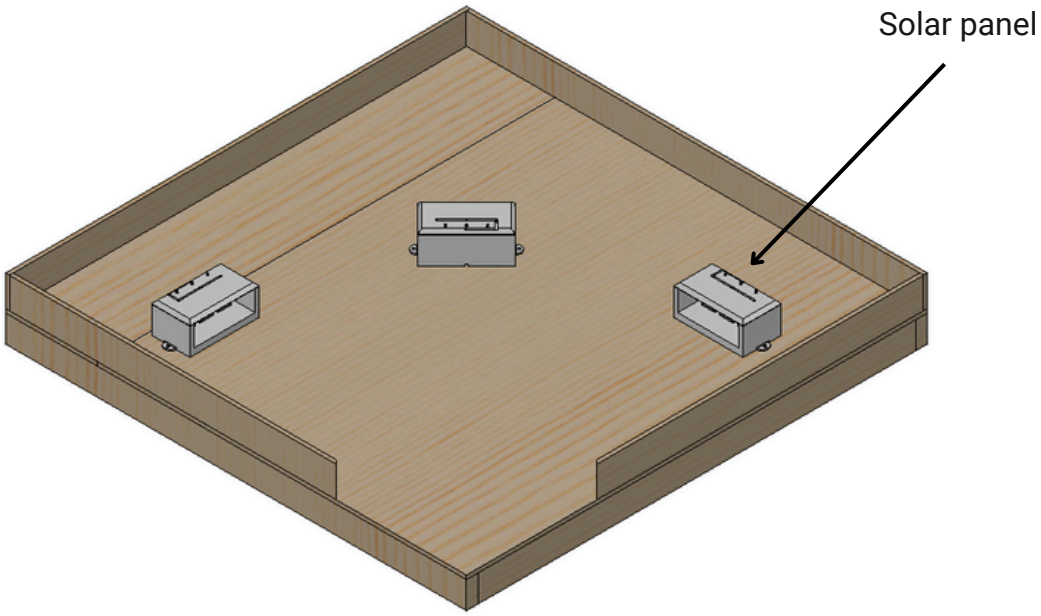
6. SOLAR POWER PLANT

6.1 CONTEXT

In the race toward green energy, optimizing existing infrastructure is just as crucial as building new systems. Vast solar panel fields in the Estrie region, though already installed, have seen their efficiency drop significantly due to the accumulation of dust and debris over time. Your team is tasked with renovating these panels by removing the obstacles blocking sunlight. However, some installations have been set up directly on the solar panels. These must not be moved. This is a mission of precision, where light detection becomes the key measure of success.

6.2 OBJECTIVE

The robot must remove the dust (red blocks) from each solar station to allow sunlight (LEDs) to reach the photovoltaic cells (photoresistors) without moving the existing installations (black blocks). A solar panel is considered cleaned when all of its dust blocks have been cleared. This means the blocks have been completely removed and the light can pass unobstructed onto the cells. It is not necessary to place the removed blocks in a specific area. They may simply be pushed out of the way.

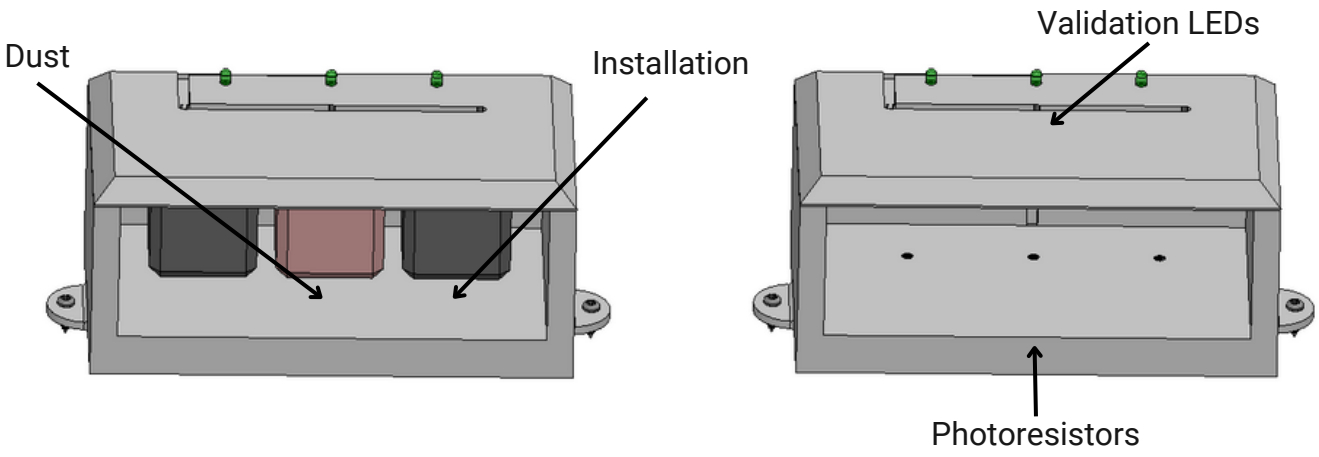


6. SOLAR POWER PLANT

6.3 CHARACTERISTICS

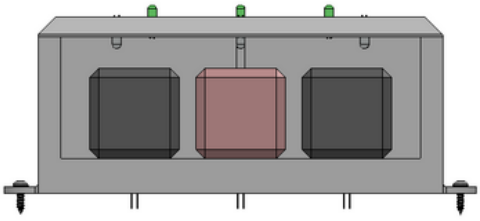
6.3.1 SOLAR PANEL STATIONS

There are three solar panel stations distributed throughout the zone. Each station is represented by a rectangular prism-shaped box. The photovoltaic cells of the panels are represented by photoresistors embedded in the ground. The sunlight sources are represented by LEDs located above the photoresistors.

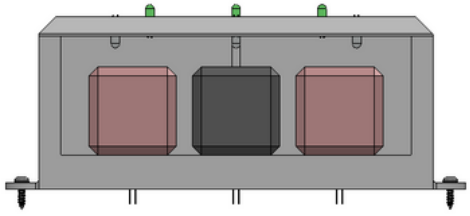


The accumulated dust as well as the installations on the panels are represented by blocks identical to those of the hydroelectric power plant. Each block is placed directly between the LED and the photoresistor, blocking the light path. A dust block will be colored red. The installation blocks are identical to the dust blocks but are colored blue.

Along the course, there will be 2 panels with one dust block and 1 panel with two dust blocks. The configuration of the dust blocks on each panel will be announced on the morning of the trial.



Solar Panel Configuration 1



Solar Panel Configuration 2

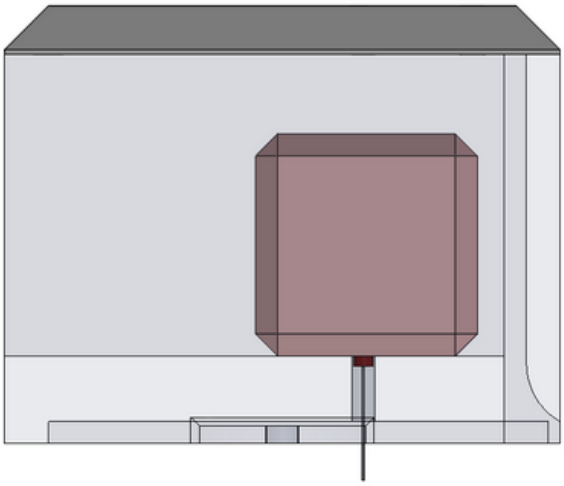
6. SOLAR POWER PLANT

6.3.2 VALIDATION

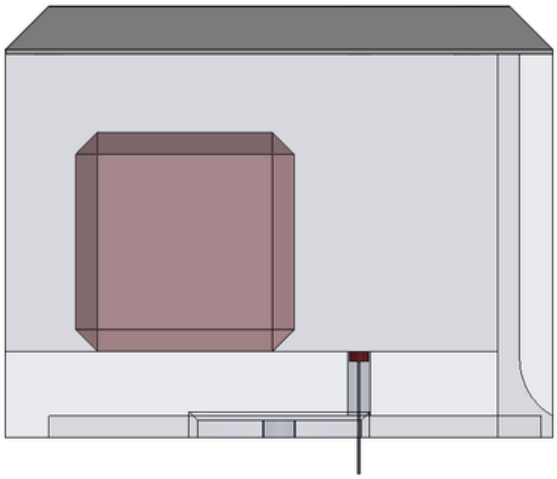
An additional LED, called the validation LED, is associated with the photoresistor blocked by dust. Visible from outside the station, this LED will light up if and only if the underlying photoresistor detects a minimum amount of light from its source LED or from the environment.

In practice, the LED is off when the dust block is on the photoresistor, and it is on when the block is removed, indicating that the photovoltaic cell is cleaned and functional. If the block is partially on the photoresistor, the cell will only be considered cleaned if the validation LED lights up.

Similarly, an installation block will be considered preserved if and only if the validation LED associated with its photoresistor is off.



Uncleaned cell



Cleaned cell

7. NUCLEAR POWER PLANT

7.1 CONTEXT

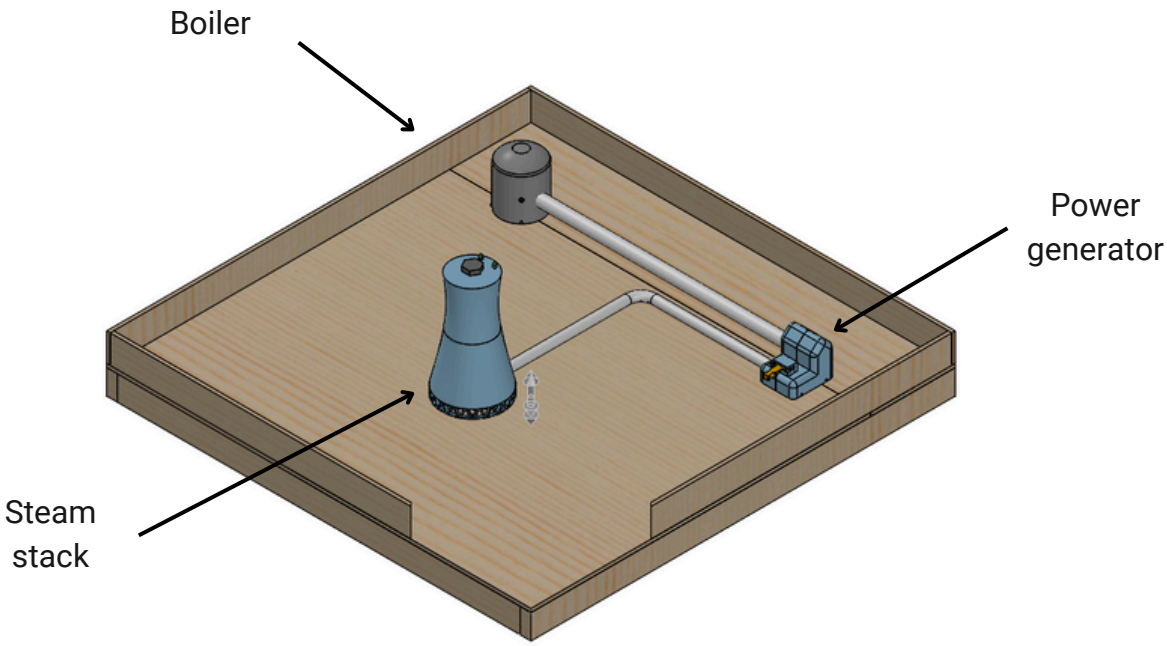
As part of Québec's energy diversification plan, the government is seeking to optimize and bring the Gentilly nuclear power plant back into service. Although stable, these facilities require regular adjustments of critical parameters to ensure optimal operation. These settings must be carried out with great precision, as poor calibration could lead to overheating, energy losses, or even an emergency shutdown of the reactor. To automate these delicate operations, the government is commissioning your team to design a robotic solution capable of operating in sensitive areas of the plant.

7.2 OBJECTIVE

Your robotic solution must precisely adjust physical potentiometer knobs integrated into three essential systems:

- the steam stack
- the boiler
- the power generation system

These represent pressure, temperature, and power regulators that must be set within specific ranges to ensure the proper operation of the plant.



7. NUCLEAR POWER PLANT

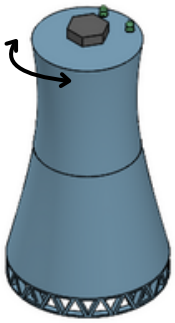
7.3 CHARACTERISTICS

7.3.1 SYSTEM LAYOUT

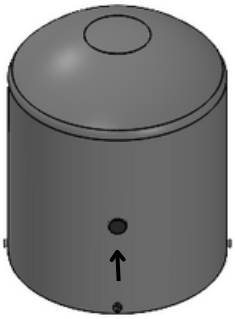
The three zones are arranged in a triangular layout separated by a piping system:

- **Steam stack** (upper zone, represented by a vertical cylinder)
- **Boiler** (middle zone, with a front-facing button)
- **Electric generator** (lower zone, with current symbols)

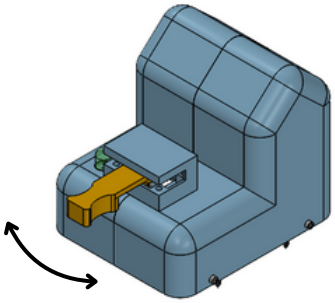
The movement that the robotic solution must perform to adjust each zone is shown in the images below:



Steam stack



Boiler



Electric generator

In the case of the steam stack, the rotary potentiometer must be adjusted by the robotic solution to regulate the system's pressure. For the boiler, it will simply be necessary to press the push button to regulate it. Finally, the electric generator can be adjusted by manipulating the potentiometer connected to the lever.

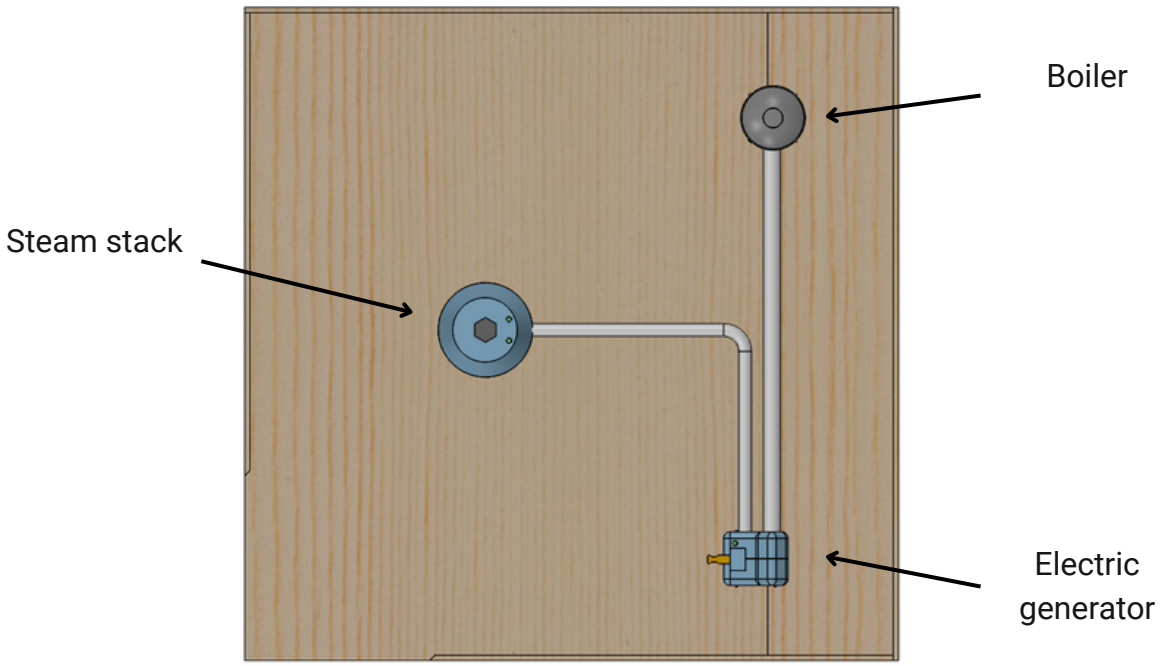
Each system has a validation LED that lights up when the system setting is within the valid range.

7. NUCLEAR POWER PLANT

7.3 CHARACTERISTICS

7.3.2 ZONES TO ADJUST

Zones	Relative height	Structure	Technical Purpose
Steam stack	High	Vertical cylinder with potentiometer on top	Represents the pressure regulation
Boiler	Medium	Medium-sized rectangular block	Represents heat exchange
Generator	Low	Small square block	Represents electrical output power



7.3.3 VALIDATION RULES

Your robot must reach the zone without violent contact with the structures, as some parts of the plant are fragile due to modernization. To validate that the plant's subsystems are calibrated, the validation LED associated with each subsystem will light up green if the potentiometer value is correct. If the potentiometer is outside the threshold, the validation LED will light up red. The zone will be considered complete if all the validation LEDs are green.

8. SCORING

The success of your robot in the energy reform challenge will be evaluated according to a clear scoring system and penalties for rule violations. All points are counted at the end of the challenge. At that time, the robotic solution may not touch any point-scoring element of the challenge (block, potentiometer, barrel, etc.); otherwise, the points associated with that element will not be counted.

8.1 3. DECONTAMINATION OF QUEBEC LANDS

The points associated with the decontamination of Québec lands are accumulated based on the number of barrels collected in the central zone. As mentioned earlier, the points for this section follow the following function:

$$N = floor\left(3 \times 1.645^{x}\right)$$

where N is the score and x is the number of barrels collected. The following table details the different scoring cases based on the number of barrels collected.

Number of barrels collected	1	2	3	4	5	6	7	8
Score for decontamination	4	8	13	21	36	59	97	160

8.2 HYDROELECTRIC POWER PLANT

For the hydroelectric power plant, the points associated with this section are divided according to the blocks placed on the dam. Points for a given block are only counted if it has been correctly placed on the dam. The point distribution is as follows:

- **Block initially placed on the ground floor:** 20 points
- **Block initially placed on the 1st or 2nd floor:** 60 points

If the robotic solution does not use the rails to climb to the 1st or 2nd floor and moves at least one block from the 1st or 2nd floor, the total points associated with this section are divided by 2.

8. SCORING

8.3 WIND POWER PLANT

The wind power plant points are distributed based on the blocks placed on a wind turbine base. 20 points are awarded for each wind turbine block (tower or nacelle) placed on a base. For a block to be considered placed, it must stand on its own without any assistance from the robotic solution. In addition, it must also be in the correct configuration to build the wind turbine. For example, a nacelle block placed directly on the base without any tower blocks beneath it will not earn any points. A bonus of 10 points is awarded for each complete wind turbine (2 tower blocks stacked vertically with a nacelle block on top). An additional bonus of 10 points is awarded for each complete wind turbine whose block color matches the NFC tag indication for its respective base (A, B, or C). The same penalty associated with not using the rails may be applied in this section. Additionally, the points associated with a wind turbine can be halved if its concrete bases are not in their initial position at the end of the challenge.

8.4 SOLAR POWER PLANT

The points for the solar power plant are calculated based on the dust blocks that have been removed and the installation blocks that have been preserved. To be considered removed, the validation LED of a dust block must be lit. To be considered preserved, the validation LED of an installation block must be off. The scoring is as follows:

- **Dust block removed:** 20 points
- **Installation block preserved:** 8 points

8.5 NUCLEAR POWER PLANT

The points for the solar power plant are calculated based on the subsystems of the plant that have been adjusted. For a subsystem to be considered set, its validation LED must be lit. The scoring is as follows:

- **Boiler adjustment:** 20 points
- **Generator adjustment:** 40 points
- **Steam stack adjustment:** 80 points

A bonus of 60 points is awarded if all three elements of the sector have been adjusted.

8. SCORING

8.6 PENALTIES

Penalties are deducted from the team's total score at the end of the trial and are designed to encourage safe and compliant robotic behavior. The following penalties may be applied:

- **Penalty related to CNESST regulations:** If the robot does not comply with CNESST regulations mentioned in Section 4.3.1, the score for that section will be divided by two. For example, if the robot complies with the regulations in the hydroelectric power plant section but not in the wind plant section, only the wind plant points will be halved.
- **Robot reset:** A reset of the robot (due to blockage, fall, leaving the field, etc.) will result in a **penalty of 10% of the total accumulated score**. For example, in the case of two resets, the penalty will be 20%, and so on. Reset conditions include, but are not limited to:
  - The robot leaves the playing field completely.
  - The robot is stuck and can no longer progress on its own.
  - Manual intervention by the operator is required to free the robot.
- **Damage to the field structure:** Any damage to field elements (structures, barriers, etc.) caused by the robot may result in the elimination of the team responsible for the damage.
- **Penalty associated with wind turbine concrete bases:** If a wind turbine's concrete bases are not in their initial position at the end of the challenge, the points associated with that wind turbine will be divided by two.

8.7 FINAL SCORING

The final score for the trial corresponds to the sum of the points from each section of the challenge:

$$P_{total} = (P_{decontamination} + P_{hydro} + P_{wind} + P_{solar} + P_{nuclear}) \times Penalty$$

The table summarizes the maximum number of points that can be earned in each section of the challenge:

Section	Decontamination of Québec Lands	Hydroelectric Plant	Wind Power Plant	Solar Power Plant	Nuclear Power Plant	Total
Maximum score	160	280	240	120	200	1000

9. TRIAL PROCEDURE

9.1 BEFORE THE TRIAL

Team and Robotic Solution Preparation

Teams must ensure that their robotic solution complies with the construction rulebook and is ready to be deployed on the field. Any major modification or repair must be completed before the team is called for its trial.

Dimension and Safety Validation

Before entering the playing field, the team's robotic solution will undergo a final validation of its dimensions by the judges. The robotic solution must fit entirely within the Starting Zone. The judges will also conduct a visual inspection to ensure that no part of the robotic solution poses a danger to the field or the operators.

Placement of the Robotic Solution

Once validation is complete, the team will place its robotic solution in the Starting Zone of the Central Zone. The barrels and blocks of each plant will be placed in their predefined initial positions. The potentiometers will be reset.

9. TRIAL PROCEDURE

9.2 DURING THE TRIAL

Start of the trial

At the judges' signal, the trial timer begins. The robot may then start its operations. Each team will have 10 minutes to complete its trial.

Human Intervention and reset

If the robot becomes stuck, leaves the field, or requires manual intervention, the team may request a reset. Each reset will result in a penalty applied to the score accumulated at the time of the intervention.

Communication and control

Each team will be allowed a maximum of two pilots. These pilots will only be able to communicate with the robotic solution wirelessly.

9.3 AFTER THE TRIAL

End of the Trial

The trial ends when the time runs out, or if the team decides to end the trial prematurely.

Evaluation and scoring

The judges will evaluate the final position of the barrels, the blocks (hydroelectric, wind, solar), and the status of the potentiometers (nuclear) and validation LEDs. The score will be calculated by adding the points earned for each completed objective and subtracting the accumulated penalties (resets, damage, etc.).

Any damage to the playing field caused by the robotic solution may result in the team's disqualification.

10. DELIVERABLES

Date	Jalon
8 September 2025	Release of the Machine Rulebook
8 September 2025	Release of the Construction Rulebook and other supporting documents
8 September 2025	Sending of the course elements to the teams
7 Novermber 2025	Preliminary submission of the Progress Report
14 Novermber 2025	Feedback on the Progress Report
27 Novermber 2025	Submission of the Final Progress Report
3 January 2026	Submission of the Machine Video and Oral Presentation
3 au 7 January 2026	Engineering Games 2026

11. EVALUATION GRID

The total score for the competition will be divided into different parts.

Evaluated Element	Weighting (%)
Progress report	10
Presentation video	5
Presentation before the judges	25
Trial before the public	60
Total	100

12. PROGRESS REPORT

The progress report must be a concise document aimed at informing the Organizing Committee about the development of the robotic solution and the strategies being considered.

This report must **not exceed 12 pages**, including the title page and table of contents, if applicable. This limit excludes appendices, but these must not be necessary for understanding the report.

Evaluation Criteria	Weighting (%)
Demonstration of understanding of the challenge and its issues	25
Strategies, approaches, and proposed solutions	25
Preliminary presentation of the robotic solution	15
Risk management process	25
Presentation of expected results	10
Total	100
Structure and clarity of the report	Up to -10
CAD of the robotic solution	Up to +10

12.1 DEMONSTRATION OF UNDERSTANDING OF THE CHALLENGE AND ITS ISSUES

This section serves as the introduction to your report. You must present your understanding of the challenge and the issues it will pose. This should include in particular:

- identification of the main problems raised by the challenge
- qualitative characterization of the objectives and identified problems

12.2 STRATEGIES, APPROACHES, AND PROPOSED SOLUTIONS

Your report must present the different strategies, approaches, and solutions that you plan to implement. This means presenting the higher-level considerations that will guide your design process and, more specifically, the execution of your trial.

12. PROGRESS REPORT

12.3 PRELIMINARY PRESENTATION OF THE ROBOTIC SOLUTION

Your report must present the current state of progress of your robotic solution. It must also briefly outline the additions and improvements you plan to make.
The following elements will allow you to present your solution comprehensively:

- Sketches or renderings of the solution
- Presentation of the movement system (vertical and horizontal)
- Presentation of the collection subsystem(s)
- Presentation of the control system and possible commands
- Presentation of the NFC tag detection system
- Presentation of any other system that gives your solution a competitive advantage

12.4 RISK MANAGEMENT PROCESS

A solution to a complex problem does not come without risks! You must identify the risks that threaten the performance of your robotic solution and develop a management plan for these risks:

- Identification of risks
- Analysis of the probability and severity of these risks
- **Mitigation plan**: what will be done to reduce the risk, whether in probability or severity
- **Contingency plan**: what will be done if the risk occurs

12. PROGRESS REPORT

12.5 PRESENTATION OF EXPECTED RESULTS

Your report must also present the results you are aiming for during the challenge. This includes an explanation of the target score as well as an analysis of the results in relation to the risk management process. In cases where certain points cannot be guaranteed, explain the process that led to this decision.

12.6 STRUCTURE AND CLARITY OF THE REPORT

Up to 10% of the points may be deducted from your report if its structure and/or clarity are not satisfactory.

12.7 CAD OF THE ROBOTIC SOLUTION

A bonus of 10% of the points will be awarded to teams providing a CAD of their robotic solution. This may be complete or partial. It must not be necessary for understanding the report and cannot raise the total score above 100% of the points.

13. PRESENTATION VIDEO

Your presentation video will be shown to the audience prior to each team's on-stage demonstration and must last between 3 and 4 minutes. Its purpose is to entertain the audience while informing them about the university, the team members, and their design and manufacturing approach. This video may be produced in French or English. Any video deemed unsuitable by the Organizing Committee will not be shown and will be assigned a score of 0/5.

Evaluation Criteria	Weighting (%)
Introduction of the team and its university	20
Presentation of the Machine and its operation	20
Simplification of content and accuracy of information	20
Originality and alignment with the theme	20
Quality of the video	20
Total	100

The video must be submitted in MP4 format before the end of the first Machine work period. A late submission will automatically lose 50% of the points. A video not submitted by the end of the 3rd Machine period will receive a score of 0/5 and will not be shown.

14. PRESENTATION BEFORE JUDGES

You will be required to present your solution before a panel of judges. This presentation will take place on the day of the competition, just before the public demonstration. The order of presentations will be determined by a random draw on the morning of the event.

Each team will have a total of 13 minutes, with the last 5 minutes reserved for a question period. If the presentation lasts less than 8 minutes, the question period may be extended to fill the 13 minutes, at the judges' discretion. If the presentation is not finished after 7 minutes, the team will be given a signal. If it is not finished after 8 minutes, it will be interrupted to begin the question period.

15. MACHINES PERIODS

During the 2026 Engineering Games, the Machine teams will have the opportunity to participate in three work periods. The official competition course will be made available to the teams, and the schedule of trial periods on it will be determined during the first Machine period. You are strongly encouraged to bring your own course, in whole or in part. It will then be made available to all teams.

At all times, only 4 members per team will be allowed in the Machine work area. However, teams may rotate their members as they see fit.

The team is responsible for bringing the necessary tools to work on their robotic solution during the Machine periods.

16. RULE CHANGES

The Organizing Committee reserves the right to modify these documents at any time and will notify you of any changes, if applicable. In the event of a discrepancy between the French and English versions of these documents, the French version shall prevail.

QUESTIONS AND ORGANIZING COMMITTEE

For any questions or comments regarding the challenge, you may contact the Machine team.

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