WIND BLADE DESIGN CHALLENGE CONTEST RUBRIC 2017 TEAM\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Maine Learning Results--Science and Technology (B2):   Students use a systematic process, tools and techniques, and a variety of materials to design and produce a solution or product that meets new needs or improves existing designs.***

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| ***Design Criteria:*** | | *(zero points will be given for any of these criteria if not met)* | | | | | |  | Max Points | Points Given |
|   *Wind blade was fabricated using the Vacuum Infusion Process (VIP)* | | | | | | |  |  | 4 |  |
|   *Wind blade incorporates all the materials provided* | | | | |  |  |  |  | 4 |  |
|   *Diameter of blade assembly doesn’t exceed 42-inches* | | | | |  |  |  |  | 4 |  |
|   *Each team must create mechanism hub with a 5/8” hole for mounting their blade to the testing platform.* | | | | | | | | | 4 |  |
|  |  |  |  |  |  | **maximum potential points** | | | **16** |  |
| ***Presentation Delivery Criteria:*** | | | *(zero points will be given for any of the first three criteria if not met)* | | | | | | Max Points | Points Given |
|   *Within 3.5 minutes in length* | | |  |  |  |  |  |  | 2 |  |
|   *All members present* | | |  |  |  |  |  |  | 1 |  |
|   *Use of multiple presenters* | | |  |  |  |  |  |  | 2 |  |
|   *Use of proper presentation etiquette (including non-speaking members)* | | | | | | |  |  | 0-2 |  |
|   *Multiple media used to enhance delivery of content* | | | | |  |  |  |  | 0-3 |  |
|   *Clear and concise* | | |  |  |  |  |  |  | 0-3 |  |
|   *Style points (such as enthusiasm, creativity, team appearance, professionalism)* | | | | | | |  |  | 0-3 |  |
|  |  |  |  |  |  | **maximum potential points** | | | **16** |  |
| ***Presentation Content Criteria:*** | | | |  |  |  |  |  | Max Points | Points Given |
|   *Explanation of technical design/ engineering process* | | | | |  |  |  |  |  |  |
|  | *• Team defined and researched the problem* | | | | |  |  |  | 0-6 |  |
|  | *• Team generated and evaluated solutions* | | | | |  |  |  | 0-6 |  |
|  | *• Team use of problem solving and trade-offs to optimize outcome* | | | | | |  |  | 0-6 |  |
|   *Conveys the science behind the function of their chosen blade design* | | | | | | |  |  | 0-6 |  |
|   *Defines composite materials and how they were used in this project* | | | | | |  |  |  | 0-4 |  |
|   *Explanation/ demonstration of understanding of infusion process* | | | | | |  |  |  | 0-4 |  |
|  |  |  |  |  |  | **maximum potential points** | | | **32** |  |
| ***Energy Score:*** | | |  |  |  |  |  |  | Max Points | Points Given |
| *Each set of wind blades will be tested for an energy score on the test generator platform. The peak voltage output of each wind blade will be recorded by a data acquisition system four times during a two minute test. There will be no load during the first 30 seconds. After 30 seconds a load of approximately 20 ohms will be added to the test. After 60 seconds another 20 ohms will be added in parallel. After 90 seconds, a third set of 20 ohm lights will be switched on in parallel. The four voltage readings will be added and converted to a 64 point scale. The team that acquires the highest energy score will receive the full 64 points.* | | | | | | | | |  |  |
|  |  |
|  |  |
| **64** |  |

***Sub Total Score:\_\_\_\_\_\_\_\_\_***

***Manual Start and/or Wind Blade Failure Deduction: \_\_\_\_\_\_\_\_ Total Score out of 128 Possible Points: \_\_\_\_\_***