

Results for SAF Contingency Proposal Form 2019-2020 (By Participant)

Results for: SKILTON, NEIL TEWARI		Submission date: 11/07/2019 2:33 PM
		Total time: 6 days, 17 hours, 45 minutes, 20 seconds
Question	Response	
<p><i>Question:</i> Proposing Group: (i.e. Career Services, Sustainability Club, Campus Events Board, IEE, etc.)</p>	Hydrogen Propulsion Project	
<p><i>Question:</i> Department/ Organization: (i.e. FYPP, Student Affairs, Recreation and Wellness, etc.)</p>	Mechanical Engineering Capstone	
<p><i>Question:</i> Contact Person: This person will be the sole point of contact for any questions or additional information requests from the SAF Committee regarding your proposal.</p>	Neil Skilton	
<p><i>Question:</i> Contact Email: This person will be the sole point of contact for any questions or additional information requests from the SAF Committee regarding your proposal. Please include a regularly checked email as the SAF Committee contacts groups primarily through email.</p>	skiltn@uw.edu	
<p><i>Question:</i> Contact Phone: Please include the phone number of the contact person. This person will be the sole point of contact for any questions or additional information requests from the SAF Committee regarding your proposal.</p>	2067902063	
<p><i>Question:</i> Budget Owner/ Staff Member Name: This person is a staff member who will be fiscally responsible for the SAF allocation. Please consult with this person before listing their name. This person must be authorized in UW procurement and fiscal systems and familiar with university purchasing policies and processes. All registered student clubs must coordinate with Student Engagement Activities and Club Council no less than 1 week before the deadline to receive their endorsement and the budget owner must be either Sam Al-Khoury (sea2@uw.edu) or Carla Christensen (Carla24@uw.edu).</p>	Dr. Steven Collins	
<p><i>Question:</i> Budget Owner Email:</p>	swcollin@uw.edu	
<p><i>Question:</i> If you are a registered club seeking funding, please include a letter of support from Sam Al-Khoury or Carla Christensen.</p>	No response	
<p><i>Question:</i> If you are a club seeking funding, please explain why are you not requesting funding from Club Council?</p>	No response	
<p><i>Question:</i> Executive Summary of Your Proposal: Please provide a concise overview of the program, activity, or service for which you seek funding. * Remember that the contingency process is for new ideas/ initiatives only from students, all other requests must be made during the Annual Cycle. Typically budgets are available in January. Complex events may take up to 8</p>	<p>The goal of the project is to determine if large transport aircraft can be powered by non-carbon emitting engines while still attaining similar range and payload properties of existing large commercial transport aircraft (targeted to 737 and A320 sized aircraft). The work will investigate the feasibility of</p>	

weeks to plan, so keep this in mind when proposing a contingency proposal for an event.

replacing the combustion chamber fueled with hydrocarbon fuel with a series of high temperature solid oxide fuel cells fueled with hydrogen.
Large commercial transport aircraft generally cruise at altitudes ranging from 35,000 to 45,000 feet. Because the air density at these altitudes is low when compared with near sea level altitudes, turbo fan engines evolved into a hybrid between a jet engine, which is needed for high altitude cruise conditions, and a large fan which is very efficient at lower altitudes seen during take-off and climb but not as effective at high altitude cruise conditions. The proposed configuration preserves the ability to accomplish high altitude cruise by utilizing the existing turbo fan engine architecture except for the combustion chamber and electrically driven fan. In order to take the first step towards realising this goal, the Hydrogen Propulsion Project was set up within the capstone sequence to work towards this goal. By teaming up with students, teachers and industry experts from a wide background with expertise in electrical engineering, mechanical engineering, chemical engineering, physics, propulsion and hydrogen fuel cells. With this team, we intend on constructing a prototype at 1:12 scale to show the viability of this idea. If this project is funded, we can push for a cleaner future in the aviation industry, and subsequently the world as a whole.

Question:

Need for this Program/ Service: In 200 words or less, please do the following: *Describe the need for this program or service. * If possible, include any data that might support your proposal (i.e. surveys indicating a need for your initiative).

Current air travel accounts for 6% of the global carbon emissions. These emissions are dropped at high altitude, where the environment is even more vulnerable as there is no quick access to carbon filtering through photosynthesis or sequestration solutions such as access to the ocean or plants. As a result, even though the carbon output is only 6% on a global scale, that 6% is being poured into an even more fragile ecosystem that cannot take such pollution. By eliminating this pollution, we could take a huge step towards a zero carbon emissions future and protect a vulnerable environment for generations to come. This project could put UW Bothell on the forefront of zero emissions transportation by encouraging students to think about clean and renewable energy; while also showing employers the skills and talent that UW Bothell students have in the clean energy field.

Question:

Estimate the number of students that will benefit from your proposed program/ service: In 200 words or less, please do the following: *Indicate what the benefits of your proposed program for students will be *Estimate how many currently enrolled students will likely benefit from your proposed service or program. *Estimate the number of any other individuals (and indicate their affiliation) that might benefit from this service or program.

This project will consist of five seniors in mechanical engineering, multiple electrical engineers and physics majors as well as juniors in these roles. If fully funded, this project could even turn into a full capstone for electrical engineers, and bring on even more students to the project. The group is also currently in contact with students from the Seattle campus that are also working on fuel cells to potentially collaborate.

Question:

Additional Information: If needed, please include any other information you feel is relevant to your request. (There is no character limit on this field).

One of the big parts of this project that we had to account for was the safety of this project. To help run this project, we have teamed up with a retired fire marshal from Boeing who has agreed to mentor us on how to properly run experiments with

	<p>hydrogen since he has done experiments with hydrogen already. We have also teamed up with multiple professors who have knowledge and experience handling hydrogen to help ensure that we have a sound design. Before constructing the prototype, safety meetings will be held to ensure that all the professors, staff, and students on the project have a chance to comment on the design of both the prototype and the test set up so that we ensure that we are running a safe experiment. We are excited to work on this project, but we are also committed to having a safe learning environment, and will not proceed without confirmation from professors and mentors in the industry that we have a safe test platform to work on.</p>
<p><i>Question:</i> Programming/ Events: Describe the funds you are requesting in detail below. Please put total dollar amount of programming/events in the bottom of this box.</p>	<p>There is no need for funds related to this (\$0).</p>
<p><i>Question:</i> Facilities and equipment rentals/ Set-Ups: Describe the funds you are requesting in detail below. If you require facilities/equipment rental and assistance with set up, please indicate it here. Take into account custodial fees and clean up https://www.uwb.edu/arc/events/reservation-policies. Please put total dollar amount of facilities and equipment rental and any set up costs at the bottom of this box.</p>	<p>There is no need for funds related to this (\$0).</p>
<p><i>Question:</i> Printing & Photocopying: Describe the funds you are requesting in detail below. Please put total dollar amount of printing/ photocopying in the bottom of this box.</p>	<p>There is no need for funds related to this (\$0).</p>
<p><i>Question:</i> Office Supplies: Describe the funds you are requesting in detail below. Please put total dollar amount of office supplies in the bottom of this box.</p>	<p>There is no need for funds related to this (\$0).</p>
<p><i>Question:</i> Food/ Refreshments: Review the food policy/ food form for the University policies before asking for food. The Food Policy is below the food form in the link https://www.uwb.edu/finance/food-approvals. Understand that food for normal meetings is not allowed. Describe below the reason you are requesting food and how it meets the food policy. Please put total dollar amount of food/refreshments in the bottom of this box.</p>	<p>There is no need for funds related to this (\$0).</p>
<p><i>Question:</i> Promotional Items: Promotional Items are designed to promote any student organization, group, or funded project or service and are limited to a total value of \$800 per year unless expressly stated otherwise by the Services and Activities Fee Committee at the time of allocation.</p>	<p>There is no need for funds related to this (\$0).</p>
<p><i>Question:</i> Equipment Rentals/ Purchase: Describe the funds you are requesting in detail below. Please put total dollar amount of equipment rentals/ purchase in the bottom of this box.</p>	<p>One of the first expenses that would need to be accounted for is the cost of the fuel cells. Based on our estimations, this value would be placed at \$6,750. This cost includes all of the anodes, cathodes, electrolytes and substrates that we would need. This does not include the cost of the</p>

inks for the anode and cathode, which would cost \$538 and \$532 respectively. The budget would also need to include an RC micro jet engine, which would cost \$5,300. In order to obtain useful data from this experiment, we would need tachometers, pressure sensors and temperature sensors to pull data of the function of the engine. The cost of these sensors and the electronics needed to facilitate their use is estimated to be \$2,000. To dispose of the waste energy generated from the fuel cells, we would need a water heater, a tank and pipework to properly run the water heater, which is estimated to cost \$300. The last component of this lab that needs to be addressed is access to raw materials to build some of the systems that we would need such as the hydrogen used in the experiment and material to create the test stands for the engine and fuel cells. The estimated cost of this is set at \$5,000. The estimated total cost for this project is set at \$20,420.

Question:

Transportation: Describe the funds you are requesting in detail below (indicate in state/out of state, as well as type of transportation). Please put total dollar amount of transportation in the bottom of this box.

There is no need for funds related to this (\$0).

Question:

Meals and Lodging for Travel: Describe the funds you are requesting in detail below. Please ensure that you are in compliance with applicable per diem rates for meals. The rates are available at the following link: <https://www.gsa.gov/travel/plan-book/per-diem-rates> Please note that hotel bookings are typically done through the University. Please put total dollar amount of meals and lodging in the bottom of this box.

There is no need for funds related to this (\$0).

Question:

Other: Please include any other expenses that don't fall under any of the above categories in detail. Please put total dollar amount of other in the bottom of this box.

There is no need for funds related to this (\$0).

Question:

Total Amount Requested: Please take the time to carefully add all of your figures from above. Please note that adjustments will not be made to the total amount requested in the event of an error. Round your final total up to the nearest dollar.

The total cost is estimated to be \$20,420.

Question:

Terms and Conditions: *I have read and agree with the terms and conditions of the SAF Bylaws: <http://www.uwb.edu/studentlife/safc/safbylaws> *I understand that once submitted, adjustments cannot be made to the requested amounts listed above. *I understand that hearings will be held between 8:30AM-11:30AM on Friday, November 15th, 2019 and someone from my group will be available to attend a brief hearing scheduled during that time frame.

I agree

Questions or comments?
[Contact us](#) or email catalysthelp@uw.edu
