



 **the GREEN** program  
Global Renewable Energy Education Network **ICELAND**



## What is GREEN?

The Global Renewable Energy Education Network is an action-packed, short-term experiential learning program for students interested in the fields of alternative energy, sustainability, business, policy and the environment.

The GREEN Program has hosted over 800 of the top students from leading Universities around the world. With rapid growth and demand, GREEN has successfully launched our highly anticipated program in Iceland, the greenest country in the world.

Candidates are selected to participate on an educational adventure program in Iceland where they explore the topics of renewable energy and sustainability in our planet's prime location. Through an intensive educational curriculum and program itinerary, students bridge the gap between traditional textbook learning and accelerated career advancement.

The GREEN program model has served as an exceptional career platform for students preparing to enter the workforce, and has even brought research, innovative projects and grants back to their home institutions and communities. We are thrilled to expand our unique program and invite our GREEN Alumni and top students around the world to join us in Iceland.



## WHY ICELAND?

The GREEN - Iceland Curriculum is an accredited course provided by Reykjavik University's Iceland School of Energy, Iceland's oldest and largest institution of higher education. The Educational Team consists of the top professors, lecturers, and industry professionals in the field who have been carefully selected from Iceland School of Energy's Master's Program and School of Science and Engineering.

Iceland School of Energy is an interdisciplinary graduate program that aims to create leading experts in management, design, and research in the field of sustainable energy within the School of Science and Engineering.

The prestigious Iceland School of Energy has been created in collaboration with Reykjavik Energy and Iceland GeoSurvey. Reykjavik University has accredited the GREEN – Iceland Program with 1.5 US academic credits, or 3 ECTS (Europe) through Reykjavik University's School of Science and Engineering. GREEN students are eligible to receive credit through their University's Transfer Office, and are suggested to speak to their advisors about the credit-transfer process. GREEN is proud to have Reykjavik University, one of the Top Universities on the World Ranking, as our Official Educational Partner of the GREEN – Iceland Program.

As the greenest country to exist on our planet, 100% of Iceland's electricity comes from renewable energy sources. Paired with inside access to functioning renewable energy facilities, Iceland is the premiere location to provide a remarkable educational platform for a truly hands-on experience. The country is also one of the top destinations for adventure travel and eco-tourism, providing a truly sustainable destination.

Additionally, The GREEN Program offers students the ability to surround themselves into a unique culture while encouraging open-mindedness, language immersion, and global awareness. With safety as our top priority, Iceland is one of the safest countries with a lower crime rate than many other developed countries. This is partly due to a high standard of living, small population, and well-trained law enforcement.

With a welcoming culture and mesmerizing environment, Iceland is a favored travel destination and the perfect atmosphere for hands-on experiential learning, personal development, and social impact.

## Meet the Educational Team

Jón Bernóðusson is a marine engineer who studied at the University of Rostock and TU Berlin. He has three decades of professional experience in design, research and development. Among his current duties is leading a program at the Icelandic Maritime Administration to investigate the possibility of producing biofuel locally for the Icelandic fleet.



María Gudjonsdóttir is a mechanical engineer with degrees from the University of Iceland and Technische Universität München in Germany. She has years of experience in the design of geothermal power plants (mainly for Reykjavík Energy on the Nesjavellir and Hellisheidi plants), and is now a researcher at Reykjavík.



Sigurður Þórðarson has almost 50 years of experience as a professional engineer and educator, particularly in the field of hydropower development. He has degrees in biology and civil engineering from the University of Iceland and Denmark's Technical University, respectively. He has worked in a number of renewable energy projects in Iceland, both in the field of hydropower and geothermal energy.



Steinunn S. Jakobsdóttir graduated from University of Copenhagen in 1985 with a degree in Geophysics. Her prime interest has been within seismology and monitoring of hazardous events, such as earthquakes and volcanic eruptions. She has a long experience in running and developing a highly automated seismic system at the Icelandic Meteorological Office (see: <http://vedur.is>). Lately she has been involved in planning geothermal projects, but is now studying seismicity and crustal structure with emphasis on earthquake prediction research.



Ágúst Valfells has degrees in mechanical and nuclear engineering from the University of Iceland and the University of Michigan, respectively. His interests range from plasma physics to energy technology and policy. At the National Energy Authority of Iceland, he worked on promoting alternative fuels. At Reykjavík University he has helped build up graduate studies and research in sustainable energy.



## CURRICULUM

### Introduction to Energy

Overview of the physical basis of energy conversion systems and some important terms relating to economic and technical performance and environmental impact. Also, Capstone Projects are to be introduced to the Program.

### Geothermal

Learn about the origin of Iceland's geothermal resource, its characteristics, direct use, power production and ability to extend the value chain.

### Alternative Fuels

Discuss the challenges of producing biofuels in a harsh environment, crop selection and production processes.

### Hydropower

Characteristics of hydropower, technology and its impact. Discover the vast amount of hydropower in Iceland.

### Geology

Studying the the geophysical processes that set the stage for energy use in Iceland and create the unique natural environment that we strive to preserve.

### Wind & Solar

Overviews and case studies of Iceland's history and progress with Wind and Solar energy production.

## ALUMNI NETWORK

The GREEN Alumni Network is a community for students who have successfully completed the GREEN Educational Adventure Program in Iceland. Here at GREEN, we believe that even when your program comes to an end, it doesn't mean your GREEN journey does too.

Our Alumni Network allows past students to connect with other participants around the world. This Network provides a platform for alumni to continue their careers and endeavors.

Upon program completion, each student receives a GREEN personalized Letter of Recommendation to boost their marketability in a thriving industry.

The GREEN - Iceland Program is designed for ambitious students to create a milestone in their academics and launch their professional career. Each student builds global awareness through immersion with the Icelandic culture and participates in exciting adventure excursions and local community development projects. Upon completion of the program, students gain access to the exclusive GREEN Alumni Network where they can connect with other successful students, employers, and industry leaders from our program in Iceland.

The curriculum is a combination of experiential site visits to functioning energy plants, unforgettable adventure excursions, and developmental leadership skill building. The GREEN program is an all-inclusive educational adventure that encompasses these five pillars:

**Education | Adventure | Culture | Network | Service**

### **Learn By Doing**

Using Iceland and its infrastructure as our classroom, GREEN provides a comprehensive overview of the commercial renewable energy industry.

Our educational model is the perfect combination of coursework, site visits, and cultural exposure to the people and practices of Iceland. The educational model includes prerequisite course materials, interactive discussions, hands-on exercises, community service initiatives, and corresponding lectures conducted by professional industry instructors and leaders.

The academic curriculum culminates in our popular Capstone Project presentations, and are assessed and graded by Iceland School of Energy.

Our unique educational model will spark a lifelong passion for renewable energy and sustainable living practices.



## The Capstone Project: THE DELIVERABLES

The Capstone Project inspires students to think outside the box and implement their newfound knowledge in order to create innovations of tomorrow. In fact, upon returning to home institutions, countless student projects have been presented as proposals and have even gained funding and other grants in order to further develop their capstone beyond their program.

As part of the GREEN Program, each student is required to choose and develop an independent project on topics related to renewable energy, public policy, business, ecology, environmental science and others.

Students will work in groups to collaborate on this Capstone Project in an interdisciplinary manner. The project is assessed by Reykjavik University's faculty. The project must address a current issue that can be solved or improved through the application of renewable energy policy, technology, business, sustainable ecology, or environmental policy.

Final capstone projects are presented in front of an audience including students, faculty, staff, and even industry professionals. Over the past year, several capstone projects have been developed into real, scalable businesses.

## COURSE OUTCOMES

- Gain a comprehensive understanding and a personal familiarity of the science and technology behind renewable energy systems (hydropower, geothermal, solar, wind, biomass, and alternative fuels).
- Acquire a clear understanding of cost analyses and the environmental impact of renewable energy production facilities
- Learn to evaluate energy projects based on technical, economic, environmental, and political perspectives
- Observe Iceland's one-of-a-kind energy policies impacting the production and sale of electricity to surrounding nations
- Expand comprehension of concepts that are essential to commercial energy production, transmission, management, and legislation
- Develop leadership, teamwork, and networking skills through adventure excursions and exposure to professional industry relationships
- Excel within a network of like-minded students who aspire to work and innovate in the field of renewable energy and sustainability
- Gain a critical global perspective demanded by corporate recruiters today to prepare for future career opportunities

*“Our idea deals with biomass, particularly syngas (wood gas). In the past (WWII times), it substituted oil based fuels in internal combustion engines, but fell into disuse because of its technical and economical disadvantages, like relatively inexpensive imported fuel. Our idea, along with probably half the green enthusiasts, is to bring syngas back into the transportation and power generation sector for developing countries and rural interiors. There have been economic analysis on the feasibility of such a move, and a simple study showed the non-feasibility in developed economies (Sweden in this particular study), and the feasibility in developing economies with lower labour costs. Though there are limitations in the Automotive sector, syngas can be definitely used for decentralized power generation with the use of agricultural waste.”*

Excerpt from Chandrakant Kulkarni & Eugene Chow's Executive Summary

## The Capstone Project: The Breakdown

### Executive Summary:

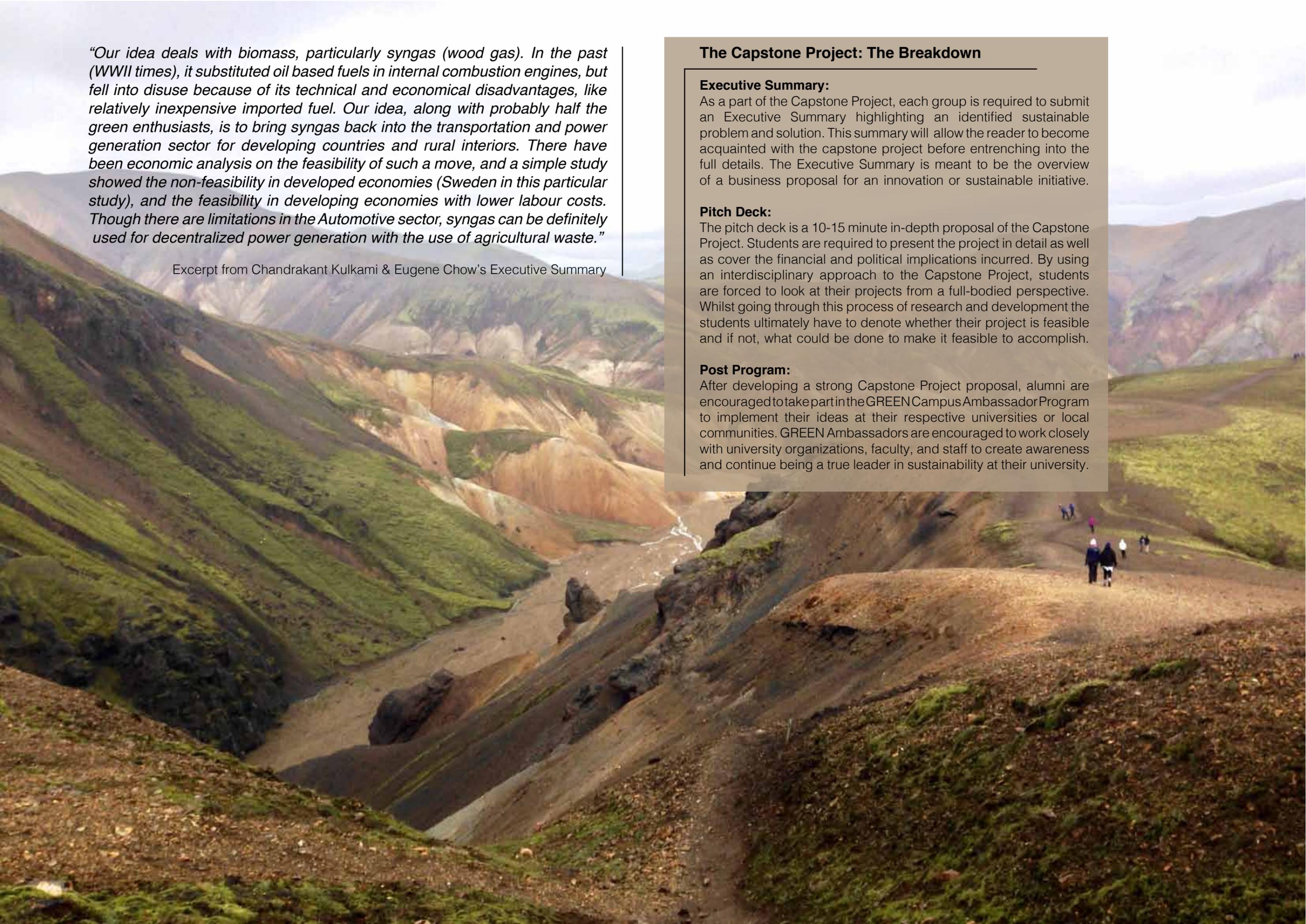
As a part of the Capstone Project, each group is required to submit an Executive Summary highlighting an identified sustainable problem and solution. This summary will allow the reader to become acquainted with the capstone project before entrenching into the full details. The Executive Summary is meant to be the overview of a business proposal for an innovation or sustainable initiative.

### Pitch Deck:

The pitch deck is a 10-15 minute in-depth proposal of the Capstone Project. Students are required to present the project in detail as well as cover the financial and political implications incurred. By using an interdisciplinary approach to the Capstone Project, students are forced to look at their projects from a full-bodied perspective. Whilst going through this process of research and development the students ultimately have to denote whether their project is feasible and if not, what could be done to make it feasible to accomplish.

### Post Program:

After developing a strong Capstone Project proposal, alumni are encouraged to take part in the GREEN Campus Ambassador Program to implement their ideas at their respective universities or local communities. GREEN Ambassadors are encouraged to work closely with university organizations, faculty, and staff to create awareness and continue being a true leader in sustainability at their university.





## SUCCESSFUL GREEN CAPSTONES AROUND THE WORLD

David Brynes, Rutgers University  
USDA - Brazil Internship to continue research  
on Duckweed Biofuel Capstone Project;  
Awarded 2013 Borlaug Fellowship for Global  
Food Security

Matt Ceasar, Pennsylvania State University  
Granted funding to continue Fiberoptics  
Capstone research

Lekan Andrews, Pennsylvania State University  
Working with Penn State's Office of  
Sustainability & Faculty to change USA CATA  
Bus systems to biofuel based transportation

Ernesto Daset, Rutgers University  
Developed a plan for an Innovative  
Solar Power Car, and proposed it to an  
environmental asset firm (GreenerByDesign);  
Internship with Energy Master Plan Incubator  
System with Mayor of Woodbridge, NJ

Adam Phoebe, Pennsylvania State University  
& Zack Tamble, University of St. Thomas  
Finalists for Business Plan Competition

Robert Shintani & Anthony Hornbeck,  
University of Illinois  
Started a business generating biofuel from left  
over restaurant oil & Founders of Clean City  
Coalition

Vania Smittchieva, New York University  
Working in Kenya, Africa implementing one of  
the largest wind projects in Africa

Kevin Fernandes, Purdue University  
Process of implementing applied VOE to bring  
downstream ac- tivities of O&M to the forefront  
of investment in India

## **INTERACTIVE CLASSROOM**

The classes in Iceland take place at Reykjavik University. Each class is approximately 1.5 hours in length with an additional hour allotted for discussion and review.

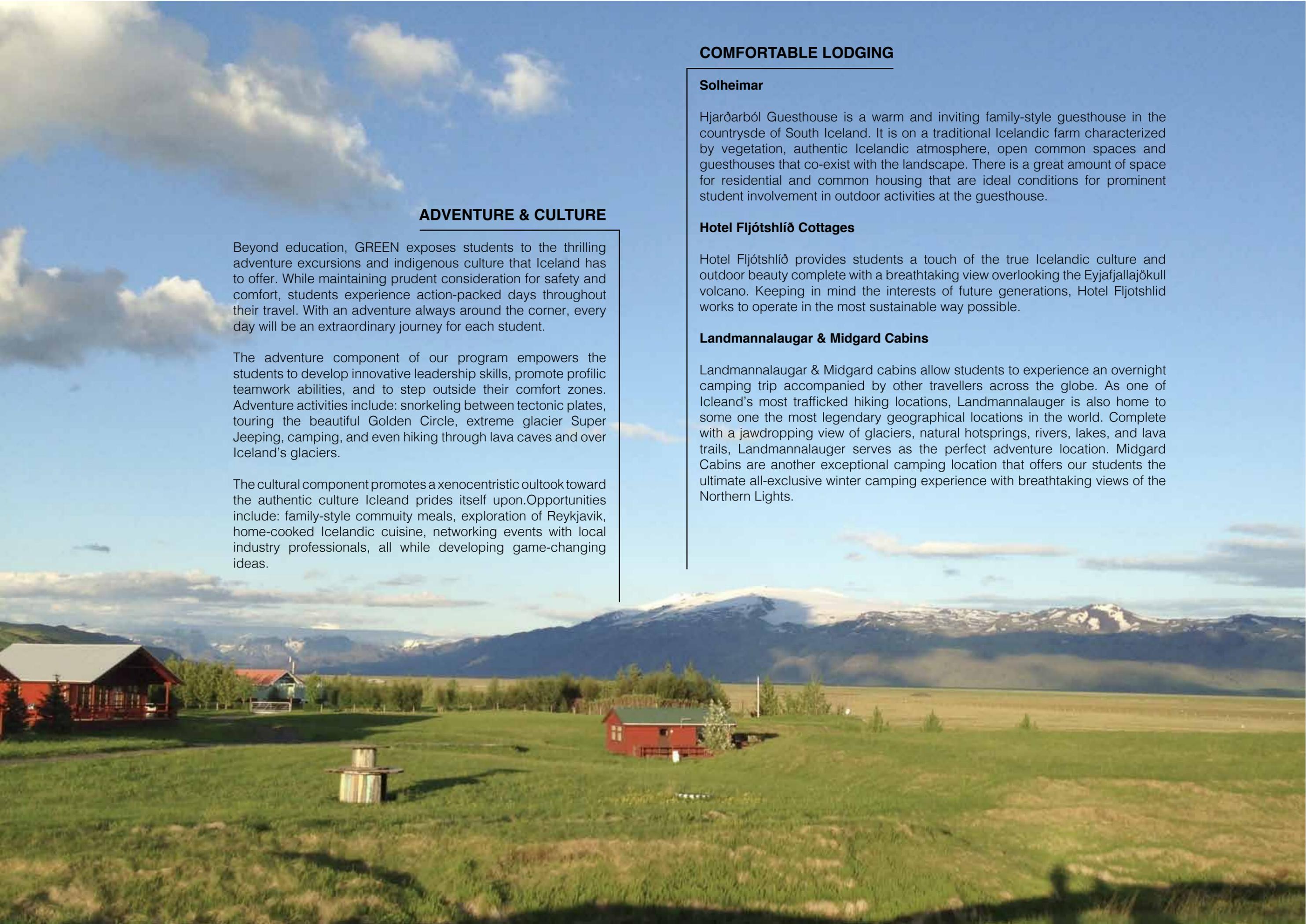
Class sessions are designed as interactive workshops for students to explore each topic with guidance from an industry expert, faculty member, or lead engineer. Topics are covered from three perspectives: engineering, business and policy. A series of related articles and case studies serve as a guide for interdisciplinary debate related to each topic while bringing students up to speed on the latest developments in each field.

The GREEN class sessions are designed to provide a platform for understanding the specific topics explored on the program. They are not designed as in-depth studies of one specific subject, but rather a comprehensive overview of specific forms of renewable energy sources followed up with the most recent and up to date developments in the industry. The classes serve as a launching point for rigorous discussions and classroom debates about pressing topics in the industry.

## **SERVICE LEARNING**

Every GREEN Program incorporates a unique aspect where students learn by helping the local community in need. The students' accomplishments cultivate a valuable perspective of service and philanthropy that will stay with them for a lifetime. The community service project will encompass retrofitting local Icelandic farms to develop their sustainable practices.





## ADVENTURE & CULTURE

Beyond education, GREEN exposes students to the thrilling adventure excursions and indigenous culture that Iceland has to offer. While maintaining prudent consideration for safety and comfort, students experience action-packed days throughout their travel. With an adventure always around the corner, every day will be an extraordinary journey for each student.

The adventure component of our program empowers the students to develop innovative leadership skills, promote prolific teamwork abilities, and to step outside their comfort zones. Adventure activities include: snorkeling between tectonic plates, touring the beautiful Golden Circle, extreme glacier Super Jeeping, camping, and even hiking through lava caves and over Iceland's glaciers.

The cultural component promotes a xenocentric outlook toward the authentic culture Iceland prides itself upon. Opportunities include: family-style community meals, exploration of Reykjavik, home-cooked Icelandic cuisine, networking events with local industry professionals, all while developing game-changing ideas.

## COMFORTABLE LODGING

### Solheimar

Hjarðarból Guesthouse is a warm and inviting family-style guesthouse in the countryside of South Iceland. It is on a traditional Icelandic farm characterized by vegetation, authentic Icelandic atmosphere, open common spaces and guesthouses that co-exist with the landscape. There is a great amount of space for residential and common housing that are ideal conditions for prominent student involvement in outdoor activities at the guesthouse.

### Hotel Fljótshlíð Cottages

Hotel Fljótshlíð provides students a touch of the true Icelandic culture and outdoor beauty complete with a breathtaking view overlooking the Eyjafjallajökull volcano. Keeping in mind the interests of future generations, Hotel Fljótshlíð works to operate in the most sustainable way possible.

### Landmannalaugar & Midgard Cabins

Landmannalaugar & Midgard cabins allow students to experience an overnight camping trip accompanied by other travellers across the globe. As one of Iceland's most trafficked hiking locations, Landmannalaugar is also home to some of the most legendary geographical locations in the world. Complete with a jawdropping view of glaciers, natural hot springs, rivers, lakes, and lava trails, Landmannalaugar serves as the perfect adventure location. Midgard Cabins are another exceptional camping location that offers our students the ultimate all-exclusive winter camping experience with breathtaking views of the Northern Lights.

## WHERE ARE THEY NOW?

The GREEN Program is often cited by students as one of the best experiences of their lives. Aside from the superb renewable energy education, the program offers students additional long-term benefits as seen through our numerous alumni:

- Bernadette Brogden, PSU & Brenna Aliment, SUNY - La Reserva Forest Foundation, CR
- John Fraga, RU & Seth Dagen, UFL – La Reserva Forest Foundation & taught local children English
- Dan Tauriello, PSU – United States Senate in Washington, DC
- Deja Chavarria, PSU – In the process of starting her own Environment and Energy consulting firm
- Sam Saadeh, RU – Department of Defense - Defense Logistics Agency Anatoliy Kholad, NJIT – United States Patent Office
- Jared Manks, RU – Analyst at Bank of America, working to be a Carbon Credit Analyst
- Adam Kowalski, Ohio State – The Dow Chemical Company
- Long Hoang, Saint Louis University – Cost Analyst, Electrical Components International
- Kishan Patel, Wayne State University - Structural Engineer, Tucker Young Jackson Tull, Inc.
- Roy Anderson, RU – Field Engineer, Bechtel Corporation
- Dan Conner, PSU & Elizabeth Krall, UFL – Engineering Intern, General Electric
- Neha Gautum, RU – Intern, U.S. Environmental Protection Agency, Region 2
- David Byrnes, RU – United States Department of Agriculture – Brazil
- Sam Dorbor, RU – Solar Internship, B-Green Homes; Designing Solar Panels for LA Solar
- Kory McDonald, Carnegie Mellon – Field Engineer at Schlumberger
- Brady Halligan & Joelle Zerillo, RU – Global Renewable Energy Education Network
- Zach Hamber, San Diego State - GroupEcoEnergia Certification Program (Wind Turbine Technician) – AeroEnergia Plant, CR

## WHAT'S NEXT?

Personalized letters of recommendation from GREEN and Reykjavik University

GREEN letter of participation

Opportunity to earn 1.5 U.S. academic credits or 3 ECTS from Reykjavik University's School of Science and Engineering

Comprehensive understanding of 5 types of renewable energy

Exclusive eco-energy tours & sustainability projects

Cultural experience coupled with Icelandic language immersion

World-class adventure excursions

Exclusive membership into the GREEN Alumni Network

Access to top-level directors of renewable energy companies

Potential for mentorships, internships, and jobs

Elite Alumni access and membership to the new GREEN program launches & alumni events

## SAMPLE ITINERARY (Winter & Spring 8-Day)

### Day 1: Welcome to Iceland!

- + Airport arrival and pickup
- + Welcome to the GREEN Program & Reykjavik University + Intro to Energy & Iceland's Energy Class
- + Capstone Project introductions
- + Hjarðarbol Guesthouse check-in
- + Welcome dinner

### Day 2

- + Geothermal class
- + HydroElectric class
- + Geothermal power plant visit
- + 1950's HydroElectric power plant tour
- + Lava caving adventure excursion
- + Capstone development

### Day 3

- + Energy economics class
- + Capstone development
- + Community service project
- + Hot spring river hike & expedition + dinner in Reykjavik
- + Explore Reykjavik's, Iceland's capital

### Day 4

- + Super Jeep excursion to Highlands + Golden Circle tour
- + Gullfoss and Geysir visits
- + Winter Highland adventures
- + Winter wilderness camping & Northern Lights

### Day 5

- + Super Jeep Highlands departure
- + HydroElectric power plant expedition
- + Iceland's first wind turbine visit
- + Visit Iceland's newest hydroelectric power plant
- + Check in to Hotel Smaratun
- + Capstone development

### Day 6

- + Biofuel class
- + Biofuel production site exploration
- + Eyjafjallajökull Volcano Documentary
- + Residential hydroelectric site visit
- + Waterfall lunch & museum
- + Capstone Project development

### Day 7

- + Finalizing Capstone Projects
- + Home cooked lunch
- + Capstone Project presentations & assessments at Reykjavik University
- + Final night group activity
- + Farewell dinner

### Day 8

- + Iceland Farewell and final packing + Airport departures

## SAMPLE ITINERARY (Summer 10-Day)

### Day 1 Welcome to Iceland!

- + Arrival & check-in to Guesthouse
- + Welcome dinner: Meet the Team / Program overview

### Day 2

- + Glacier snorkeling adventure between European & Icelandic tectonic plates
- + Introduction to energy & Capstone Projects
- + Icelandic pool-side barbeque dinner
- + Capstone development

### Day 3

- + Geothermal & hydropower + hydrogran class
- + 1950's Hydroelectric power plant expedition
- + Geothermal power plant expedition / Exhibit tour / GeoTown lunch
- + Site expedition to leading hydrogen fuel production and capstone development

### Day 4

- + Hike a famous lava cave
- + Adventure cuisine in Reykjavik
- + Capstone Project development

### Day 5

- + Community impact project
- + Tour of Gullfoss and Geysir
- + Iceland's first wind plant production site
- + Super Jeep adventure excursion to Landmannalauger + campsite check-in, bonfire, & natural geothermal hot springs

### Day 6

- + Geology lesson on volcanic grounds
- + Super Jeeps to hydropower plant expedition / Exhibition tour / Networking lunch with plant
- + Jacuzzi night!
- + Check-in new lodging site: Hotel Fjotshlid

### Day 7

- + Residential Icelandic geology site, hydro, & Minc Farm under volcano
- + Super Jeep excursion to Thorsmork & canyon hiking / Capstone project

### Day 8

- + Biomass class & biodiesel discussion
- + Explore Iceland's glaciers on an ice walk
- + Biodiesel site visit
- + Home base: Solheimar EcoVillage check-in / Final stage of Capstone development

### Day 9

- + Final Capstone presentations to audience of peers, tour leaders, Reykjavik University faculty & industry professionals
- + Farewell dinner
- + Final group excursion

### Day 10

- + EcoVillage farewell and final packing / Airport departures

*Please Note: This is a sample itinerary. The itinerary is subject to change depending on weather and facility conditions. GREEN Tour Managers will always notify students if there is a change to the schedule. The Iceland Summer programs are 10 days and Winter & Spring programs are 8 days in length. Top Faculty and Industry Professionals from Reykjavik University's Iceland School of Energy host all educational classes and discussions.*



## **TRAVEL ARRANGEMENTS**

### **Arrival**

Students will need to arrive by 10AM on the first day of the program in Iceland via Keflavik International Airport (KEF) right outside Iceland's capital, Reykjavik. All students will be greeted by several GREEN counselors and staff. Photos of the greeting staff members will be emailed to the students a week prior to traveling so they can easily recognize our counselors (wearing GREEN program shirts) when they arrive.

### **Departure**

Students' departing flights should leave Keflavik International Airport (KEF) after 4PM on the final day of the program.

### **Transportation**

All in-country transportation will be serviced by Reykjavik Excursions (RE). RE was founded in 1968 and has since been the leading organizer of day tours in Iceland. RE is a fully licensed tour operator and travel agent. RE operates one of the biggest bus fleets in Iceland making the company one of the largest organizers of tours both for individuals and groups in Iceland.



### **General Health**

Typically, the general health of each student is not at risk from travelling to Iceland. The water provided in Iceland is potable and all meals are prepared with a balance of necessary nutrition and local antibodies to ensure stamina and energy throughout the program. The Center for Disease Control and Prevention recommends that students are up-to-date with their routine vaccines before travelling abroad.

### **Water**

All water at GREEN hotels is potable or naturally filtered. We always recommend and provide the opportunity to purchase bottled water at a local shop and refill at the student's discretion.

### **Safety**

Iceland has a low crime rate with rare instances of violent misconduct. This helps create a comfortable and safe atmosphere for students to interact with locals.

Regardless, GREEN staff maintains prudent supervision at all times to ensure full attendance at every checkpoint along the adventure. Unfortunately, petty crime such as unarmed robbery can be common. Therefore, GREEN takes secure precautions to protect the possessions of our students. We stress the importance of vigilance when bringing valuable assets into and around the country.

### **Insured Coverage**

With safety as a top priority, all GREEN programs include in-country medical insurance for every participant. Your in-country medical coverage will be covered by VIS, Iceland's leading insurance health insurance provider.

\$2,000,000 ISK Medical Expense: Covers any general medical expenses during your trip provided that the injury or sickness occurred while on your trip and you sought initial medical treatment.

## RECOMMENDED PACKING LIST

During the summer months, weather is typically in the mid-50's°F/10's °C. The packing list below is recommended for the adventure excursions and activities on the program that take place in various climates:

- Fleece or insulated pants/long johns - good to have synthetic, silk, or wool, avoid cotton or cotton blends
- Bathing suit(s) - snorkeling, pool/hot tub, hot springs
- Fleece or wool snow hat - make sure it covers your ears
- Icelandic adapter - Europlug/Schuko-Plug (CEE types 220volts); 2 round prongs
- Fleece shirt or jacket for a base layer
- Scarf
- Layered waterproof and windbreaker jackets (heavy winter coats needed for Winter & Spring programs)
- Rain-proof Pants
- Warm, waterproof gloves
- Sunglasses - needed for the glaciers!
- Laptop for Capstone presentations
- Sleeping bag for overnight indoor cabin camping
- Wool or synthetic socks
- Capstone presentation business casual attire
- Reykjavik Night Out - casual night out in Iceland's capital
- Headlamp and spare batteries
- Water-proof hiking and snow boots

## APPLICATION PROCESS

[theGREENprogram.com/Apply](http://theGREENprogram.com/Apply)

### Prerequisites

Students must be 18+ years old  
Students must submit an official application for The GREEN Program and receive an official Letter of Acceptance from a GREEN Representative

### Scholarship Opportunities

Scholarships ranging between \$200 and \$300 are offered to potential GREEN students to help subsidize the cost of the Program. Students may fill out a Scholarship Application upon being accepted for one of the GREEN Program Sessions. Students are also encouraged to seek corporate sponsorship or academic funding to help offset costs.

### Application & Acceptance

The applications for the GREEN Program are accepted on a rolling basis. Applications are reviewed between 24-48 hours after submission, and spots on each program fill on a first-come, first-serve basis. Spaces are limited since only 20 students are accepted to each program, thus we encourage early applications. If accepted, each student is paired with a GREEN Personal Representative to guide them through their registration process.

### Contact Us

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