

*Raven Hill Discovery Center, incorporated in 1991, is a 501(c)(3) tax-exempt corporation.*

**Mission:** Raven Hill provides a place that enhances hands-on and lifelong learning for all ages by connecting science, history & the arts.

To: Friends and Family everywhere  
From: Cheri and Raven Hill  
Date: September 25, 2021  
Re: Energy is Everything

This was the first week of the NISE (National Informal STEM Education) Network Sustainability and Museums program. Forty-four museums, science centers, zoos nature centers and other informal learning organizations, including Raven Hill Discovery Center, have come together for three weeks of Zoom workshops on improving operations, engaging communities and creating partnerships. The Sustainability Fellowship Program uses the United Nations' interpretation of sustainability from 1987: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

The Sustainable Development Goals were adopted by the United Nations (UN) in 2015 and outline a pathway to a better and more sustainable future for all. These goals were separated into specific goals and strategies and are the framework for this current NISE Network Sustainable Futures program for museums across the United States. The 17 separate UN goals and strategies.

Raven Hill and all participating museums have been tasked with relating each of the goals to current practices within their organizations and communities. It will be easier to connect some goals than others. Raven Hill already works to promote quality education, gender equality, affordable & clean energy, reduced inequalities, climate action, life below water and life on land. In addition, the Center already partners with several local environmental organizations.

By the end of the program, each organization will also design and develop an individual sustainability project to be implemented in 2022. Raven Hill is looking forward to this new and exciting challenge, whatever it might be! If you have ideas or want to help with Sustainable Futures at Raven Hill, email [info@miravenhill.org](mailto:info@miravenhill.org) and get involved, as Raven Hill Board is beginning to do through their 2022-26 Strategic Plan!



**THE GLOBAL GOALS**  
For Sustainable Development

1 NO POVERTY  
2 ZERO HUNGER  
3 GOOD HEALTH AND WELL-BEING  
4 QUALITY EDUCATION  
5 GENDER EQUALITY  
6 CLEAN WATER AND SANITATION  
7 AFFORDABLE AND CLEAN ENERGY  
8 DECENT WORK AND ECONOMIC GROWTH  
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE  
10 REDUCED INEQUALITIES  
11 SUSTAINABLE CITIES AND COMMUNITIES  
12 RESPONSIBLE CONSUMPTION AND PRODUCTION  
13 CLIMATE ACTION  
14 LIFE BELOW WATER  
15 LIFE ON LAND  
16 PEACE AND JUSTICE STRONG INSTITUTIONS  
17 PARTNERSHIPS FOR THE GOALS

*Raven Hill is working to identify current practices in these 17 areas of sustainability. Do you practice any of these global goals in your personal life? Even the simple things count, like switching to LED lights or "reduce, reuse & recycle." To learn more, check out this website: <https://www.un.org/sustainabledevelopment/>*



*Open cupboard doors show off the storage batteries below with the inverter and circuit panel above, all used to capture the solar energy used to lay the bamboo floor seen in the foreground.*



*This light is wired directly to one of the solar panels. When a cloud goes over the solar panel, the light dims. When the sun comes back out, the light brightens again.*

One possible project might be to expand the Center's effort to provide quality education about affordable and clean energy as a start in meeting two of the Sustainable Development Goals (SDG). Raven Hill's **Alternative Energy House** has been a work in progress on and off, since 2008. The "house" was constructed as an exhibit featuring alternative energy. It is "off-the-grid". That is, there are no electrical wires coming or going from the house. The floor is bamboo, a renewable resource, and was installed using solar energy to power a chop saw. Each bamboo board was measured and cut to the correct length. By the time that piece of flooring was glued and nailed in place and the next piece was measured, the batteries were recharged and the next piece of flooring could be cut.

Currently, the Energy House is powered by 4 solar panels. It shows visitors how the sun's energy is stored in batteries as chemical energy. An inverter changes the direct current in the batteries to alternating current, which is like the energy in a regular house. From the circuit panel, the electrical current can be changed to light energy (light bulbs), sound energy (radio), energy of motion (fan) and heat energy (hot plate).

Plans for the future include more solar panels and batteries, which will create a timeline display of the advancement in solar technology. A wind turbine may eventually provide another source of energy. A gravity feed rain system can collect water for showers and dishes. There are also plans for a composting toilet. Adding a greenhouse to the south side of the house would provide passive solar energy and be a place to grow produce for dinner! Once complete, the Energy House can double as an "artist in residence" or a "weekend getaway", as well as being a site for informal learning about alternative energy!



*The Solar Power Station has a solar panel with shutters covering it. When both shutters are open, the lights are so bright, it is hard to look at them.*

The new **Connections Trail** is another example of other efforts to connect quality education about affordable and clean energy. The **Trail** has both Wind and Solar Power Stations that are positioned close to the **Alternative Energy House**. All this talk about Sustainable Futures excites my mind and I feel my energy levels increase. The following quote is often **INCORRECTLY** attributed to Albert Einstein. No matter who wrote it, I like it: "Everything is ENERGY. Your thought begins it, your emotions amplify it and your action increases its momentum." Can't wait to see what develops at Raven Hill from this NISE Network project.

Remember that the Smithsonian **Labor Days: History of Work** exhibit is open daily this next week from 10am to 4pm through September 30, 2021. Starting October 1st, the exhibit will be open on weekends, during most holiday breaks and by appointment until the spring of 2022. And, as always, for the sake of the children who cannot yet be vaccinated, we ask everyone to mask up while inside Raven Hill. Stay safe,



*I got up before dawn on Saturday morning to capture a photo of the Alternative Energy House in action with the lights blazing!*



*I could have used the hot plate in the "kitchen" to cook breakfast, had I thought about it!*

*Cheri*