



To inspire and empower the next generation of leaders and workers who will drive the growth of a sustainable economy.

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Tesla Progress Report

Envirolution

Reno, NV

2024

Executive Summary

Tesla's \$37.5 million investment in Nevada's K-12 education through the Nevada Department of Education's K-12 Education Gift Fund, has profoundly impacted STEAM and sustainability education across the state. This strategic funding initiative has supported Project ReCharge, an innovative STEAM curriculum that has expanded to 113 schools, impacting 75,000 students. Significant student-led sustainability projects, such as the Carson City Middle School solar film proposal and Pyramid Lake Schools' lighting retrofit, demonstrate the practical application of this education. The Sustainability Expedition and Career Quest programs have further enhanced experiential learning, exposing students to sustainable practices and STEAM careers, with Career Quest alone reaching nearly 5,000 students. Additionally, the Introduce a Girl to Engineering Day and the Energy Bike initiatives have empowered girls and genderqueer students in STEAM fields. Envirolution, the driving force behind these projects, has seen remarkable organizational growth, expanding its staff and increasing its revenue by 195%. Tesla's investment not only underscores the transformative power of corporate engagement in education but also sets a precedent for fostering future sustainability leaders and innovators in Nevada¹.

¹ [1] See:

<https://oese.ed.gov/offices/office-of-formula-grants/school-support-and-accountability/essa-legislation-table-contents/title-i-part-a/> Title I is a federal education program that supports low-income students throughout the nation. Funds are distributed to high poverty schools, as determined by the number of students who qualify for free or reduced lunch.

Key Initiatives and Impact

Project ReCharge: An innovative STEAM curriculum and training program that has expanded significantly due to Tesla's investment. The program has reached 113 new schools, 232 teachers, and has impacted 75,000 students, fostering future sustainability leaders by solving real-world problems.

Student-Led Sustainability Projects: Numerous schools have implemented sustainable initiatives, such as the solar film proposal from Carson City Middle School and the lighting retrofit project at Pyramid Lake Schools, demonstrating real-world applications of sustainability education.

Sustainability Expedition: A unique program that provides experiential learning opportunities for youth, focusing on renewable energy sources and sustainable business practices. Tesla's involvement has enhanced student exposure to cutting-edge sustainability practices.

Career Quest: Launched in 2019, this program bridges the gap between students and STEAM careers by facilitating industry tours and hands-on activities. Through the 2022-2023 academic year, Career Quest has reached 1482 students through 56 events. Over 26 schools have participated in events hosted by over 21 businesses, substantially increasing student interest in STEAM careers.

Introduce a Girl to Engineering Day and Energy Bike: Targeted initiatives aimed at encouraging girls and genderqueer students to pursue careers in energy and engineering. Introduce a Girl to Engineering Day has reached over 4,500 students since it's start in 2018 and we're excited to see where both of these programs can go.

Project ReCharge: Comprehensive Overview

Mission Statement:

Project ReCharge (PRC) aims to transform communities by empowering students with energy and sustainability solutions derived from real-world problem-solving in the classroom. This initiative is committed to fostering educational equity, offering resources and training in energy and sustainability curricula that are accessible to students of diverse backgrounds, irrespective of race, gender, income, ability, or geographic location.

Program Description:

Project ReCharge is a robust, hands-on, project-based curriculum integrating Science, Technology, Engineering, Art, and Mathematics (STEAM) elements. Its primary objective is to educate and prepare students as future leaders in sustainability, equipping them to address real-world challenges. The program equips educators with the necessary resources and training, thereby enabling students to acquire crucial knowledge, skills, and industry connections. Emphasizing STEAM education, the program encourages students to engage in activities that address sustainability issues in their immediate and broader environments, thereby fostering global environmental impact.

Table 1: Number of Schools

Year	Elementary	Middle School	High School	Private Other	Total
2023/2024	7	6	6	5	24
2022/2023	7	10	9	8	34
2021/2022	4	16	8	11	39
2020/2021	3	10	5	8	26
2019/2020	2	8	3	2	15

Table 2: Number of Students

Year	Elementary	Middle School	High School	Private Other	Total
2023/2024	878	1,245	258	396	2,777
2022/2023	421	1,480	1,335	816	3,322
2021/2022	109	1,640	965	887	3,601
2020/2021	165	1,460	460	440	2,525
2019/2020	75	2,190	145	50	2,360

Impact Assessment (2017-2023):

- Expansion to 113 new schools and 24 new districts.
- Involvement of 232 educators.
- Direct impact on 75,000 students.

Program Growth and Development:

- The Master Teacher Program has expanded from 4 to 18 educators.
- Development of 10 new lessons and over 30 educational activities.
- Translation of student worksheets into Spanish for half of the curriculum units.

Participant Testimonials:

- Jackie Medina, 2018: “Project ReCharge instilled the confidence in me to pursue a civil engineering degree.”
- A student reflected on the uniqueness and enjoyment of the puzzle box activity within the project.
- Another student expressed an increased awareness of energy conservation practices to be shared with family.
- After successfully creating a circuit, a student proudly identified as an electrical engineer.

Significant Achievements:

- A 50% increase in student content knowledge in 2023.
- An average increase of 29% in student STEAM content knowledge over the past five years, with a median improvement of 33%.
- Recognition as a High-Quality STEM Program by the Nevada STEM Network in 2023.

Student-Led Projects and Achievements:

Empire Elementary School: Green Biz Kids:

- The Green Biz Kids club, led by STEM Coordinator Adrienne Wiggins, engaged students in sustainability initiatives, culminating in a Green Business Certification in 2023.

Dayton High School - Composting Project:

- Junior student Raquel W. developed a comprehensive public service announcement for composting, contributing to the school's culinary program and garden.

Pyramid Lake Schools - Lighting Retrofit:

- Students developed and implemented a school-wide LED retrofit proposal, resulting in significant energy cost savings.

Lyon County Schools - Retrofit Initiatives:

- Students executed a detailed lighting audit and retrofit project, showcasing their findings in a creative skit and securing energy savings.

Carson Middle School - Solar Film Project:

- A student-led initiative proposed the installation of solar screens, enhancing the school's energy efficiency and comfort levels.

An example of Envirolution's success with Project ReCharge's emphasis on student education and involvement in community service projects is a project initially designed and implemented by students from Reed High School in Washoe County, Nevada, in the 2014-2015 academic year. The students designed a lighting project to promote the

use of LED light bulbs to improve lighting efficiency in their school. Over time, the project has generated energy savings of an annual energy savings of 275,149 MWh. More importantly, the success of the project encouraged other schools participating in PRC to conduct their own LED lighting projects. To date, the project has been implemented by eight schools in northern Nevada and has generated a total savings of 10,4000 MWh of energy worth \$1.5 million.

An additional benefit realized through Project ReCharge is Envirolution's extensive work with Title I schools.² For the PRC 2023-2024 PRC program, we are currently working with five Title I schools in Clark County, Nevada; three Title I schools in Maine; two Title I schools in Arizona; and four Title I schools in Northern Nevada. Of the 19 schools we are currently working with on PRC during the 2023-2024 school academic year, 14 are Title I schools. Our experience working with these schools provides an understanding of the needs of and challenges facing disadvantaged and underserved communities and will enable us to design program activities that serve these communities and meet [Justice40](#) program goals.

This comprehensive overview of Project ReCharge illustrates its significant impact in fostering sustainability awareness and STEAM education across Nevada, showcasing its dedication to empowering the next generation of environmental stewards and innovators.

² See:

<https://oese.ed.gov/offices/office-of-formula-grants/school-support-and-accountability/essa-legislation-table-contents/title-i-part-a/>

Title I is a federal education program that supports low-income students throughout the nation. Funds are distributed to high poverty schools, as determined by the number of students who qualify for free or reduced lunch.

Career Quest: Comprehensive Overview

Program Description:

Career Quest is an engaging and collaborative program that connects Nevada businesses to their future workforce by exploring workplace Science, Technology, Engineering, Art, and Math (STEAM) and sustainability career opportunities. Through engaging presentations, industry tours, and hands-on activities, students are introduced to the benefits of STEAM education and the local career opportunities available to them. Career Quest provides STEAM career development for students by connecting learned STEAM concepts with real-world business applications and has a real impact on student perceptions of career possibilities while also making it easy for businesses to engage with their future workforce.

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Impact Assessment (2018/19 academic year to 2022/23 academic year):

- 178 Career Quest Events have been conducted
- 5,213 students have participated in Career Quest Events
- 77 schools representing 17 school districts in Northern Nevada have participated in Career Quest Events

Significant Achievements (2018/19 to 2022/23):

- Increase in participating businesses from one to over 30
- Increase in student participation from 642 to 1,515
- Increase in number of participating schools from 16 to 26
- Increase in number of participating teachers from 0 to 56
- Increase in career development hours from 1,258 to 2,947

Career Quest Activities

Table 3: Number of Schools

Academic Year	Elementary Schools	Middle Schools	High Schools	Private Other	Total Schools
2022-2023	9	6	5	6	26
2021-2022	6	7	6	2	21
2020-2021	4	5	2	3	14
2019-2020	3	8	1	4	16
2018-2019	6	5	1	4	16

Table 4: Number of Students

Academic Year	Elementary Schools	Middle Schools	High Schools	Private Other	Total Students
2022-2023	466	313	119	617	1,515
2021-2022	329	599	161	100	1,189
2020-2021	321	226	95	152	896
2019-2020	210	485	55	92	842
2018-2019	298	123	19	202	642

Participant Testimonials:

- *“I loved the way that people through this experience treated us high schoolers as intelligent adults and respected all of our questions. They were amazing tour guides and presenters, and the whole experience was a lot of fun.”* Career Quest Participant
- *“I liked that we got to learn how to create an electric motor. It helped me understand how electric cars work.”* Student, Eagle Valley Middle School
- *“The (STEAM Guest Speaker) presentation was very cohesive, relevant, and engaging. Having only had limited experience in a classroom, it answered a lot of the questions that I had around improving and tailoring my presentations for the audience.”* Previous Career Quest attendee

Introduce a Girl to Engineering Day: Comprehensive Overview

The 2024 year marks the 7th year of Envirolution's national Introduce a Girl to Engineering Day event. This is a time to show middle school students who identify as female or genderqueer how engineers can change the world. Female and genderqueer-identifying individuals are underrepresented across all professional fields of engineering. This event exposes middle school girls and genderqueer students to industry professionals who have the same identities in order to help these students envision themselves in engineering.

Through engineering activities and engagement with professional role models, this day aims to inspire, encourage and empower students. This year, Envirolution is excited to partner with Tesla and the University of Nevada, Reno (College of Engineering and Society for Women Engineers) to

Introduce A Girl to Engineering Day (IGED) is part of a national event dedicated to inspiring and encouraging middle school girls and those who identify as genderqueer, and non-binary, to consider a career in engineering. Envirolution, a Reno-based 501(c)(3) nonprofit organization, partnered with Tesla for over four years to introduce middle school students to the innovative tech company and learn about Tesla's missions and vision. On February 23rd, 2023, participants will receive a virtual behind-the-scenes tour of the Tesla facilities, engage in optional engineering-related hands-on activities, and learn about a variety of engineering careers along with the inspiring women behind them.

Significant Achievements (2018-2023)

IGED has experienced the same rapid growth as PRC and Career Quest since program inception.

- In 2018, IGED events were held in two middle schools in Nevada. As of 2023, IGED events have drawn participants from 18 countries and 49 states.
- Over 4,500 students represented 795 schools have participated in IGED since 2018.
- IGED events have attracted an annual average of approximately 1,300 participants from 2021-2023.

Table XX below shows the growth in IGED participation by country, state, type, and grade level of schools (elementary, middle, combined) and number of participating students.

Table : Introduce a Girl to Engineering Day

Year	Number of Countries	Number of States	Elementary Schools	Middle Schools	High Schools	Combined	Private Other	Total	Participating Students
2023	17	29	17	72	9	35	21	164	1,267
2022	12	38	35	418	3	62	15	535	1,459
2021	1	4	12	44			14	73	1,187
2020	1	3		5	2		5	12	406
2019	1	2		6	1		2	9	181
2018	1	1		1				2	60

Testimonials

"I think it's awesome how Tesla and Envirolution are hosting this event for girls like us because we know that so many women have put in the shadows throughout history."

6th grade student at Edna Brewer Middle School, California.

"Thank you to the people that helped us girls do this fun project! It's such an honor to see what you all do, and it's nice to hear that you are all trying to make our world better.

Thank you so much." 6th grade student at Rivergold Elementary School, California.

"I would tell my friends that this event blows the doors open wide on the possibilities of a career in engineering. Even if you don't think you want to work in an engineering field this event will open your eyes. This event shows you what's out there and what is waiting for you if you take that opportunity." IGED participant from Eagle Valley Middle School, Nevada.

"I thought the event was fantastic! I loved reading the 1000w of comments coming through the chat...The message to the young women was empowering." Erin S. of Buffalo Public School CDE Department, New York

Sustainability Expedition

Envirolution's Sustainability Expedition is a week-long program hosted during Northern Nevada's fall and spring academic breaks. Students are provided with the opportunity to explore local businesses during the five-day trip and are introduced to exciting STEAM careers, environmentally friendly practices, and the local sustainability movement. We conclude the week by constructing sustainability 'Vision Boards' and participating in a community park clean up. By the end of the program, students will have developed valuable connections to sustainable companies while participating in engaging, hands-on activities/.

2023 saw the post-pandemic return of Envirolution's Sustainability Expedition with many new businesses. This year, we were thrilled to have four new locations: Reno Food Systems, Fulcrum Bioenergy, Lithium Americas, and Redwood Materials. These new locations helped show the students more local sustainability practices. We had 9 students attend the week-long event that ranged from elementary to high school, and 100% said they would recommend the expedition to a friend.

The spring of 2019 marked Envirolution's fourth Sustainability Tour. We are pleased to report that the event was a success and that **100% of students** said that they would **recommend the tour to a friend**, according to post-event surveys. We're happy to facilitate this experience! The 2019 Sustainability Tour welcomed 23 students to participate in this five-day educational experience. They were given the opportunity to visit TESLA's Gigafactory 1, the Dayton Valley Aquaponics, Waste Management's Regional Landfill, and Recycling Center.

The 3rd Sustainability Tour was held during Washoe County School District's spring break in March 2018. Students participating indicated that there was a 65% increase in knowledge about sustainability issues. Before attending the tour, only 30% of the students were interested in pursuing green careers or incorporating sustainability into their future careers. After the tour, that number jumped to 85%! In addition, 100% of the students said they would recommend the Sustainability Tour to a friend!

Press Coverage

- "Students in Carson City area invited to register for sustainability tour" covered in the Nevada Appeal: (February 20, 2018)
- Channel 2 News coverage by Arianna Bennett: "Spring Break Camps That Still Have Openings" (March 26, 2018)
- Karsen Buschjost interviews students at Lockwood Landfill on My News 4 (Fox 11) on March 27, 2018.
- Karsen Buschjost interviews Vanessa Robertson for My News 4 (Fox 11) coverage March 27, 2018.
- KOLO News Now 8, "Teaching Students Sustainability, Regional Transportation Commission." March 29, 2018.
- Kaleb Roedel article "Tour at DRI Inspires Students to Pursue Sustainability Careers" in the Northern Nevada Business Weekly published on April 13, 2018.
- Kaleb Roedel, editor for Northern Nevada Business Weekly, published a video on April 16 of students at DRI during the Sustainability Tour.

Conclusion

In conclusion, Tesla's investment in Nevada's K-12 education through the K-12 Education Gift Fund has marked a significant advancement in STEAM and sustainability education across the state. The impressive expansion of Project ReCharge to 113 schools, impacting 75,000 students, is a testament to the initiative's success in fostering future sustainability leaders. This program, along with the impactful student-led sustainability projects such as the Carson City Middle School solar film proposal and Pyramid Lake Schools' lighting retrofit, vividly demonstrate the practical application and real-world impact of this education. Moreover, the introduction of unique programs like the Sustainability Expedition and Career Quest, which have reached thousands of students, further amplifies the importance of experiential learning in exposing students to sustainable practices and STEAM careers.

The inclusive approach of the program, especially with initiatives like Introduce a Girl to Engineering Day and the Energy Bike, empowering girls and genderqueer students in STEAM fields, is particularly commendable. The remarkable growth of Envirolution, both in terms of organizational expansion and increased revenue, underscores the effectiveness of Tesla's strategic investment. This corporate engagement in education not only highlights the transformative power of such collaborations but also sets a benchmark for fostering a new generation of innovators and leaders in sustainability in Nevada. The sustained growth and development of these programs, as evidenced by the increased involvement of

educators and students, the expansion of curriculum, and the positive feedback from participants, demonstrate a sustainable and impactful educational model that promises to nurture the minds and skills of students for a better future.