TEAM ECO

A Greener Redlands

Prepared for: The City Council of Redlands, California

Prepared by: Greg Martinez, Levi Pulford, and Joshua Dewar

February 18, 2025

Proposal number: 1

EXECUTIVE SUMMARY

Objective

The purpose of this proposal is to persuade the city of Redlands, California to invest in increased energy resiliency and a decreased carbon footprint by installing solar panels on municipal buildings, such as the Redlands City Hall. Installing solar panels on Redlands City Hall will provide benefit to both the Redlands community and our surrounding ecosystem. As members of the community and inhabitants of a warming planet, we want our city leadership to take this action to improve our city's access to sustainable, clean energy in the face of growing economic, natural, and political uncertainty.

Challenges

Redlands residents pay high rates for electricity and use a lot of it. Cooling their homes in the summer is very expensive and contributes to further greenhouse gas emissions due to our reliance on natural gas for a significant portion of our city's energy. Our area is also known to experience powerful earthquakes that may disrupt our power grid increasing the likelihood for these natural disasters to cause property damage and safety concerns.

Solution

By installing solar panels on municipal buildings, Redlands can diversify sources of solar energy to be used in the event of emergencies, reduce the amount of energy being sourced by natural gas, and generate more sources of energy to reduce costs for residents.

Project Outline

Step One: Assess City Hall's readiness for solar panels
Step Two: Select a contractor and install panels
Step Three: Inspect the installation for safety and quality
Step Four: Educate the community

CURRENT STATE OF POWER AND RESILIENCY IN THE CITY OF REDLANDS

Redlands, California residents pay 24% more than the national average for electricity. One reason is the area's extremely hot climate. The hottest month of the year in Redlands, August, averages 95°F. Hot temperatures drive residents and city staff to spend more money on interior cooling systems.

Not only are these systems costly, but they are also environmentally devastating.

Today, cooling contributes seven per cent of global greenhouse gas emissions. This number is expected to double by 2030 and triple by 2050. Growing emissions from cooling systems propel a negative feedback loop. As communities continue to depend on their traditional cooling systems, they continue to pollute; as they continue to pollute, they continue to destabilize the climate.

Like other cities in Southern California, Redlands is under constant threat of powerful earthquakes from the San Andreas fault.

A recent USGS report suggests a 93% likelihood of one or more magnitude 6.7 earthquakes and a 75% likelihood of one or more magnitude 7 earthquakes in the next 30 years. The science is clear. The question is not if but when Redlands will experience one of these disruptive events. When a massive earthquakes eventually happen, it will likely disrupt power supply to entire communities. Communities that are not equipped with multiple sources of energy may have trouble restoring power, which can cause major risk to property damage and safety.

Roughly 43% of Redlands's energy comes from natural gas.

While the city's solar energy production is not far behind at 31%, Redlands must strive to continually develop clean energy sources until greenhouse gas emitting energy sources are not the plurality. To increase the percentage of green energy, Redlands must invest in new solutions. Our solution is for the city to lead the charge by installing solar panels on municipal buildings, such as Redlands City Hall.

TEAM ECO

PROJECT PLAN TO INSTALL SOLAR PANELS ON REDLANDS CITY HALL

With this proposal, we ask the city of Redlands leadership to set an example for the rest of the community. Redlands must demonstrate a commitment to its sustainability plans, as laid out in the City of Redlands Strategic Plan for 2022 to 2028.
The city can do so in four steps:

Part 1: Assess City Hall's readiness for solar panels

Not all buildings will have identical solar panel installations.
To assess City Hall's readiness for solar panel installation, the city must answer the following questions:

Is the roof flat or angled?
Is the roof shaded or obstructed?
Can the solar panels extend over other areas of the property, such as parking lots or an adjacent land lot?

By addressing these questions, the city can precisely prepare budgets and schedules for the project.

Part 2: Select a contractor and install panels

With these preparations in place, the city can move forward with the installation. There are companies in Southern California that can help, including:

Solar Optimum: Solar Optimum was the EnergySage 2024 Installer of the Year. Established in 2008, they continue to lead the solar industry across California, Nevada, Arizona, and Florida.
NRG Clean Power: NRG Clean Power is the leading solar installer in California and Texas. Two of their core tenets about electricity are that it should be renewable and affordable.
IntegrateSun, LLC: IntegrateSun installs the same technology that NASA uses for their space stations.

City leadership must assess providers, estimate costs, and project timelines. We suggest comparing quotes from the above providers for a full breadth of options. When you request a quote, include your findings from the initial assessment.

Part 3: Inspect the installation for safety and quality

After the installation, an independent party must inspect the solar panels. The inspector should look for safety issues or potential shorts and check the physical structure to see if the panels will hold up to environmental conditions. This inspection ensures the installation is complete and is safe.

Part 4: Educate The Community

The last step informs the public of the city's progress towards meeting it's sustainability goal. City leadership should celebrate this achievement through typical communication avenues, social media, and a commemoration event. It's important for the community to know that the city of Redlands is not only greener than before but is now a source of support in the case of a natural emergency. The construction process is likely to raise a few eyebrows across the community. During this period, having signage up informing passerby of the project will be a great way to show tax dollars at work.

Costs and benefits of installing solar panels

Because the community funds all city projects, it's important to understand the costs. In Redlands, the average solar panel installation costs roughly $14,000 after federal incentives. It's important to note that solar panels in Southern California pay for themselves in 5 years on average.

Benefits of completing this project include:

- In the event of a massive earthquake, Redlands City Hall can continue operating and aiding the community.
- Less greenhouse gas emissions and a healthier environment.
- Improving Redlands's energy portfolio and decreasing the cost of energy in Redlands.

CONCLUSION

As energy costs, climate concerns, and emissions continue to grow, the need for the city to become a leader in sustainability initiatives becomes imperative. The city of Redlands owes it to this community to lead the way in green energy initiatives.

Thank you for your time and consideration of this important proposal. As always, we are happy to discuss the matter further and guide you through this process in whatever ways we can.