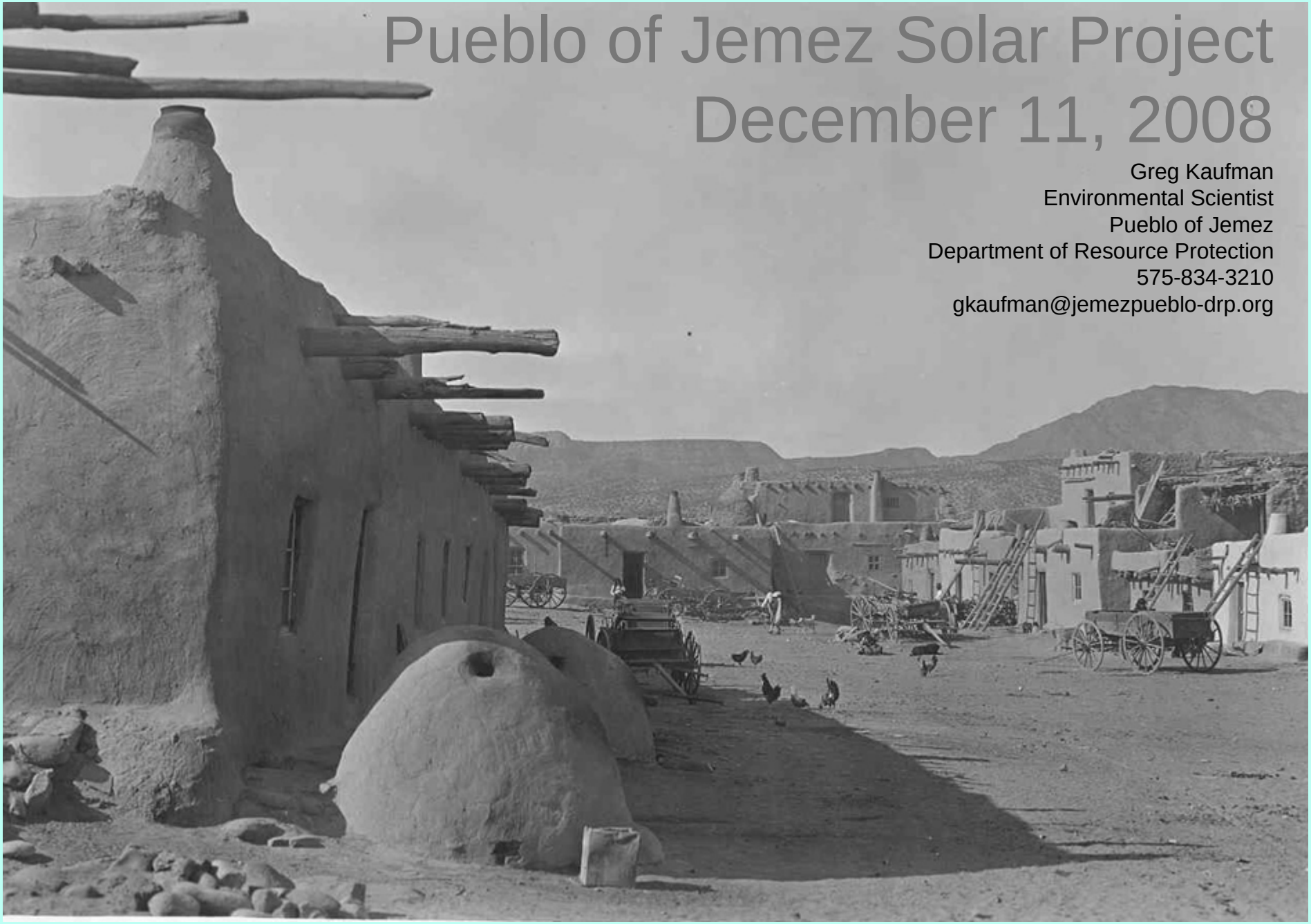

Pueblo of Jemez Solar Project
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The Pueblo of Jemez

- Federally-recognized Tribe
- 45 Miles NW of Albuquerque, NM
- Has occupied the Jemez Valley for over 800 years.
- 2,200 Tribal members in village of Walatowa; 3,000 Tribal members total.
- Only Towa-speaking Tribe. Very Traditional.
- Has a unique K-12 charter school system emphasizing science and math for college prep.
- Not a gaming Tribe

Project In a Nutshell…

- Generate 3.5 MW of solar power using Emcore concentrating PV and Sharp single axis flat plate PV.
- Interconnect with Jemez Mountains Electrical Cooperative system on 14.4 kV Distribution Line.
- Sell the power and Renewable Energy Credits to either Los Alamos County Utility or PNM (or both).
- Profit from power/REC sales go to Pueblo for much needed infrastructure improvements and community services.

Emcore, Inc.

- 25 kWh Array
- 30 x 50 ft. array weighs 9 tons
- Need 140 Arrays and 30 acres to generate 3.5 Megawatts
- Parts designed and built in Albuquerque
- Comes with 25 year guarantee
- Only maintenance is washing and motor lubrication 4 times/year

- **Single Axis Flat Plate Solar Panel**
  - **More efficient on cloudy days**
  - **Lighter weight means better choice for problem soils**
  - **Low maintenance – washing.**

Site Issues…

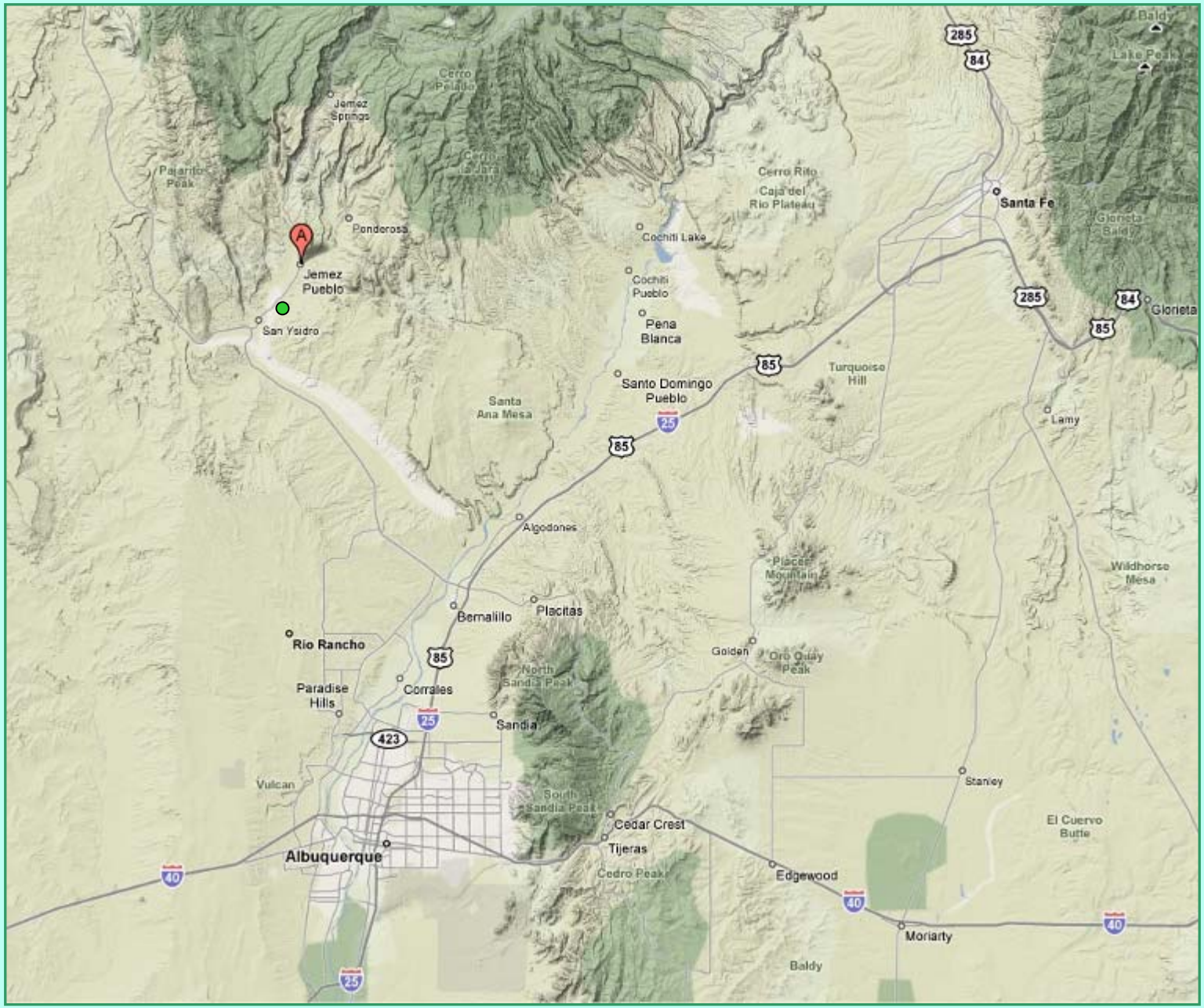
30 acres needed to generate 3MW

The Bad:

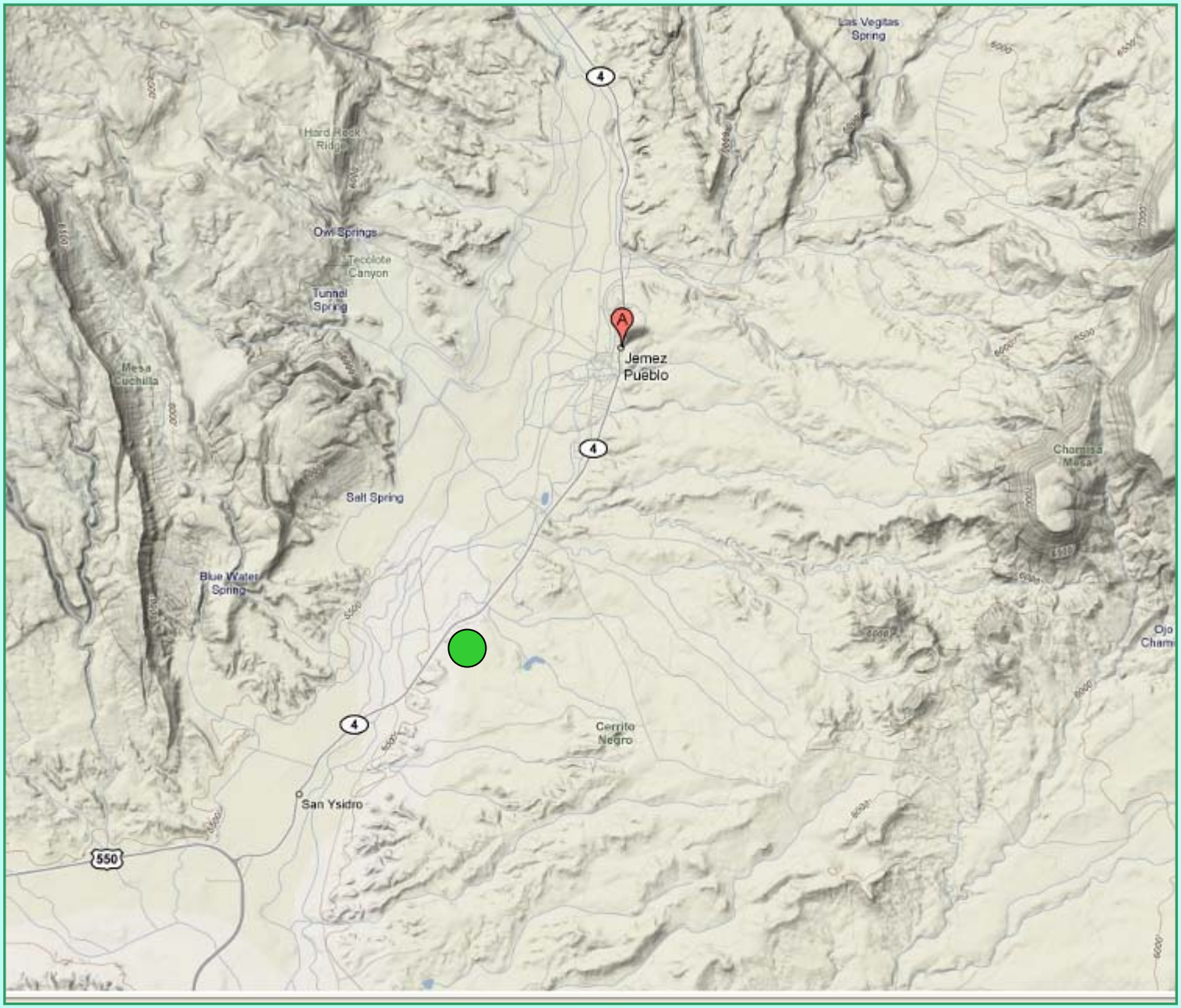
- Difficult to find flat, unobstructed location in narrow valley
- Jemez land dense with archeological resources that must be protected.
- Soils vary from gravely sand to heavy clays making foundation design critical.

The Good:

- 2 powerlines to choose from for interconnection
- Ready and willing power purchasers to whom power could be wheeled
- Easy access off major state highway.
- Availability of local labor and material resources for site prep.



Vicinity Map



Vicinity Map

Proposed 30 acres of buildable area.

Looking northeast from atop the mesita across main portion of solar site.

1. **Identify site and suitable renewable technology**
2. **Identify transmission interconnection point**
3. **Identify potential power buyers**
4. **Get a bank to agree to finance the project**
5. **Form a corporation to operate the project**
6. **Secure the site**
    a) **Approval from Tribe**
    b) **Site Survey**
    c) **Environmental Clearances**
    d) **Site Engineering (is the site suitable for the project?)**
    e) **Lease (must be approved by BIA)**
7. **Sign a Power Purchase Agreement with the customer**
8. **Enter into a partnership with the bank to build the project**
9. **Hire construction company**
10. **Grade and prepare the site**
11. **Install generating equipment (solar panels)**
12. **Interconnect with power grid**
    a) **Interconnection Application**
13. **Provide power to customer**
14. **Wait for the money to arrive**

Developing a Renewable Energy Project on Tribal Land in 14 Easy Steps…

Where are we now…?

1. Identify site and suitable renewable technology
2. Identify transmission interconnection point
3. Identify potential power buyers
4. Get a bank to agree to finance the project (very difficult)
5. **Form a corporation to operate the project**
6. **Secure the site**
   a) Approval from Tribe
   b) **Site Survey**
   c) **Environmental Clearances**
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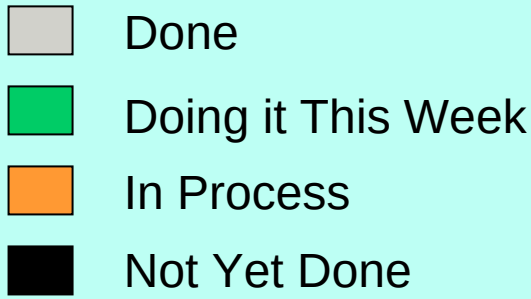

Easier said than done!

Project Financing

- Finance model developed by Red Mountain Tribal Energy, Phoenix, AZ.
- Combines debt financing with equity provided by two federal tax credit programs:
  - Investment Tax Credit (30% tax credit for bank)
  - New Market Tax Credit
    - Funding equal to as much as 30% of project cost
    - 39% tax credit over 7 years for qualified NMTC provider
- Tax credit/equity reduces the amount of debt needed to finance project.
- Only way project is economically feasible since the lower debt allows project to sell power at an attractive price.

Project Financing

- Get as Much Free Stuff as You Can!

- We secured grant funding from DOE and State of New Mexico to develop project and defray costs.

- Many grant programs available from DOE, USDA, other fed agencies.

- Merrick Engineering providing free engineering design services
  - Through special program developed by National Nuclear Security Administration that requires its contractors to provide community outreach services.
  - Look for large federal facilities near your location to see if a similar program exists there.

- Renewable energy equipment providers may provide some engineering services to facilitate purchase of their equipment for your project.

Project Benefits

- Environmental Benefits:
  - A coal-fired power plant emits 2,249 lbs. of CO2 gas per MW hour.
  - The Jemez 3.5MW solar project would generate 3.5MW of renewable energy at any given point in time while in full operating mode.
  - This rate of generation would offset 7,872 lbs. of CO2 per hour that would otherwise have been generated by coal-fired power plants.
  - Operating eight hours per day for one year, the project would offset 11,492 tons of CO2.
  - Over the twenty-year service life of the equipment, the project will offset over 229,833 tons of CO2.

Fiscal/Social Benefits:

  - Provide sustainable, profitable revenue stream to Pueblo.
  - Could improve major water/wastewater infrastructure problems at the Pueblo
  - Creates success story for Jemez which provides leverage in State legislature for future economic development projects
  - Creates track record for Pueblo as a competent renewable energy project developer leading to additional solar, wind, geothermal, and biomass projects.

- Source: U.S. EPA: The Emissions & Generation Resource Integrated Database (eGRID), 2008. http://www.epa.gov/solar/energy-resources/egrid/faq.html

Thanks!