

# Empowering **TUSD**



*Solar Energy Savings that Benefit Students, Teachers and the Community*



# The SUN is Coming to Our Schools!

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## The Project Success!

- ✓ Largest Distributed Solar Project in Arizona
  - ✓ Approximately 11 megawatts at 43 sites
  - ✓ Fixed price for 20 years
- ✓ First Solar project in the TEP territory completed without local incentives
  - ✓ Largest distributed school solar project without local incentives executed to date in US.
  - ✓ Landmark project for entire solar industry
- ✓ First Arizona Solar Project financed by Solar Service Agreement with Host retaining Renewable Energy Credits
  - ✓ Financial upside projected in the future
  - ✓ In the meantime all carbon footprint offset claimed by the District (~39m lbs of CO<sub>2</sub>/year)
- ✓ The District will realize immediate and long-term savings
  - ✓ No up-front cost – construction cost/risk by owner
  - ✓ Savings of approx. \$170,000 in year one (SY 2015-2016)
  - ✓ Project life savings between \$11,000,000 and \$20,000,000

## The Project Process

- ✓ Design team completes initial site plan based on site visit, TUSD-level feedback, TEP interconnection rules, permit and fire marshal code
- ✓ TUSD team conducts one-on-one meetings with principals
- ✓ Principals share information with staff and site councils/community groups
- ✓ Feedback returned to design team
- ✓ Designs modified when possible based on feedback
- ✓ Public meetings held by project groups
- ✓ Feedback discussed and design reviewed again
- ✓ Designs approved by District team
- ✓ Final Engineering begins
- ✓ Permitting
- ✓ Pre-construction meeting with site - Safety
- ✓ Construction begins



### **Matt Shannon, VP Sales & Marketing** **Natural Power and Energy**

Over a thirteen year career in the Arizona solar industry, Matt has been involved in the project development and management of millions of watts of commercial, school and government solar projects in addition to thousands of residential and new home solar systems throughout Arizona, much of which is located in Southern Arizona.



# Introducing the Project Team



## The Project 'Developer'

### Natural Power and Energy

*A leading Arizona Solar Firm*

With highly regarded Tucson solar projects such as **National Bank of Arizona, TIA and Raytheon.**

#### **Responsible for:**

- Overall Project & Installation Management
- System Design & Engineering
- Contractor Evaluation & Procurement



## The 'Host' Customer

### Tucson Unified School District

*Arizona's 2<sup>nd</sup> Largest District*

Your **146 Year-Old** School District, serving Tucson's youth, families, and community since **1867.**

#### **Responsible for:**

- Purchasing the energy produced by the systems
- Adhering to the SSA contract
- Maximizing the solar benefit for the Schools & Community



## The System 'Owner'

### Constellation\*

*Unit of Fortune 100 Co. Exelon*

A national energy leader, with owned solar systems at **9 Arizona School Districts** deployed across **61 sites.**

#### **Responsible for:**

- Long-term SSA Admin & Billing
- Ensuring System Performance
- System Operation & Maintenance

\* Currently negotiating with TUSD



## The 'Solar Services Agreement' (SSA)

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An SSA is long-term, **risk-free** contract that will allow TUSD as the Host Customer to benefit from the systems installed at the District's schools and pay only for what the systems produce.

The ownership of the systems and the ongoing operation, maintenance, monitoring and payment administration is carried out by the System Owner.



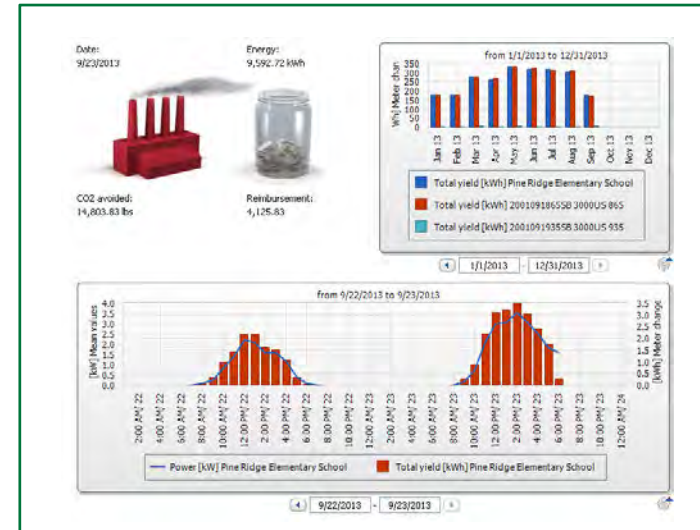
Getting the systems from the drawing board to generating electricity is the responsibility of the Project Developer.



# Solar Data Translated Into Student Curriculum

In addition to providing shaded play areas for students, All installed solar systems will feature **online data monitoring** accessible from any internet enabled device.

This data monitoring will allow students and teachers to **view the performance of the systems** instantly as well as scrutinize it for more detailed analysis.



## Photovoltaics

Photovoltaic (or PV) systems convert light directly into electricity. The term *photo* comes from the Greek *phos*, which means light. The term *volt* is a measure of electricity named for Alessandro Volta (1745-1827), a pioneer in the development of electricity. Photovoltaics literally means *light-electricity*.



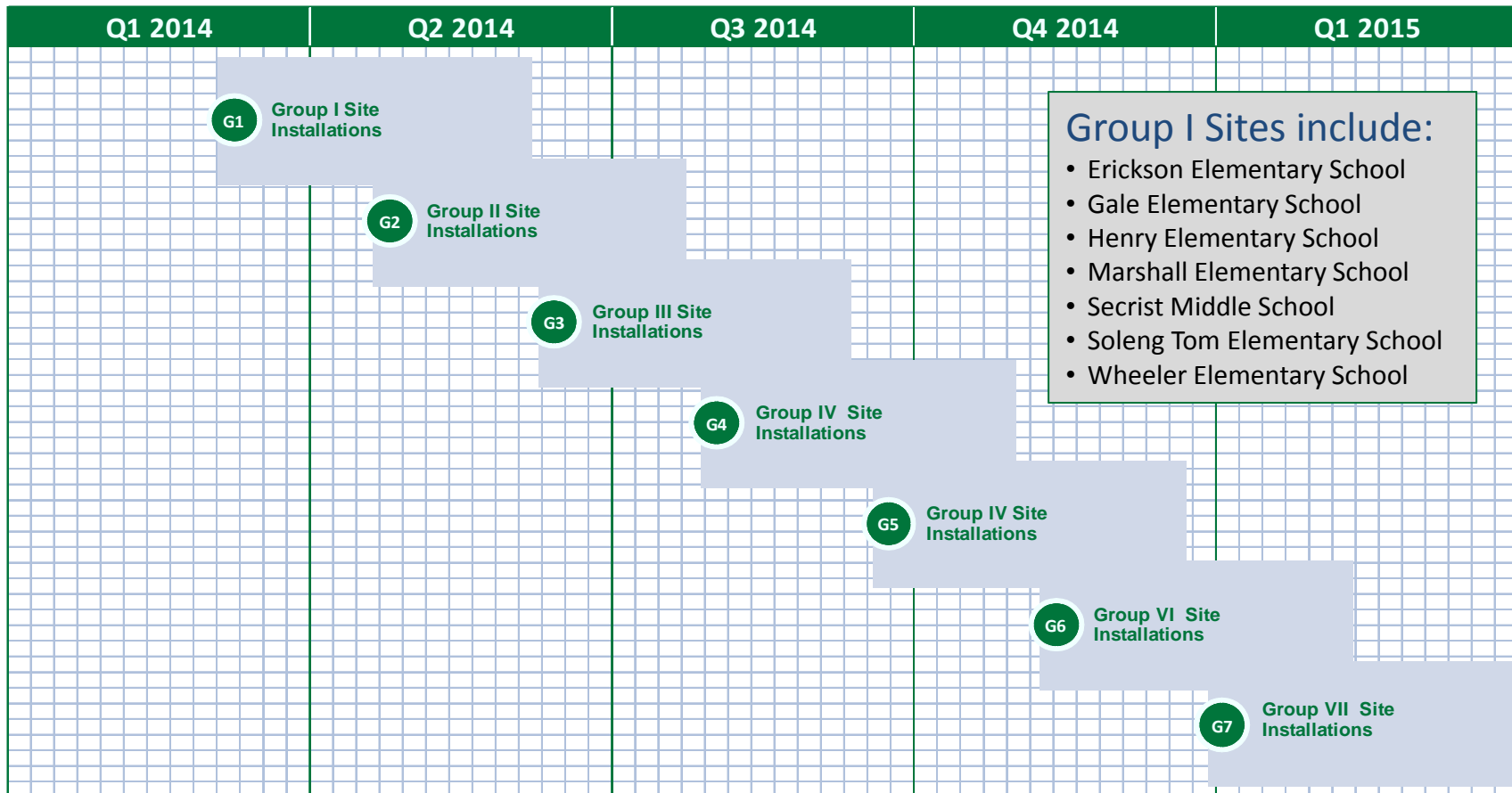
Alessandro Volta

The information supplied by the systems will also be **integrated into the school curriculum** to help students learn about how solar electricity works and the benefits of renewable energy.

Subject areas such as science, social studies, math, language arts and technology can all benefit from the **knowledge solar can provide**.

## Project Timeline

The project has been organized into 7 groups, with each group generally made up of 6 to 8 sites. While the project is already underway, installation of the first group of systems will begin in Q1 2014.





## Questions and Answers

