

The Powerhouse Science Center: Science, Technology, Engineering and Math Education

The Powerhouse Science Center will have a diverse range of educational exhibits and programs that will teach the fundamentals, and latest developments, in the fields of science, technology, engineering and math and will inspire the next generation of future innovators. Proficiency in the sciences will be a fundamental skill in the economy of the future and the Powerhouse Science Center is committed to using interactive and entertaining exhibits and programs to prepare the science literate community of tomorrow.

Field Trips and Teacher Aids

In a study conducted by the Lawrence Hall of Science, Berkeley, researchers found that 80% of K-5 teachers spend less than 60 minutes a week on science education, with 16% of teachers spending no time on science education. The current Discovery Museum is a popular destination for K-8 field trips with activities suitable for a variety of age ranges. The most popular field trip is a visit to the Challenger Learning Center.

Challenger Learning Center

One of the most visited attractions at the current Discovery Museum is the Challenger Learning Center, an interactive educational program created by the Challenger Center for Space Science Education, a non-profit organization founded after the Challenger Space Shuttle Disaster in 1986. Today there are more than 50 Challenger Learning Centers throughout the world, each with the mission of fostering the participants' interest in math, science, and technology. The Challenger Learning Center at the current Sacramento Discovery Museum ranks number one for attendance in California and is one of the most successful in the nation, both in terms of participation levels and revenue/expenses. In 2006-2007, 236 missions served 6,823 "crew members" — 5th-8th grade Northern California students.

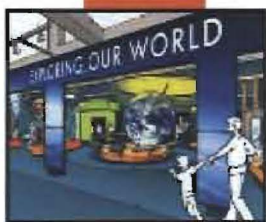
An integral part of the experience is the pre-visit instruction provided to the teacher and the students. Each teacher is invited to attend a pre-visit training at the Center that provides preparatory multi-week NASA themed curriculum for students to complete before and after their visit. Teachers report noticeable improvements in their students' scientific understanding and their teamwork skills as a result of the synergy between the in-classroom training and the unique mission experience at the Challenger Learning Center.

At the Powerhouse Science Center the Challenger Learning Center will be upgraded and expanded to accommodate more students, new equipment, and new mission programs. With these enhancements the Challenger Learning Center will be able to keep pace with the changing scientific curriculum and provide more students with these services. Increased visits at the new Center will also allow the Museum to issue more scholarships to visiting schools and community groups, making the program accessible to all area schools.

The new exhibit space will also enable the development of new comprehensive programs based on the curriculum and visit method employed by the Challenger Learning Center. The Center will work to develop field trip programs on topics including: human biology and medical technology, the outer cosmos, resources and conservation, animal life, and archeological science. The potential for more programs is as diverse as our science exhibits.

Afterschool Programming

The Powerhouse Science Center will be located in the Riverfront District of Sacramento, a developing district near downtown Sacramento. The Center has begun work with First 5 Sacramento to develop a young child program and plans to develop additional afterschool and summer programming for youth from the Sacramento area, with a special interest in serving the surrounding low-moderate income community. The programs will be built around our strong permanent exhibits and our STEM education mission.



Innovative Exhibits

Experiential, hands-on exhibits encourage inquiry and make connections to current and future career opportunities in science and technology. Visitors will gain new insights about the world around them and beyond while investigating a variety of key concepts. A temporary exhibit space on the ground floor complements the four permanent exhibit collections: Exploring Ourselves, Exploring Our World, Exploring the Universe, and the Energy Machine.

Exploring Ourselves: Discover the secrets of systems, from cells to civilizations. An enormous sculpted human body anchors the gallery, providing a platform to explore cutting-edge medical technology and the fascinating realm of the mind. Complementary exhibits illustrate the history of human evolution and comparative anatomy.

Exploring Our World: Extreme Earth: Our planet is filled with an amazing array of life, from tiny sulphur-loving bacteria, to flamboyant rainforest parrots, and enormous plankton-eating whales. Explore the astounding adaptations that allow them to thrive in diverse and extreme environments, and find out more about the geology that influences it all.

Exploring Our World: Healthy Planet: Learn how everyone's efforts to reduce, reuse, and recycle can help preserve our natural resources, and discover how new and emerging technologies will make it possible for cars to run cleaner, buildings to be healthier, and energy to be produced more sustainably.

Exploring Our Universe: A real rocket entices visitors to the highest point of the building, where they can learn about planets, stars, comets, and more. Model satellites and telescopes highlight the latest discoveries about the universe, while a model of the solar system stretches out overhead.

The Challenger Learning Center (See description on previous page)

Planetarium

The Science Center will feature a new glass-encased glowing planetarium sphere, modeled after the Hayden Planetarium in New York City, with a new star machine and expanded capacity to hold our growing number of visitors. The planetarium, the only public planetarium in Sacramento, will be both an educational and architectural fixture in the Sacramento landscape, playing a role in all the Center's space themed learning programs.

Energy Machine: Simple machines and sophisticated technology combine to power a series of sculptures. Includes displays on the historic role of energy in Sacramento and the history of the PG&E Powerhouse.

Outdoor Exhibits: The outside of the Powerhouse Science Center will be just as dynamic as the inside. A "Rock and Rocket" garden gives visitors a chance to get up close and personal with Space and Earth Science, and an ecological water treatment system is as beautiful as it is functional.

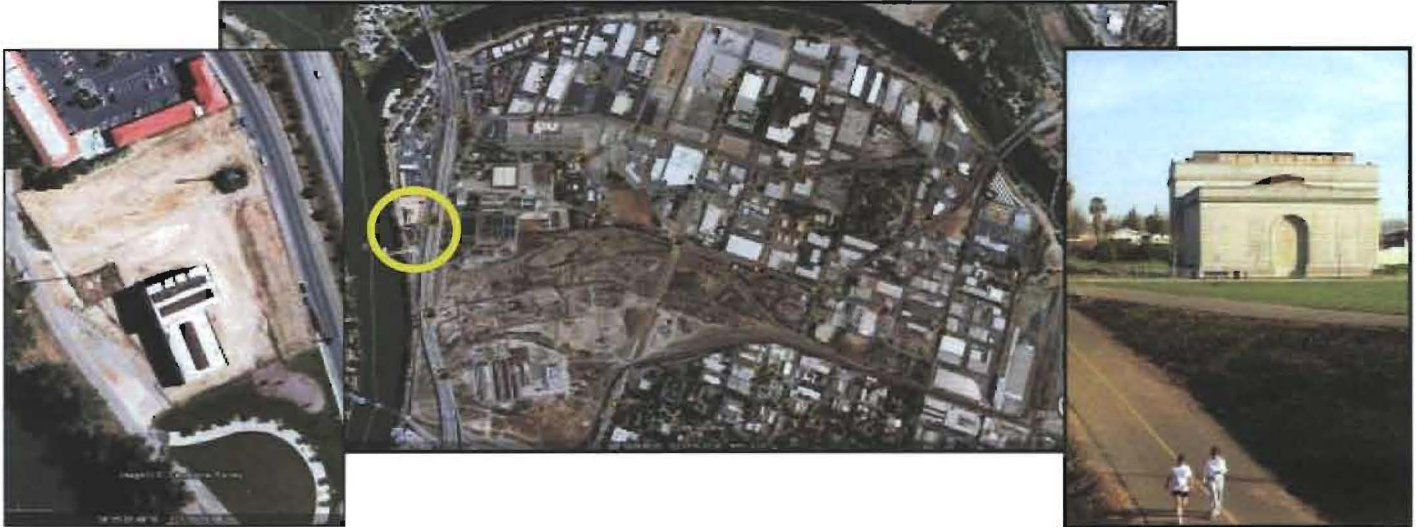
Special Events

The Powerhouse Science Center will have space to accommodate special events and visiting speakers, a service we envision as an integral part of our mission. The Center will become a public forum showcasing the latest in scientific discovery in a venue that is accessible for the whole family. These events will highlight the scientific achievements of the Sacramento region, the latest developments in medical science and technology, and the fundamentals of resource conservation.

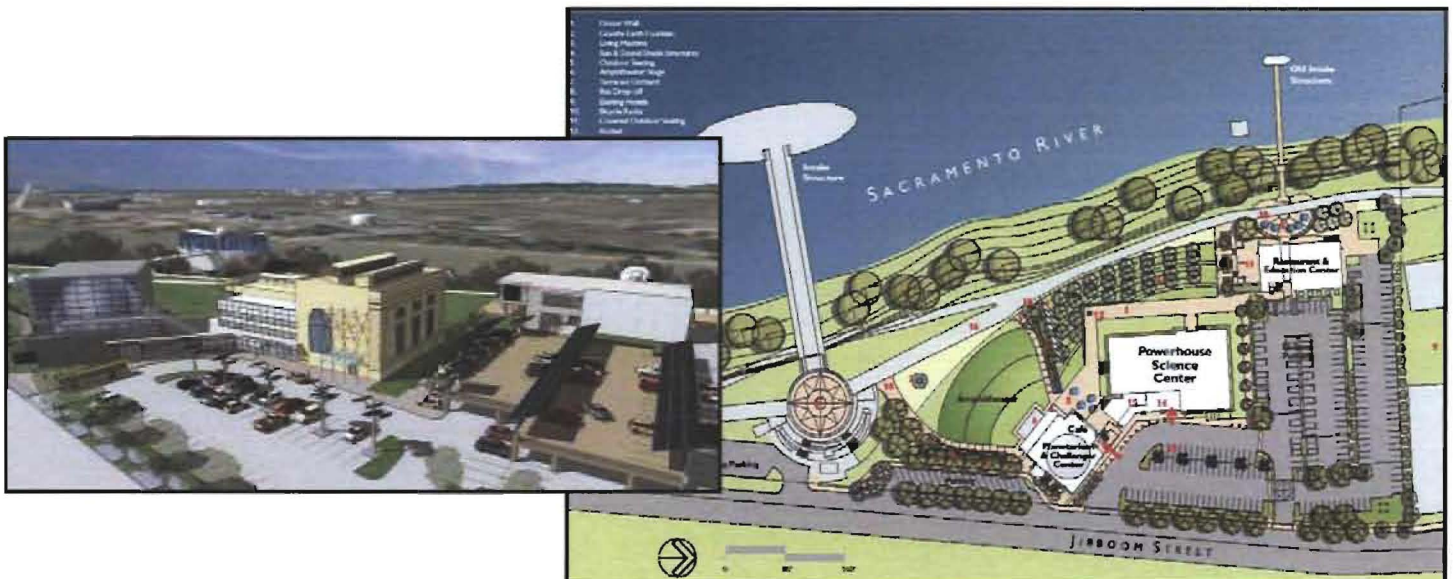




The Powerhouse Science Center:
Transforming a Historic Site into a Cutting Edge Discovery Museum



The Powerhouse Science Center will occupy the defunct PG&E Power Station B, a former power generating plant on the Sacramento River. The Power Station officially ceased operations in 1954 and has at various times been under the ownership of the Department of Transportation- for the construction of I-5- the Department of Parks and Recreation, and finally the City of Sacramento. In 2008 the Discovery Museum entered into a long-term lease agreement with the City of Sacramento for control of the property and rights to build their new home, the Powerhouse Science Center. The Powerhouse Science Center will preserve the original structure and architectural features of the Powerhouse Station in full accordance to its 1984 listing on the National Registrar of Historic Properties and the California Register of Historic Resources. In restoring and reusing this property the Powerhouse Science Center will embody the principles of brownfield reuse, transforming a former center of applied science and industry into a place that inspires the next generation of scientific innovators.



For more information on the Powerhouse Science Center please contact Michele Wong, Interim Executive Director, at (916) 853-0304 or michele.wong@synergex.com or Amanda Fenton with Townsend Public Affairs at (510) 835-9050 or afenton@townsendpa.com



The Powerhouse Science Center: Center of Scientific Learning, LEED Platinum Design

The Powerhouse transforms Downtown Sacramento's former PG&E Power Station into an innovative educational center, featuring a museum, planetarium, restaurant, and conference center. Green design will be incorporated in every project component. The Powerhouse will demonstrate that a historic structure can be adapted to meaningful and sustainable public use with a community oriented, long-term mission and Platinum-level LEED certified building design. Low impact new construction, reuse of existing materials and public buildings, and sustainable green practices for water, energy and resource efficiencies will embody the tenant of "green" architecture and will offer visitors a healthy environment in which to learn, play, and visit.



Solar panels on the parking and transit facility.

Energy: In addition to being a model green building, the museum will educate the public about the science of energy creation and the consequences of energy consumption. The goal is to provide a net-zero electricity building, and even sell surplus energy back to the grid through use of a hydrogen fuel cell that will provide power for the museum and its attendant structures and displays. The Science Center will also feature state-of-the-art mechanical and electrical systems designed to be at least 20% above California's rigorous Title 24 requirements. A photovoltaic array will cover the top deck of the parking structure, providing shade for vehicles and powering a large part of the building. Photovoltaic "trees" that will follow the sun to collect UV have been designed in the landscaping.



The Living Machine, a nature based water filtration system

Water: Wastewater will be treated with two Living Machines, an ecological wastewater treatment system that mimics processes found in wetland environments. An exhibit on the Living Machine will be included in the Healthy Planet exhibit gallery. An extensive storm water management plan will be developed that will capture and reuse this water for non-potable uses such as landscape irrigation and toilet flushing. No potable water will be used to irrigate the landscape and all fixtures will be water efficient.



Healthy Planet exhibit and café, using produce from the organic garden

Reuse: An on-site recycling center will facilitate the reduction of waste generated by the building that must be hauled to and disposed of in landfills. Teaching pocket gardens and water features will demonstrate uses for "grey water" and organic gardening methods.

River District Redevelopment Area





The Powerhouse Science Center: Steering Committee

Michele Wong

*Co-Chair
President and CEO
Synergex International
Corporation*

The Honorable Kevin Johnson

*Mayor
City of Sacramento*

Dr. Melissa Brown

*Executive Director
Nehemiah Community
Foundation*

Michael Galane

*Science and Technology
Committee Chair
Senior Director, Fulfillment
Operations
Hewlett Packard Company*

Stacey McKinley

*Government Grants
Subcommittee Chair
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Steve Ayers

*CEO
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Nathan Dietrich

*Honorary Government Co-
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Congresswoman Doris
Matsui*

Brian Jensen

*Governmental Relations
Consultant
Pacific Gas and Electric
Company*

Mickey Oros

*Senior Vice President,
Business Development
Alteryx Systems*

Carl (Tobey) Oxholm III

*Dean and Chief Executive
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Sacramento Center for
Graduate Studies
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*Co-Chair
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Tretheway**

*Honorary Co-Chair
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Rebecca Fabisch Miller

*Vice President, Senior
Relationship Manager
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Debora Fee

*Project Manager
Otto Construction*

Jon Snyder

*Resources Development
Subcommittee Chair
Commercial Real Estate
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Estate*

Judy D'Amico

*Director, State and
Government Relations
Project Lead the Way*

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*President/CEO
Business Communications
Group*

Catherine Moulton

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*President
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Beth Callahan, Staff

*Director of Development and
Marketing
Discovery
Museum/Powerhouse
Science Center*

Peter Willson, Staff

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Powerhouse Science Center*

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*Capital Campaign
Coordinator
Powerhouse Science Center*

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The Powerhouse Science Center: Funding Strategy

The Powerhouse Science Center will be a landmark attraction for the Sacramento Region, teaching visitors the fundamentals of scientific principles while exploring the cutting edge science of today in an engaging, interactive, hands-on setting. Housed in the former PG&E powerhouse, surrounded by natural parklands and adjacent to the Sacramento River, the new site is an ideal location for inspiring the quest for all types of scientific knowledge. As a cornerstone of the River District development the Powerhouse Science Center will create economic activity and spur development in a currently underused area of Sacramento, attracting over 200,000 visitors (including 120,000 students) to the River District and downtown.

The Powerhouse Science Center is a bold investment in the economic and educational future of our community. At a total cost of just over \$50 million, Powerhouse Science Center is looking at several sources of public and private funding to finance the construction of this community resource.

Private Funding Campaign

The Powerhouse Science Center has a goal to raise \$20,000,000 through private sources. The successful 'Founding Partners' campaign has already received significant commitments from: The City of Sacramento, the County of Sacramento, Aerojet, Allergy Systems, Armour Steel, Carson Development, Drexel University, Dreyfus & Blackford, Kenneth E. Fait, Mr. John and Dr. Mary Finegan, Hewlett-Packard Company, Intel, Morgan Family Foundation, Nehemiah Community Foundation, Otto Construction, Pacific Gas and Electric, Sacramento Convention and Visitors Bureau, Social Venture Partners Sacramento, Synergex International Corporation, Townsend Public Affairs, and Wells Fargo Bank. The Founding Partners campaign continues to bring in new partners and contributions each week. The Powerhouse has also applied for Historic Tax Credits, a low-interest loan through the New Market Tax Credit program and is in negotiations with a private company for a very significant naming rights contribution.

Public Funding: 30 Initiative

The Powerhouse Science Center is looking beyond traditional private sector fundraising to a variety of public sector funding opportunities. The Powerhouse Science Center will be a resource for the entire community with enriching activities for students, parents, educators, and young children. With the diverse range of facilities and programs the Powerhouse Science Center has unveiled the bold "30 Initiative" to raise \$30 million from public funding sources*.

30 Initiative

Federal		State		Local	
Economic Development Administration: Economic Development Program	\$3,000,000	Proposition 84: Nature Education Center	\$7,000,000	Sacramento Redevelopment Agency: Redevelopment	\$5,000,000
Environmental Protection Agency: Brownfield Redevelopment	\$2,000,000	Proposition 84: Statewide Parks Act	\$3,000,000	County of Sacramento: Redevelopment	\$2,000,000
Save America's Treasures: Appropriation or Grant	\$1,000,000	Water Education Center	\$2,000,000	City of Sacramento: DOE Energy Efficiency Block Grant	\$1,000,000
NASA Educational Program: Appropriation or Grant	\$1,000,000			Community Development Block Grant	\$1,000,000
National Science Foundation: Appropriation or Grant	\$1,000,000			First 5 Sacramento: Capital and Program Support	\$1,000,000
Total Federal	\$8,000,000	Total State	\$12,000,000	Total Local	\$10,000,000

Total Public Sector: \$30,000,000	Total Private Sector: \$20,000,000	Total Project Cost: \$50,000,000
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* All sources listed are potential sources of funding that have been identified and are subject to change



The 57-year old Discovery Museum Science and Space Center – known to generations of Sacramento children, teachers, and residents from around the region – has outgrown its current location and is being reborn as the new Powerhouse Science Center in the long-neglected PG&E power station.

What is it?

- The Powerhouse Science Center will be the center of Sacramento’s River Development District – the largest redevelopment project in the United States – and create green jobs, expand community partnerships with business and private sector entities, and fuel scientific interest for future generations.
- The 30,000 square foot campus has a groundbreaking, platinum LEED design, will have a negligible public utility service footprint, and will be exemplary “green” building, serving as an environmental teaching lab.
- It will be a *showplace* for science and technology, a *resource* for educational institutions, and a *beacon* for the 190,000 vehicles that pass by the site each day.
- The Powerhouse Science Center will be a dynamic enhancement to our education system’s science, math and technology curricula.
- It will be a shining example of how California is changing the world’s view of energy conservation and alternatives and science and technology.

Why is it needed?

- The current Discovery Museum Science & Space Center is “square foot challenged” and is closed mornings for school tours, twice a year for exhibit rotations, and cannot accommodate more than one major-themed exhibit at a time.
- California ranks 49th in science and math literacy, according to the National Assessment of Educational Progress.
- 27 of the 30 fastest growing occupations require a solid understanding of science.
- 80 percent of elementary school teachers spend less than one hour a week teaching science; 16 percent teach no science at all.

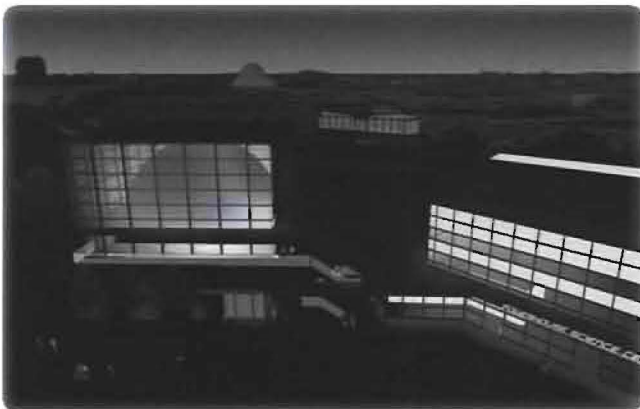
What is the regional impact?

- The Powerhouse Science Center will be the anchor of the River District, serving as prime tourist destination, a community gathering place, a major event venue, and a catalyst for neighborhood renewal.
- It will become an iconic attraction for Sacramento on the order of other well-known science centers.
- The facility will attract technology employers looking for real-world science and technology applications and an educated population.

What will it feature?

- Four stories of interactive, hands-on science, space, robotics, and environmental exhibits.
- Science labs, archeological digs, wildlife shows, and traveling exhibits
- 150-seat planetarium
- Expanded Challenger Learning Center
- Riverside restaurant, café, and roomy bookstore & gift shop

PLEASE VISIT OUR WEBSITE: WWW.POWERHOUSESCIENCECENTER.ORG



SACRAMENTO BUSINESS JOURNAL

EL DORADO PLACER SACRAMENTO YOLO

Friday, September 24, 2010

Work on Powerhouse Science Center begins

KELLY JOHNSON | STAFF WRITER

The \$50 million Powerhouse Science Center finally will get some on-site action.

Long in the works, the project to convert the former Pacific Gas & Electric Co. power plant on the Sacramento River into a destination science center is moving from behind-the-scenes preparations to actual work on the property.

PG&E workers will begin removing power lines Sunday, and then on Wednesday, will start removing the large towers that hold the wires. This work — the first on-site work the public can see — is “definitely significant to us,” said Michele Wong, interim executive director of the Powerhouse Science Center. “Everything that’s happened to this point has been in the background.”

The removal work moves the project set to open in 2013 — to the next stage and shows the public “it really is happening,” Wong said. Construction is set to start in a year.

Meanwhile, project organizers continue



PG&E workers on Sunday will begin removing power lines from the old powerhouse on the Sacramento River.

NOEL NEUBURGER
SACRAMENTO BUSINESS JOURNAL

building their base of financial support. The project has 30 founding partners, most of which are corporate donors, that have committed \$25,000 to \$200,000 for the \$3 million needed for pre-development work. So far, \$2.2 million has been raised. When the project gets to the capital campaign

phase, those donors have agreed to contribute again.

In addition, several grant proposals have been submitted toward the goal of raising \$30 million in local, state and federal funds.

POWERHOUSE | PAGE 28

POWERHOUSE | Science center will join historic building with two new structures

FROM PAGE 2

To be eligible for public funding, the project needs to be shovel-ready. Total project costs are \$50 million.

The Powerhouse Science Center will be created by renovating the historic building and constructing two buildings, for a collective space of 42,000 square feet. The center will feature 24,000 square feet of exhibit space, a 150-seat planetarium, a restaurant with riverfront views, meeting and classroom space, outdoor cafe, gift shop, outdoor stage and outdoor exhibits.

Located off Jibboom Street near Robert Matsui Waterfront Park, it will replace the Discovery Museum at 3615 Auburn Blvd. That 10,000-square-foot building provides 4,000 square feet of exhibit space and a 60-seat planetarium, which is the region's only public planetarium.

The current location attracts almost 80,000 visitors a year, of which 60,000 are school kids, Wong said.

The Powerhouse Science Center is seen as a catalyst for redevelopment and continued revitalization of the surrounding areas, including the railyard, Old Sacramento and the River District, said Jennifer Witz, administrative analyst for the

Powerhouse Science Center

Expected opening: 2013

Estimated cost: \$50 million

Amount raised for pre-development: \$2.2 million

Developer: Carson Development Co. Inc.

Contractor: Otto Construction

Location: Off Jibboom Street near Robert Matsui Waterfront Park

Founding partners include:

- Carson Development
- Clean World Partners
- Synergex International Corp.
- Aerojet

- Wells Fargo
- Morgan Family Foundation
- Dreyfuss & Blackford Architects
- Kiefer Consulting
- Hewlett-Packard Co.
- Intel Corp.
- IBM Corp.
- Social Venture Partners
- Allergy Systems
- AT&T Inc.
- Armour Steel
- Drexel University
- Sacramento Municipal Utility District
- Pacific Gas & Electric Co.
- Sacramento County
- City of Sacramento

city of Sacramento's economic development department. Eventually, there will be a "great triangle of different community

amenities that people can go to," she said.

The center also is critical for maintaining a competitive work force, said Wong, also president and chief executive officer of Synergex International Corp. A variety of statistics show that California and the region are falling behind in science and math literacy while most of the fastest-growing occupations require a solid understanding of science.

The region needs the science center to supplement what schools offer in order to get students excited about going into science fields, Wong said.

"This is an economic development issue (and) a work force development issue," she said.

Wong is co-chair of the Powerhouse project with Warren Smith, CEO of Clean World Partners.

The project is a private-public partnership with the city, PG&E and the Powerhouse group. The latter has had an exclusive right to negotiate for the city-owned land since 2007. Since then, work has been proceeding on environmental documents, entitlements and plans for moving power, water and sewer lines. A lease agreement and memorandum of understanding will likely go to the Sacramento City

Council for approval in late summer next year, Witz said.

The Discovery Museum wanted to relocate to the site "primarily because of its location," Wong said. It's on the river. It's downtown."

The project "will help really enliven the area around the Sacramento River and create interest and connection," said Patty Kleinknecht, executive director of the River District. It will be "one of the key amenities for the district."

And it will fit well with the park master plan for the Robert Matsui Waterfront Park, Wong said.

The historic building will house permanent and traveling exhibits. One new building will contain the digital planetarium, theater and science center. The second new building will house a restaurant and education center.

Project leaders are shooting for Leadership in Energy and Environmental Design platinum certification. The center will showcase the green technology being developed in the region as well as the ways people can reduce their carbon footprint.

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Powerhouse Science Center Will Transform Historic Site into Region's Cutting Edge Educational Facility

Former Sacramento PG&E Power Plant Will Become Hub to Promote New Growth in Science, Math, Technology, Engineering, Space

SACRAMENTO, CA. – An innovative science center that will be located on the scenic banks of the Sacramento River takes a major step forward on Sept. 26 when PG&E crews begin dismantling conductor wires and power poles on the planned site for the Powerhouse Science Center.

Situated in the River District off Jibboom Street, the historic PG&E Power Station B was the first-choice location for the Powerhouse Science Center because the historic building's position on the riverfront is highly visible, creating greater awareness for the imaginative science facility.

A premiere Northern California science and space learning facility, the Center project is a unique public, non-profit educational institution that involves a partnership between the Powerhouse Science Center, PG&E, The City of Sacramento, and 28 other Founding Partners who have declared a commitment to the project.

In restoring and reusing this property that is now owned by The City of Sacramento, the Center will serve as a model for 21st-century experiential education in science, math, technology, engineering, and space, and be utilized as a field trip destination for pre-kindergarten to 12th grade students from throughout the region.

"The Powerhouse Science Center is a tremendous collaborative effort between many dedicated groups and individuals who are all playing a significant role in making this vision of a premier science education center become a reality," said **Michelle Wong**, Interim Executive Director for the Powerhouse Science Center. "Thanks in part to the graciousness of PG&E and The City of Sacramento, we're going to transform a historic Sacramento landmark into a cutting edge educational center, featuring a museum, planetarium, restaurant, and conference center."

PG&E is volunteering to remove the wires and the 220-foot high towers, an effort that will save the Powerhouse Science Center an estimated cost of \$860,000. Removal of the wires and towers may take more than two weeks.

The Center will preserve the original structure and architectural features of the Power Station in full accordance to its 1984 listing on the National Registrar of Historic Properties and the California Register of Historic Resources. The Powerhouse Science Center will embody the principles of brownfield reuse and be an exemplary “green” building that serves as an environmental teaching lab that inspires the next generation of scientific innovators.

PG&E’s Power Station B officially ceased operations in 1954 and at various times has been under ownership of the Department of Transportation – for the construction of I-5 – the Department of Parks and Recreation, and the City of Sacramento. In 2008, the Discovery Museum Science & Space Center entered a long-term lease agreement with The City of Sacramento for control of the property and rights to build their new home – the Powerhouse Science Center.

The Center, which will cost an estimated \$50 million, has nearly completed its pre-construction phase. The project is scheduled to be completed in 2013.

“We have owned this site for more than eight years, hoping to restore it to its former glory,” Sacramento Mayor **Kevin Johnson** said. “We have an opportunity to not only reconnect to our waterfront but offer an innovative educational facility that will garner broad appeal.”

The Powerhouse Science Center will serve as a public forum, showcasing the latest scientific discoveries in a venue that is accessible to the entire family. The Center will highlight the scientific achievements of the Sacramento region, the latest developments in medical science and technology, and the fundamentals of resource conservation.

The Powerhouse Science Center will include:

- Generous exhibit space for current and traveling exhibits
- Science laboratories and classrooms
- 150-seat full-dome planetarium
- New Challenger Learning Center
- Robotics exhibit and lab
- Environmental exhibits
- Outdoor stage and screen
- Cafe with outdoor seating
- Restaurant with riverfront views
- Spacious entry, reception, event and meeting areas
- Bookstore and gift shop
- Auto and bus parking areas

For more information on the Powerhouse Science Center, email info@PowerhouseScienceCenter.org or call 916 853-0343