
**Solar Development Group
Department of Water and Power
City of Los Angeles**



***Renewable Portfolio Standard
Solar Generation Component***



August 2009

Los Angeles Department of Water Power (LADWP) Policies

- **Greenhouse Gas (GHG) Reduction Goals:**
 - *LADWP Plan: Reduce GHG emissions to 5% below 1990 levels by 2012 while implementing energy efficiency programs to reduce demand by 10% to meet 2020 goals.*
 - *Green LA Plan: Reduce GHG emissions to 20% below 1990 levels by 2010 and to 35% below 1990 levels by 2030.*
 - *Mayor's Plan: Deliver coal-free energy to customers by 2020.*
 - *AB32 directs Air Resources Board (ARB) to develop a statewide comprehensive plan to reduce GHG emissions to 80% below 1990 levels by 2050.*
 - *SB1368 requires new or upgraded electric generation facilities and contracts to be at least as clean as a combined cycle.*
- **Renewable Portfolio Standard (RPS):**
 - *Mayor's Plan: Energy sold to LADWP customers include 20% renewable resource by 2010 and 40% by 2020.*
 - *Contribute to RPS, diversify fuel, hedge against fuel cost volatility, and hedge against environmental mitigation costs.*
- **Integrated Resource Plan:**
 - *LADWP plans to assure adequate resources to meet customer energy needs.*
 - *Incorporates strategies to meet GHG, RPS goals, and integration requirements.*

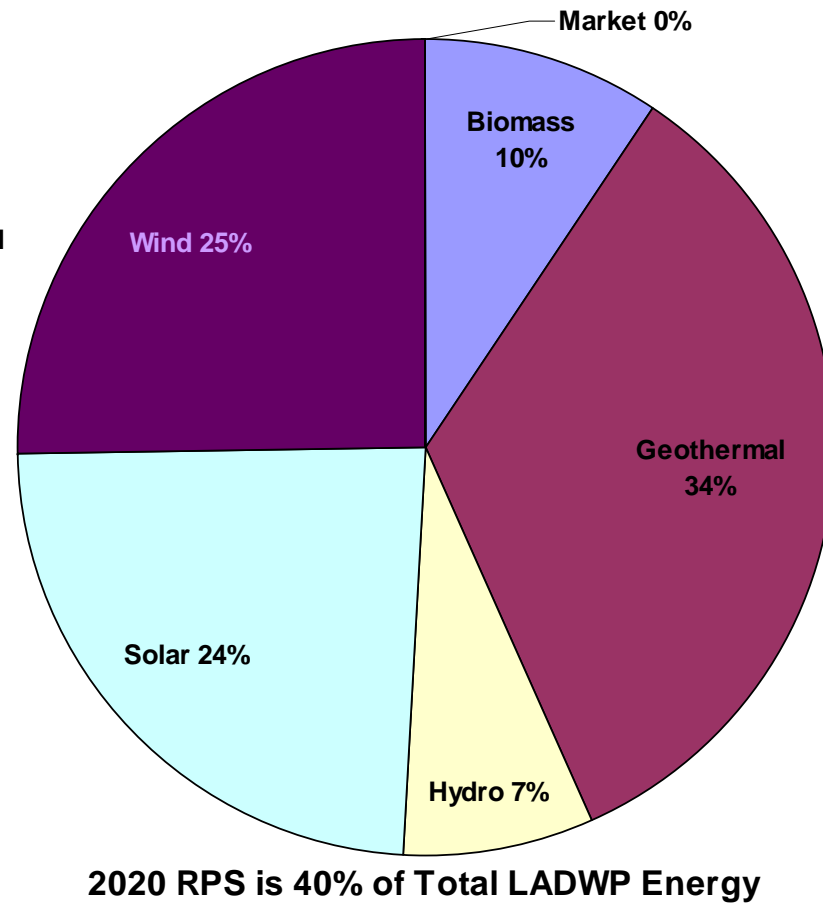
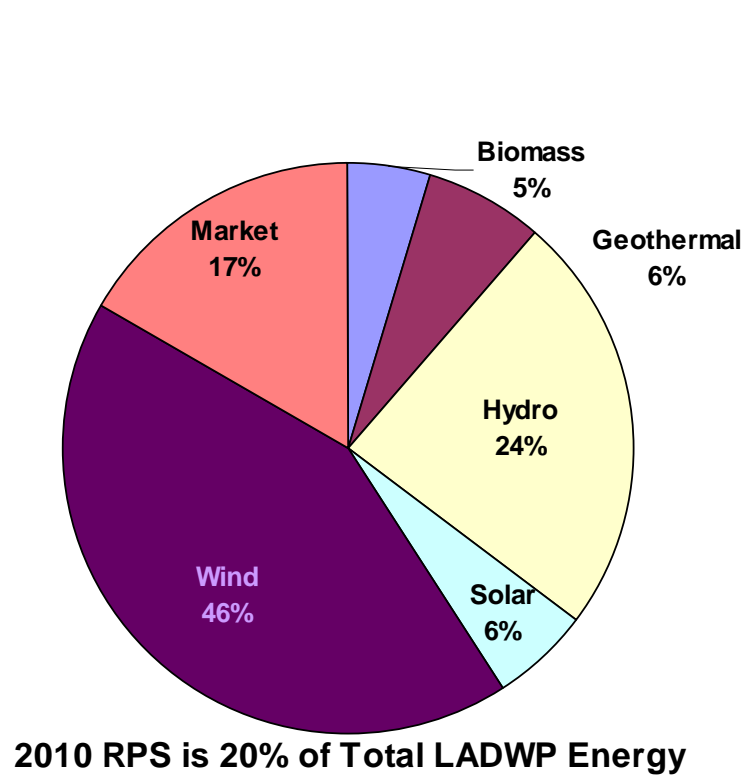


Solar Policy Objectives

- Enhance power system reliability.
- LADWP is a fully integrated utility, with a successful history of building, owning, and operating a majority of its generation resources.
- Minimize customer rate impacts through economies of scale, testing multiple strategies, and deployment of most cost effective strategies.
- Promote technological innovation and competition among solar providers.
- Foster local economic development by creating jobs, cluster businesses, and economic growth.
- Prioritize development of distributed solar generation to reduce impacts on transmission and distribution infrastructure.
- Implement a sustainable solar program from a labor, financial, and economic development perspective.
- Integrate the solar component into the overall RPS strategy, including operation and transmission requirements.
- Optimize the shareholder input in the solar program.



RPS Goals for 2010 and 2020



* Projected portfolio subject to revisions according to performance of individual components and revised load projections.

Solar Benefits

- **Solar investment is a hedge against fossil fuel costs.**
- **Provides peak energy.**
- **Potential for steady local manufacturing and job creation.**
- **Significant incentives and tax credits available.**
- **Solar capacity is scalable – able to ramp-up capacity incrementally.**
- **Southwest region of the United States has an abundant supply of solar resource.**
- **Solar has a lower utility integration cost compared to other intermittent renewable energy resources.**
- **Up front capital investment with lower maintenance cost.**



Solar Benefits (continued)

Photovoltaic (PV):

- **Simple, reliable, distributed, versatile, and easily deployed.**
- **Minimal water required and very little maintenance.**
- **Solar decommissioning is simpler, quicker, and has less environmental impact.**

Roof mounted PV:

- **No transmission costs or line losses.**
- **Architectural benefits.**
- **Can extend roof life.**
- **Keeps roofs cooler, thereby decreasing air conditioning load.**
- **Customers are familiar with technology and can directly participate to produce solar energy.**
- **Customers impacted less by rising energy rates.**



Solar Program Components

Solar LA Program

Program	2010 Capacity Mega Watts (MW)	Brief Description
Utility Built	50 (DC)	LADWP will install utility-scale solar projects using local labor (target 400 MW).
Sunshares (Community Projects)	1 (AC)	Enables ratepayers to participate in community solar energy development
Large Scale Power Purchase Agreements (PPA)	75 (AC)	Long-term PPAs with solar developers, including an option for LADWP to own the project.
Feed-In-Tariff (FIT)	7 (AC)	Allows third party solar power providers to sell energy to LADWP (distribution grid connected). Provide tariff based on the cost to provide solar PV and avoided transmission and distribution costs.
Solar Incentive Program	27 (AC)	Encourage ratepayers to install solar systems to supplement their own utility purchases.

*Installed solar capacity will produce approximately 2,485 Gigawatt hours (GWh) (1280 MW nameplate capacity) per year by 2020, which represents 9.6% of LA's total energy needs.



Utility Built Implementation

Recent Activities

- **Property Review:**
 - *Extensive properties reviewed.*
 - *Developed a ranking tool to prioritize properties to focus development efforts.*
- **Detailed Engineering Development:**
 - *Developed resource loaded schedules for each property type: small roof tops, large roof tops, parking lots, small open space, large open space, and extra large open space.*
 - *Identified critical issues.*
 - *Identified resource gaps.*
 - *Identified integration issues.*
- **Developing Communication Plan.**
- **Developed Sustainable Implementation Plan.**
- **Developed RFP for Materials Procurement (Phase I).**



Utility Built Implementation Financing and Tax Issues

- **Numerous tax benefits and subsidies are available for solar:**
 - *30% Federal Grant program.*
 - *Federal Investment Tax Credit:*
 - **Nearly 30% of the capital cost of a solar generation facility can be recovered in the first tax year after commercial operation.**
 - *Federal five-year Modified Accelerated Cost Recovery System (MACRS) schedule depreciation:*
 - **Allows nearly 85% of the capital cost of a solar generation facility to be fully depreciated in the first five years.**
- **State Tax Credit.**
- **For a typical solar generation project, over 50% of the total capital investment can be recovered in the first five years.**
- **Most of these benefits are not accessible by LADWP.**
- **It is important for utility built projects to have access to these benefits:**
 - *LADWP issued an Request for Proposal (RFP) for investment banking services for renewable energy projects.*



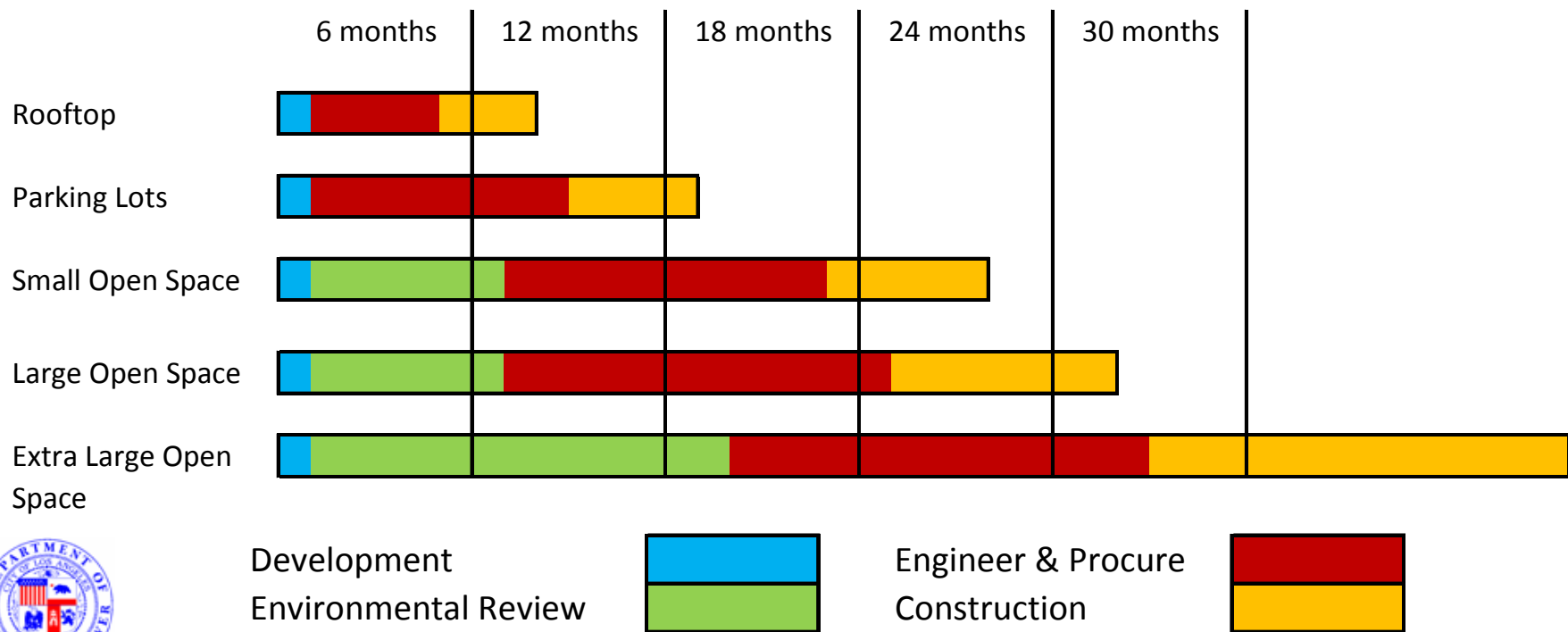
Utility Built Implementation Financial Resources

- **Cost estimate for program is based on LADWP's Financial Services Organization (FSO) internal analysis and other independent reports.**
- **The Solar program costs are included in the approved power system budget.**
- **Investment banking team will help access incentives not directly available.**
- **Complex set of transactions to complete project and meet the federal tax requirements.**
- **LADWP's FSO analyzed the impact of the proposed solar program along with other alternative renewable options.**
- **Incremental rate impact over LADWP's alternative renewables plan is calculated with 90% confidence to be less than 1%. This represents a \$1 per month increase on an average residential customer's bill.**



Utility Built Implementation Sample Schedules

- City owned rooftop properties targeted first.
- Environmental process key to timely implementation:
 - Programmatic exemption for rooftops.
 - Start initial studies early for open space.



Utility Built Implementation Construction Resources

- In order to get to 50 MW by 2010, LADWP will hire and train a labor force of approximately 500 by January 1, 2010.
- Hiring will continue and staffing levels could reach 1,200 by 2013 depending on results from project in 2010.
- Robust exempt labor force:
 - *Electrical Mechanic.*
 - *Electrical Craft Helper.*
 - *Utility Pre-Craft Trainee (new job class, comprising the majority of the construction workforce).*
- New Duties Description Record (DDR) in development for Utility Pre-Craft Trainee.
- Civil Service pipeline for exempt workforce.
- Supplemental contract for additional construction support provided by other labor organizations.
- Project backlog and well managed construction resources are key to keeping program costs low.



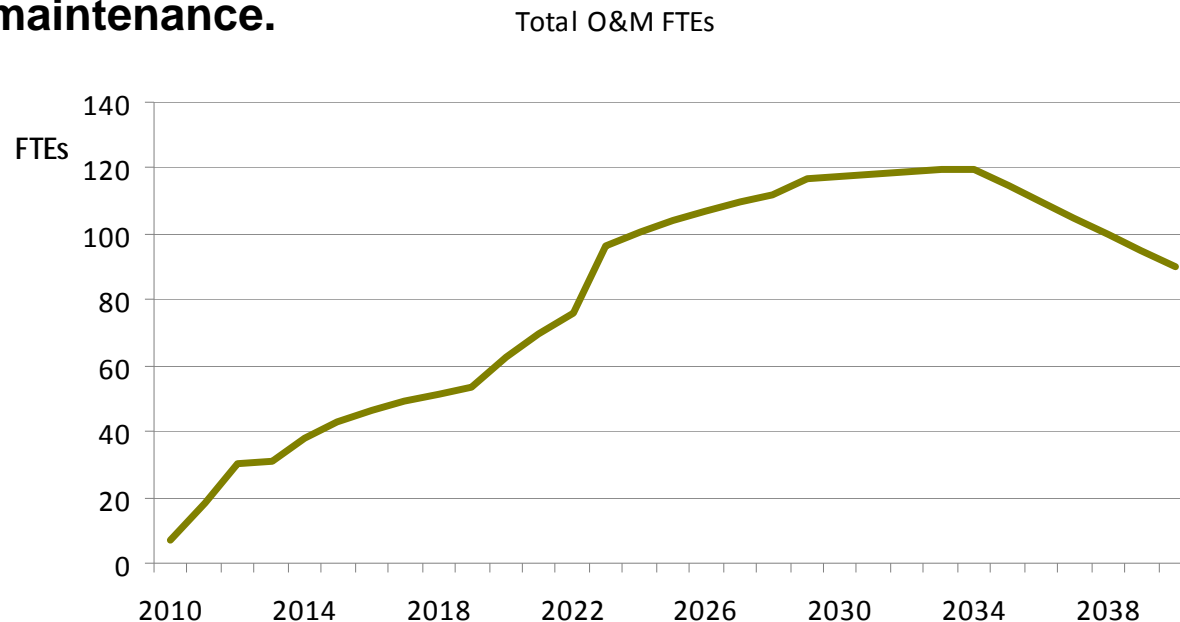
Utility Built Implementation Training Plan

- **Support training to provide job readiness, educational training, and physical training to support solar development.**
- **Collaborate with International Brotherhood of Electrical Workers (IBEW) Local 18, Joint Training Institute (JTI), and other established organizations to provide the necessary training.**
- **Develop new job classification to provide support for solar development.**
- **Continue the training program to support other programs.**



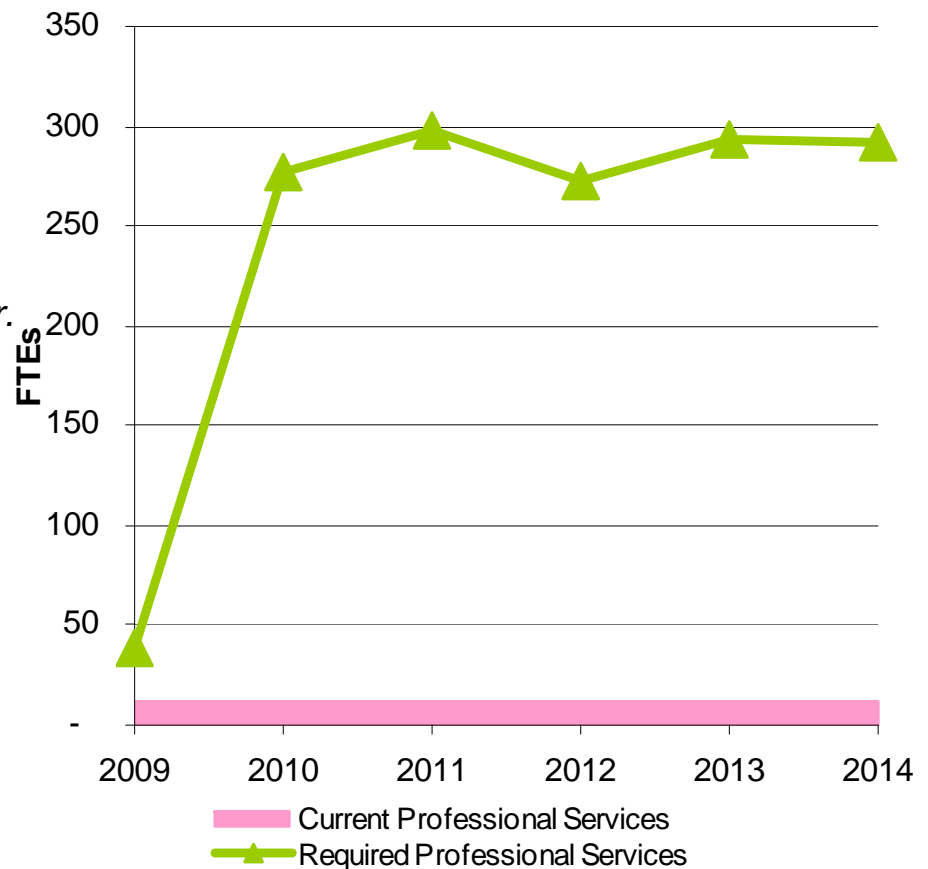
Utility Built Implementation Operations and Maintenance (O&M)

- System O&M requirements extend 30 years beyond system turnover date.
- Assume some rooftop systems will be removed once in 30 years for roof maintenance.
- Inverter replacements expected every 10 years.
- Sustained O&M staffing of 75 to 90 FTEs expected.
- Current crew of 10-12 is part time.



Utility Built Implementation Professional Services Resources

- **Development:**
 - *Site identification, feasibility, environmental, and negotiation of terms and conditions.*
- **Project Management:**
 - *Project coordination, scheduling, budgeting, and reporting after development through system turnover.*
- **Procurement:**
 - *Managing procurement activities.*
- **Engineering/Drafting:**
 - *Currently 1.5 engineers in resource development and 4 in engineering services.*
 - *Requires 8 project managers by November 2009.*
- **Other staffing needs include:**
 - *Site management, expediter, accounting, legal, environmental, economic development, and administrative.*



Utility Built Implementation Phased Approach

Phase I:

- **Professional Services Agreements:**
 - *Site development standards.*
 - *Environmental work.*
 - *Update standards and specifications.*
 - *Provide project management resources.*
- **PV Systems and Professional Services:**
 - *Advertised June 18, 2009.*
 - *Select firms November 2009.*
 - *Provides development and engineering services, and material and equipment procurement.*
 - *May support engineering and development staff at LADWP.*
- **Reallocate internal staff.**
- **Fill existing positions.**



Utility Built Implementation Phased Approach

Phase II:

- **Apply lessons learned from Phase I.**
- **Make use of standard designs for cookie-cutter installations.**
- **Explore economies of scale from bulk material purchasing:**
 - *Off take agreements to encourage manufacturing build-up.*
 - *Just in time material deliveries.*



Utility Built Implementation Benefits of Combined Approach

- Quick implementation of initial 50 MWs.
- Take advantage of private sector experience and innovation.
- Partnership will allow for greater in-house knowledge development and training.
- Standardized design development.
- Provide pipeline for additional experienced civil service staff.
- Develop project cost and schedule baseline.
- Implement design and construction efficiencies.
- Opportunity to implement LADWP's "Job Opportunities and Training Program (JOTP) ."



Utility Built Implementation Cost Review

- **Develop cost baseline during Phase I.**
- **Review actual costs with projected budget.**
- **Improve project costs through standardization and efficiencies.**
- **Update budget to reflect actual costs.**
- **Review with Board as necessary.**
- **Identify program changes and/or off-ramps.**



Feed-In Tariff

- **Allows third party solar power providers to sell energy to LADWP (distribution grid connected).**
- **Recent activities:**
 - *Reviewed existing programs internationally and nationally.*
 - *Participated in workshops.*
 - *Following legislation.*
- **Provide tariff based on the LADWP:**
 - *Cost to provide Solar Photovoltaic Power; and*
 - *Avoided transmission and distribution costs.*
- **Release sustainable quantity of MW over the term of RPS.**
- **May include an early buy-out option for host customer and/or LADWP to own the solar system.**



Solar Incentive Program

- **Encourage ratepayers to install solar systems to supplement their own utility purchases.**
- **Continuously review incentives in order to accommodate new tax benefits.**
- **Incentives set to state requirements and comparable to other utilities.**
- **LADWP is developing financing strategies:**
 - *Loans.*
 - *Financing districts.*
- **Customers will receive credit for excess energy generated from their solar systems.**



SunShares

- **Enables ratepayers to participate in community solar energy development.**
 - *Lease type arrangement that provides virtual net-metering benefits.*
- **Recent Activities:**
 - *Reviewed Sacramento Municipal Utility District (SMUD) program.*
- **LADWP built projects with tax equity investor backed finance mechanism.**
- **Consider allocating SB1 funds to partially subsidize local cost-effective projects.**



Economic Development

- **The Natelson Dale Group is developing an economic development strategy specific to solar with a potential to expand to other renewables.**
- **Economic Development Phase I – completed:**
 - *Identified 12 strategic objectives to build a solar industry “ecosystem.”*
- **Economic Development Phase II – next steps:**
 - *Revised/condensed twelve strategies to five.*
 - *More detailed research and analysis for solar PV value chain.*
 - *Evaluation of funding and financing options.*
 - *Recommend dynamic mechanisms for stakeholder outreach.*
 - *Detailed implementation programs for each strategy.*
- **Separate board presentation on economic development strategies for solar is being planned.**
- **LADWP staff is preparing an Ordinance to allow bid preferences for locally manufactured solar equipment.**



Local Business Preference Proposal

- **A proposal has been drafted that would provide incentives for Los Angeles County based businesses to bid on solar related goods and services**
- **Under this proposal:**
 - *Up to 10 points out of 100 points if the proposer is a responsive and responsible qualified local business.*
 - *One point for every 10% of work subcontracted out to a qualified local business. When the proposer is not a qualified local business a maximum of 5 points will be granted.*
 - *Up to a \$25,000 bid credit for the purchase of goods from a qualified local business.*
- **A Local Business would have to meet certain criteria:**
 - *Principle place of business located in Los Angeles County for at least one calendar year prior to bidding on solar related goods and services.*
 - *Compliance with all applicable city, county, and state laws regarding taxes and fees.*
 - *At least 25% of the workforce must be Los Angeles County residents.*



Q&A

