Huron
CONSULTING GROUP

Independent Assessment of LADWP Owned Solar Projects Per Measure B

February 2, 2009

Confidential Business Planning Document

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Los Angeles Solar Program Background

On November 24th, 2008, the Mayor of Los Angeles, Antonio R. Villaraigosa, released "Solar LA" – a solar energy plan to create a 1.3 gigawatt network of residential, commercial and municipally-owned solar energy systems designed to reduce energy emissions and grow the local green economy.

Challenge

Address LA's rising customer electricity demand, while reducing the environmental impact of carbon-based fossil fuels by shifting to renewable energy sources such as solar, wind, hydroelectric, biomass and geothermal.

Resolution

Harness Los Angeles' most abundant natural resource - the sun - through three primary components of the Solar LA energy plan:

- LADWP Owned Solar Projects
- Large-Scale Solar Projects
- Customer Solar Programs

LADWP Role

Bolster LADWP's solar energy production through five unique programs.

Los Angeles Solar Program Background cont'd

The LA Solar Energy Plan is comprised of five programs designed to develop 1,280 megawatts of solar energy plants by 2020. **This report is an exclusive evaluation of the 400MW LADWP owned solar projects program (Measure B).**

LADWP Owned Solar Projects – Measure B

- Goal: 400 MW by 2014
- Implementation of solar energy plants installed and operated by LADWP
- LA City Council approved motion to place this program on the March 3, 2009 ballot

Large Scale Solar Projects

- Goal: 500 MW by 2020
- LADWP will develop large scale solar energy plants outside of Los Angeles in locations with prime solar energy resources

Customer Solar Programs

Expand Residential Program

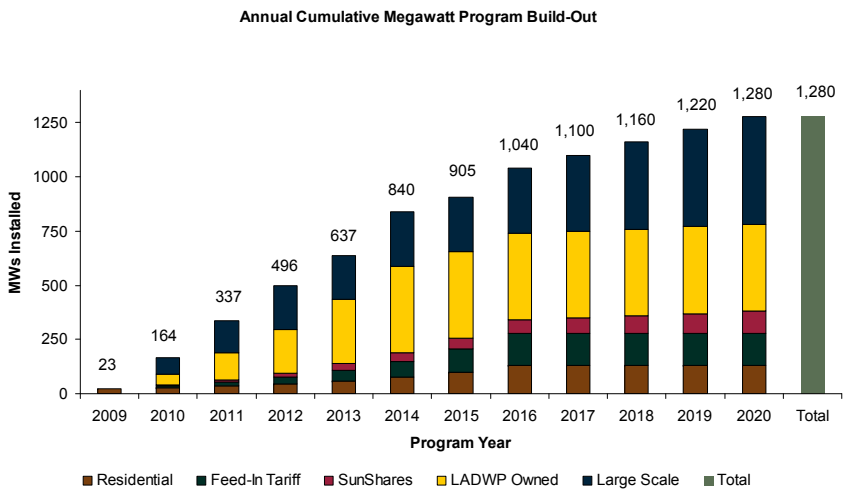
- Goal: 130 MW by 2020
- Customer Solar Incentive Program designed to offer financial benefits to customers who install and operate solar equipment at their home/business

New Feed-In Tariff

- Goal: 150 MW by 2016
- Commercial installations supported through a Standard Offer Power Purchase Agreement (SOPPA)

New SunShares Program

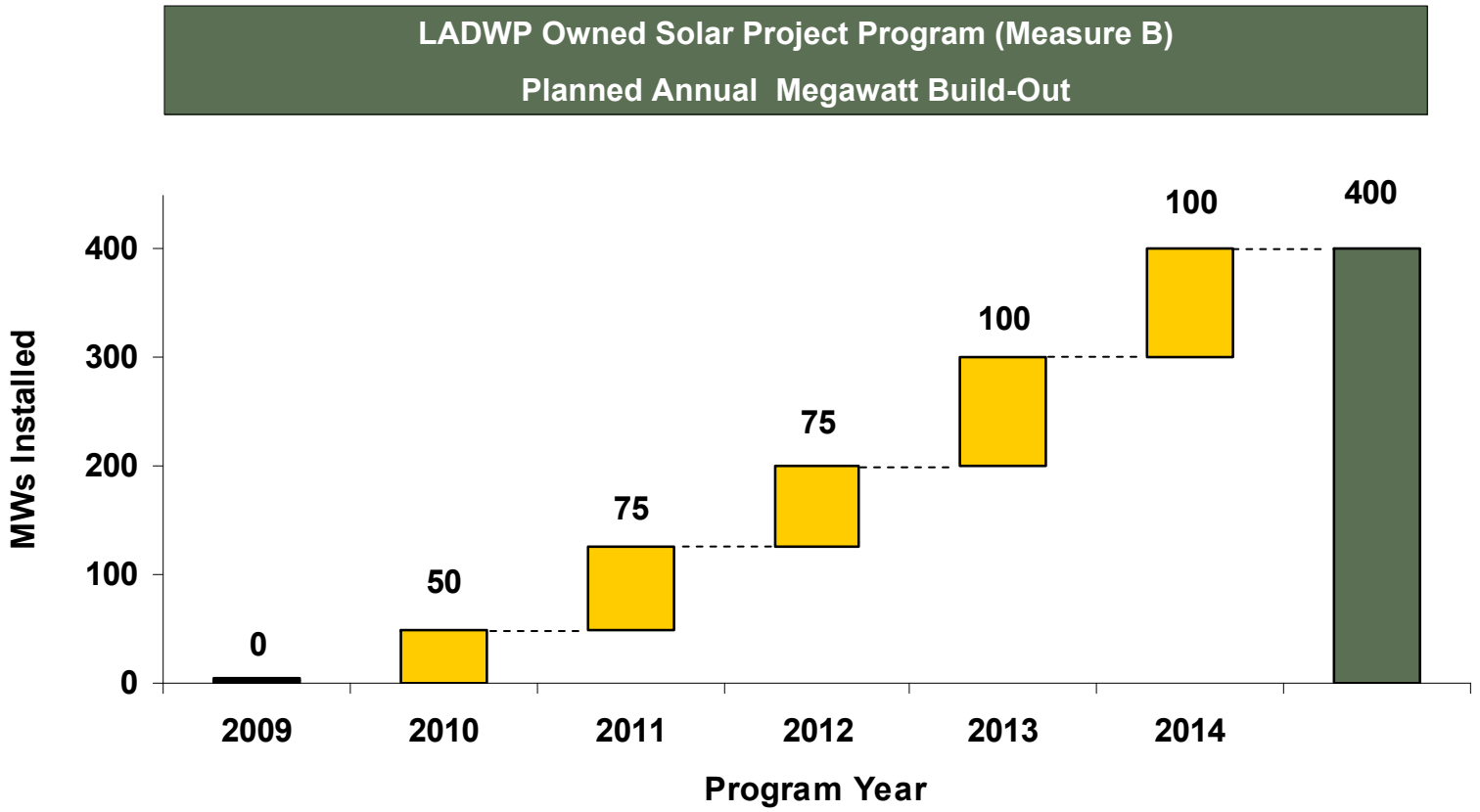
- Goal: 100 MW by 2020
- Enable broader customer participation by allowing customers to buy a share of a privately developed solar power facility



Source: Solar LA Plan, LADWP Solar Plan Whitepaper

Los Angeles Solar Program Background cont'd

The anticipated program implementation timeline for the LADWP owned solar projects is shown below.



Source: Solar LA Plan, Page 13

Project Objective and Approach

Huron was retained by LADWP to provide an independent assessment of the expected costs and incremental rate impact over the existing financial plan associated with implementing 400MW LADWP owned solar projects (Measure B).

Huron Analysis Areas	
Solar Industry Macro Analysis	Evaluation of the solar industry environment to understand historical cost trends and future state of the industry.
Cost Analysis	Analysis of expected program costs under various scenarios.
Value Drivers	Identification of key drivers of uncertainty likely to impact generation production cost and overall customer rate.

Project Scope

In performing this assessment, Huron conducted approximately 50 interviews, expended 450 hours of consulting time, and reviewed over 40 external industry and academic reports pertaining to solar industry outlook, to obtain a comprehensive understanding of the future outlook for the solar industry across key analysis areas.

Type of Firms	No. of Firms	No. of Interviews
LADWP	1	16
Manufacturers and Integrators	5	17
Tax Equity Specialists	4	7
Utilities Experience	4	6
Wall Street Analyst Perspectives	3	4
Huron Consulting Hours	~450	
External Industry and Academic Reports	~40	

- Future Outlook
- Solar Industry Macro Analysis
- Cost Analysis
- Value Drivers

Huron Methodology

Huron employed a fact-based Decision Analysis (DA) methodology to develop an analytical model to effectively capture uncertainties and provide a risk-adjusted method of understanding potential future costs.

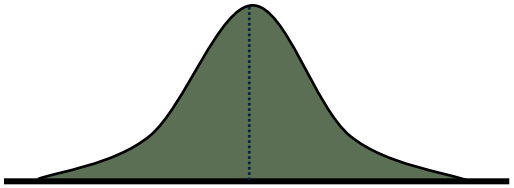
3 **Developed an analytical framework to accurately model the total cost of LADWP owned solar projects (Measure B).**

2 **Collected financial and operations data in key areas for analysis.**

1 **Conducted interviews and research to understand current-state and future outlook of the solar industry.**

4 **Understood the range of uncertainty for each variable in the analytical model through extensive research and interviews with industry experts.**

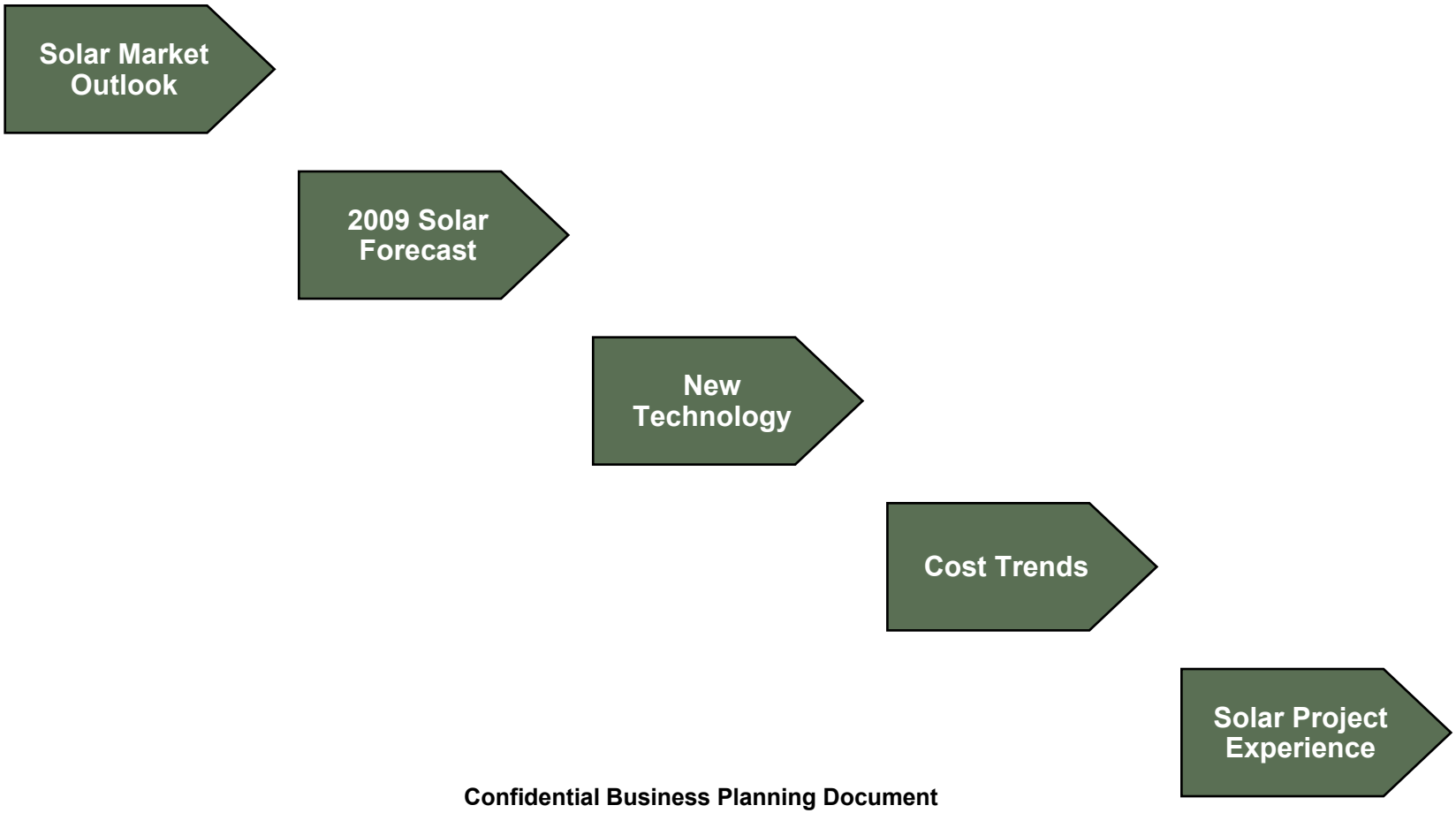
5 **Used state-of-the-art analytical techniques (Stochastic modeling) to calculate the expected cost of LADWP owned solar projects (Measure B).**



Illustrative – Stochastic Modeling

Interviews and Research Findings

Huron's research and analysis focused on the following key areas to understand "macro themes" through review of forward-looking information published in the last 90 days, interviews with various solar module manufacturers and integrators, discussions with Wall Street financial analysts from leading firms, and interviews with utilities with solar energy experience.



Interviews and Research Findings cont'd

The global solar market outlook is as follows:

- The solar industry has enjoyed rapid growth in recent years primarily due to generous subsidies in Germany and Spain. This is expected to change going forward.
- While Germany will continue to lead the international solar market in 2009, Spain's module consumption is forecasted to decline significantly due to a 500MW cap on the feed-in tariff policy versus the open-ended policy in place during much of 2008.
- Japan will likely be the second largest market after Germany.
- The US market is expected to rise to become the third largest solar market driven by the extension of Investment Tax Credits (ITC) and the emergence of the large-scale utility market. If the "Grant for ITC" idea becomes law, it is expected to stimulate the US solar market and increase solar project investment and development.

Sources:

(1) Barclays Capital, Solar Energy Research Report, January 12, 2009

(2) Collin Stewart, Independent Alternative Energy Research, January 12, 2009

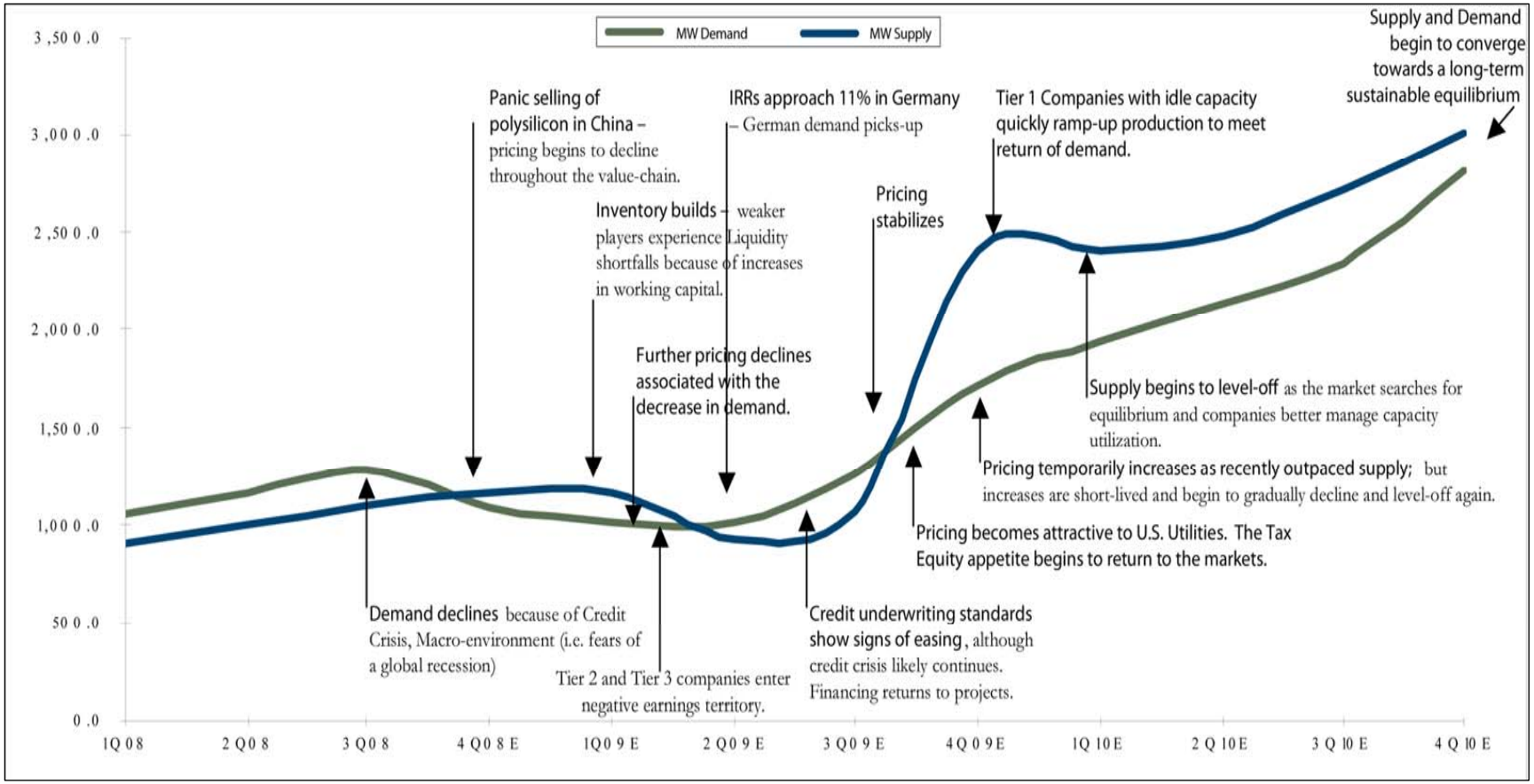
(3) Morgan Stanley Analyst Report, January 16, 2009

(4) Signal Hill Analyst Report, January 20, 2009

(5) Huron Interviews with Lazard, JP Morgan, US Bank, January, 2009

Interviews and Research Findings cont'd

2009 will be a difficult year for almost all players in the solar industry. The credit crunch and the macroeconomic environment, oversupply of modules and silicon, combined with the aggressive price cutting by some of the leading vendors in the space, will likely initiate the convergence of supply and demand placing pressure on costs to drop.



Source: Lazard Supply Demand Analysis, November 2008

New Technology

Interviews and Research Findings cont'd

Thin Film, considered a "second generation PV" technology, is expected to create more price competition in the solar technology market because of low material requirements and manufacturing efficiencies.

- Thin film technologies call for significantly less semiconductor material with some thin film products requiring less than 1 percent of the silicon used in traditional crystalline cells
- Low material requirements keep supply chains for thin film efficient
- Thin film can be manufactured using high-speed techniques – i.e. roll-to-roll printing processes

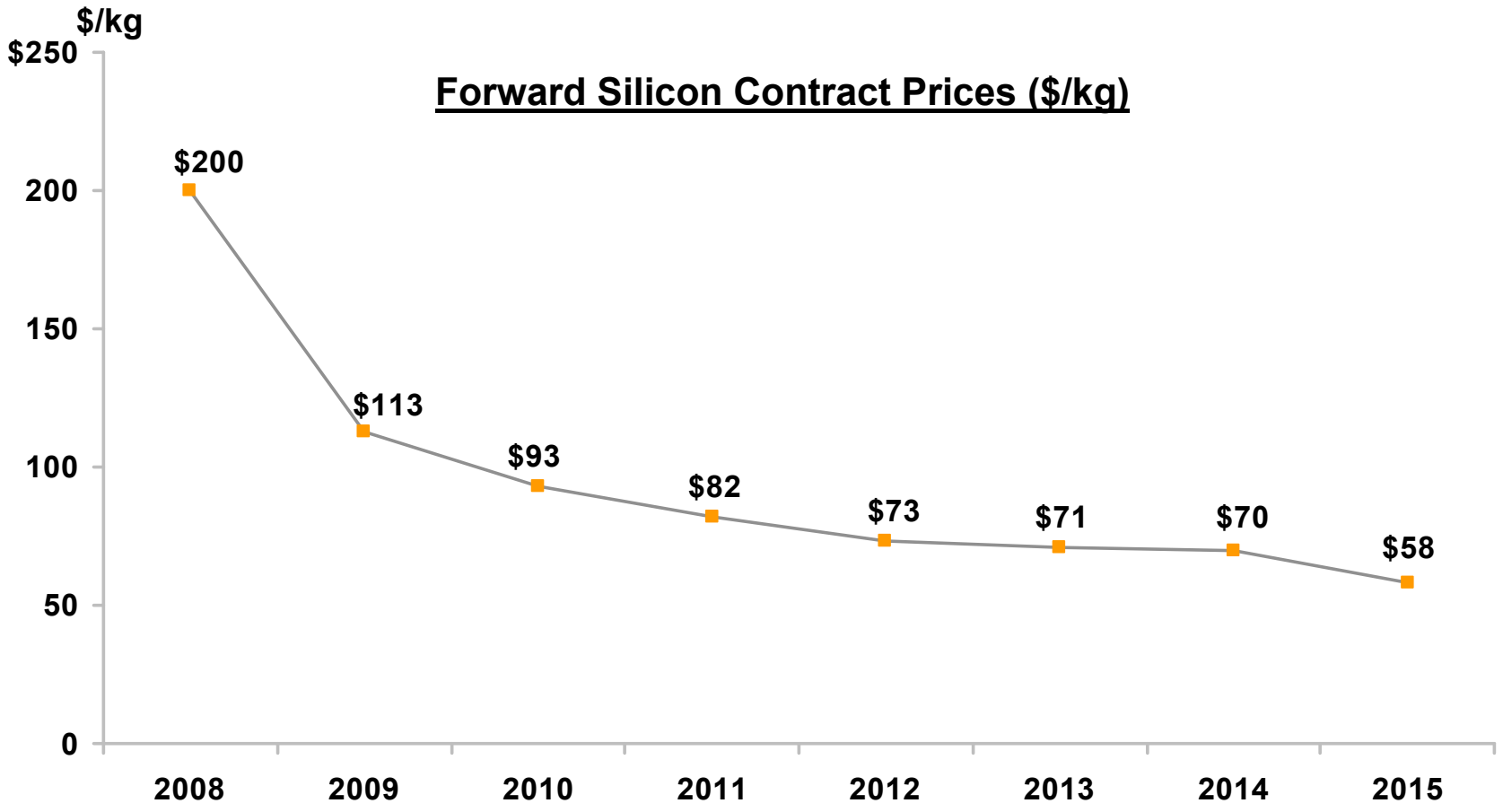
Observations

The realization of lower thin film manufacturing costs and scalability will put pricing pressure on traditional crystalline silicon PV technology manufacturers, who could be forced to reduce their pricing structures to remain competitive in the solar technology market.

Source: *Thin Film Technologies Changing the Solar PV Business* - Green Investor at InvestorIdeas.com, *PV Costs Set To Plunge for 2009/2010* – RenewableEnergyWorld.com

Interviews and Research Findings cont'd

Reduction in polysilicon prices are also contributing to changing industry dynamics



Source: New Energy Finance, Lazard Analysis

Interviews and Research Findings cont'd

Costs are forecasted to decline by approximately one-third over the next four years for all leading solar technologies due to improvements in manufacturing processes combined with economies of scale achieved through large scale implementation.

2007 Installed Cost per DC Watt

- $5.50 to $7.50 (1)

2008 Installed Cost per DC Watt

- $3.50 (2)(4)

Projected 2012 Cost Per DC Watt

Costs are anticipated to decline by 31 to 35 percent over the next four years for all leading solar technologies due to improvements in manufacturing processes combined with economies of scale achieved through large scale implementation implying a cost of $2.20 to $2.40 in 2012.(3)

Source -

(1) - Trends in Photovoltaic Applications Survey Report of Selected IEA Countries
(2) - SCE 2008 Application for Proposed Solar Program
(3) - JP Morgan Analyst Report, January 15, 2009
(4) - Cost confirmed by solar manufacturers

Key Drivers of Program Cost

Based on our analysis of various financial and operating information, and discussions with companies that have experience with solar projects, it was determined that the following factors would have the greatest impact upon the total calculated cost of the LADWP owned solar projects (Measure B).

- **Component Cost:** This includes the cost of modules and Balance of System (BOS).
- **Installation Cost:** This includes labor costs associated with installation.
- **Location:** The economics of a solar project are heavily influenced by the quality of sunlight available to the specific geographical site location used for the project.
- **Mounting Technology:** The term “insolation” is used in the solar industry to estimate the number of AC kWhrs that are produced for every megawatt installed. Insolation varies by site location, the type of PV technology used and the mounting technology employed – fixed or tilted. PVSyst is a program that is widely used and accepted in the industry to calculate kWh production.
- **Degradation Factor:** Unlike other traditional forms of power generation, solar generation degrades over time and there is a degradation factor associated with each type of technology.
- **Monitoring and Maintenance Costs:** These are costs for services that a vendor typically would provide to monitor and maintain the solar system on an annual basis.
- **Partnership Structure:** This refers to the public/private partnership structure that LADWP would want to consider to take advantage of Investment Tax Credits (ITCs) and the benefits of accelerated depreciation.

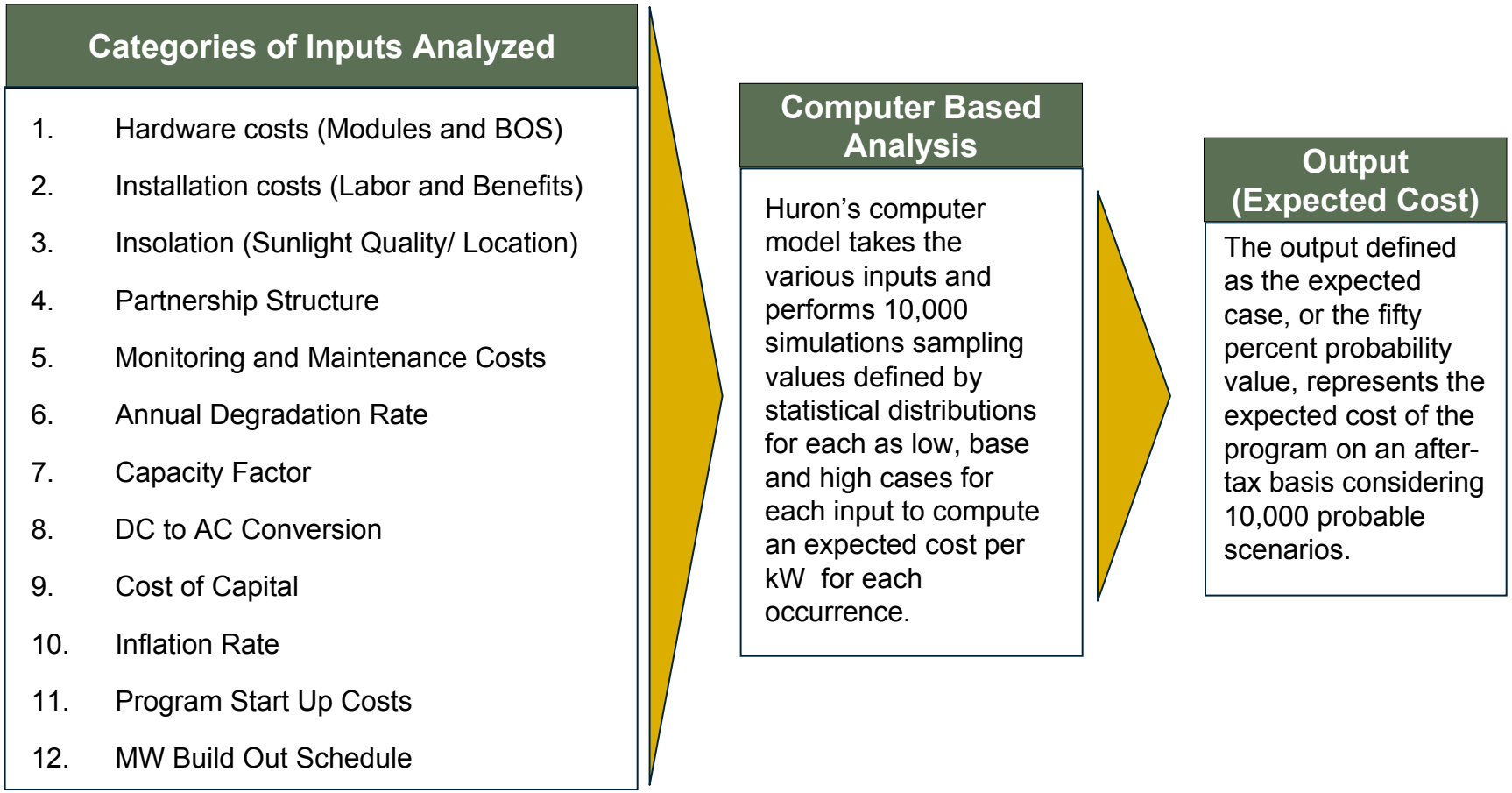
Uncertainty Drivers

While there are several variables that impact the ultimate cost of the LADWP owned solar projects (Measure B), the following five variables were determined to have a significant impact upon the total program cost. The table below shows the base case, range value assumptions, and the basis for the assumptions made by Huron.

Uncertainty Drivers	Description	Base Case	Range	Source
Hardware Costs	Module and Balance of System (BOS) costs per DC watt.	$3.70	$3.00 – $7.50	Estimates confirmed by multiple vendors considering scale, timing, and technology option. Labor costs represents approximately one third of total system costs. LADWP blended hourly labor costs and crew composition were analyzed and considered.
Installation Costs	Labor costs per DC watt.			
Insolation (Quality of Sunlight)	AC kW output can vary significantly with location and mounting technology.	1,950	1,680 – 2,310	Review of various solar technologies and potential sites. AC kW output for various technologies and mounting options obtained using appropriate measuring methods (i.e. PVWatts, PVSyst, PVGrid)
Partnership Structure	Decision of who LADWP partners with to take advantage of ITC and accelerated depreciation has a cost impact.	LADWP/ Partner Share (70/ 30%)	LADWP/ Partner Share (80/20 - 10/90%)	Discussions with multiple tax equity financial specialists about structuring options.
Monitoring and Maintenance (M&M) Costs	Costs per DC watt could vary significantly depending upon service coverage terms of M&M agreement.	$0.020	$0.016 - $0.034	Discussions with LADWP and vendors.

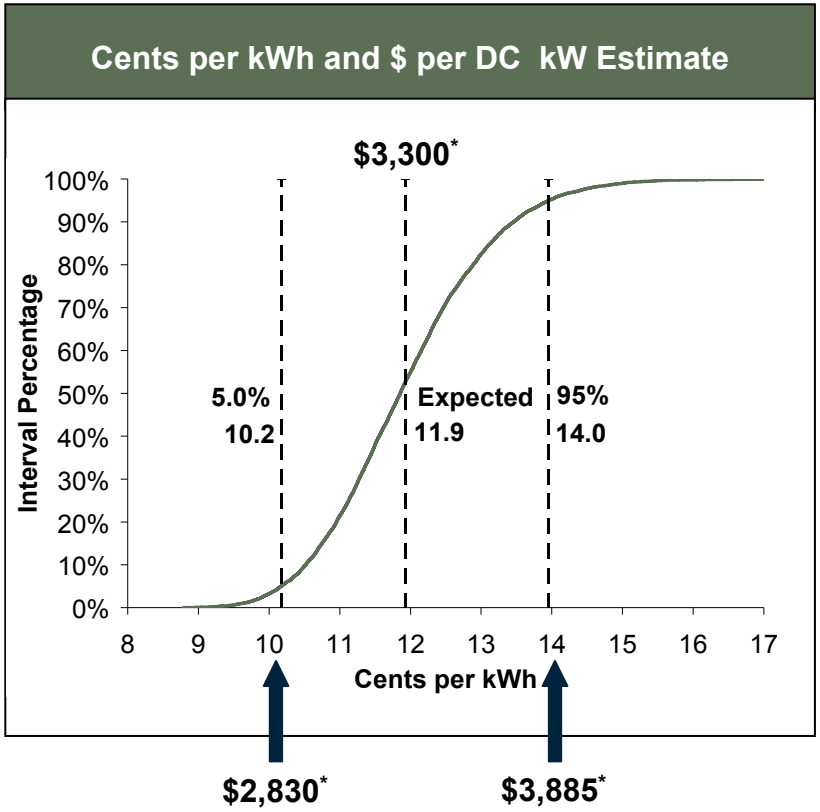
Stochastic Analysis Overview

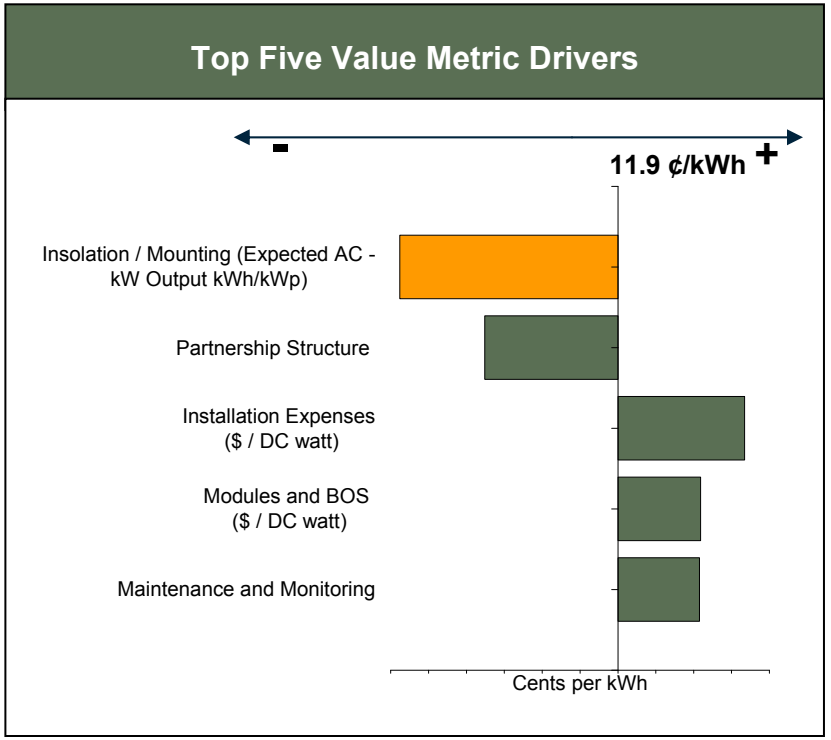
Recognizing the magnitude of uncertainties in the LADWP owned solar projects (Measure B), Huron employed stochastic analysis techniques to understand the full range of cost implications while modeling changes to various underlying factors.



Stochastic Results

Huron analysis, based on 10,000 simulations of varying inputs and multiple scenarios, generated an expected cost of 11.9 cents per kWh ($3,300/DC kW) with a total range from approximately 8.8 to 17.0 cents per kWh. The 90 percent confidence interval is calculated between 10.2 cents per kWh ($2,830/DC kW) and 14.0 cents per kWh ($3,885/DC kW).





*Note: Approximate Values in US$ per DC kW.

Program Cost Translation to Cents per kWh

The “Expected Case” is calculated to be 11.9 cents per kWh assuming an average solar system blended installed cost of $3,300 per DC kW.

Description	Results
Solar System Installed Cost (Panel + Inverter + Labor) per DC kW	**$3,300**
Solar System Installed Cost (Panel + Inverter + Labor) per AC kW	**$3,967**
Solar Production (1 kW annual production)	1,938
25 years Life expectancy Considering Annual Degradation (kWh)	48,439
Annual Solar Production with Degradation (kWh)	1,938
Annual Cost without any Incentives	$310
Dollar per kWh (Without Any Incentives)	**$0.1602**
Investment Tax Credit (ITC)	$1,190
Solar System Cost (After ITC credit)	$2,777
Annual Cost (After ITC Credit)	$217
Dollar per kWh (After ITC credit)	**$0.1121**
Present Value Straight Line 25 years Depreciation	$603
Present Value of Federal Accelerated Depreciation	$1,067
Net Present Value of Accelerated Depreciation Value	$463
Solar System Cost (ITC Credit + Accelerated Depreciation)	$2,314
Annual Cost (ITC Credit + Accelerated Depreciation)	$181
Dollar per kWh (ITC Credit + Accelerated Depreciation)	**$0.0934**
Public-Private Partnership	$2,947
Annual Cost	$231
Dollar per kWh	**$0.1190**

Total Calculated Measure B Program Cost

Assuming effective program oversight and implementation, Huron's stochastic analysis indicates an expected cost of approximately $3,300 per DC kW for the 400MW LADWP owned solar projects (Measure B).

This expected cost figure translates to a total program cost of approximately $1.3 billion dollars without considering tax benefits. The 90 percent confidence interval yields a total program cost range of $1.1 and $1.6 billion without considering tax benefits.

If tax benefits are considered, the expected program cost is calculated to be approximately $967 million dollars. The 90 percent confidence interval yields a total program cost of $817 million and $1.2 billion dollars, considering tax benefits.

Incremental Rate Impact Over LADWP's Existing Financial Plan

- Incremental rate impact over LADWP's existing financial plan associated with the expected case is calculated to be approximately one percent which translates to approximately one dollar monthly bill increase for an average residential customer.
- Incremental rate impact over LADWP's existing financial plan associated with the 90 percent confidence interval is calculated to range from 0.66 percent to 1.33 percent which translates to a monthly bill increase in the range of $0.90 cents to $1.05.

Note: Average Residential Customer is defined as a customer with monthly energy consumption of 500 kWh.

Conclusion

Assuming effective program oversight and implementation, Huron's stochastic analysis indicates an expected production cost for the 400MW LADWP owned solar projects (Measure B) is 11.9 cents per kWh generated. ***This translates to an incremental rate increase over LADWP's existing financial plan of approximately one percent*** depending upon the type of renewable generation resource displaced.

Huron Consulting Group Overview

About Huron

- Formed in 2002 with approximately 200 professionals. Today, over 1,600 professionals.
- Headquartered in Chicago with 15 offices in US, Europe and Japan.
- Publicly traded since October 2004.
- Conducted more than 2,500 client engagements.

Recognition

- Huron ranked No. 22 of *Business Week's* top 100 growth companies in 2007.
- Huron debuted at No. 43 to qualify for *Fortune*'s 100 Fastest-Growing Companies of 2008.

Utilities Consulting

- Huron's utilities practice assist clients to define and implement business strategy, improve market share and lower costs through:
  - Decision Analysis and Business Strategy
  - Regulatory and Litigation Support
  - Operations and Logistics Advisory
  - Sourcing and Supply Chain
  - Compliance and Audit Preparation

Representative Clients

Experience. **Redefined.**™