



China's Solar Initiative – First Solar Experience

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Overview



- Formed in 1999 and launched production in 2002
- **Largest thin-film module manufacturer in the world**
 - Annual manufacturing capacity in excess of 2GW
 - Announced capacity of 2.9+ GW by 2012
- **Lowest cost PV manufacturer in the world**
 - \$0.75/watt in 2010 Q4
- **Smallest carbon footprint and fastest energy payback**
- **First PV manufacturer to offer prefunded collection and recycling**
- **Ranked #1 by [Forbes Magazine](#) as the fastest growing technology company in 2009 and 2010**
- **Produced over 48 million solar modules that generate over 3.6 GW of power**

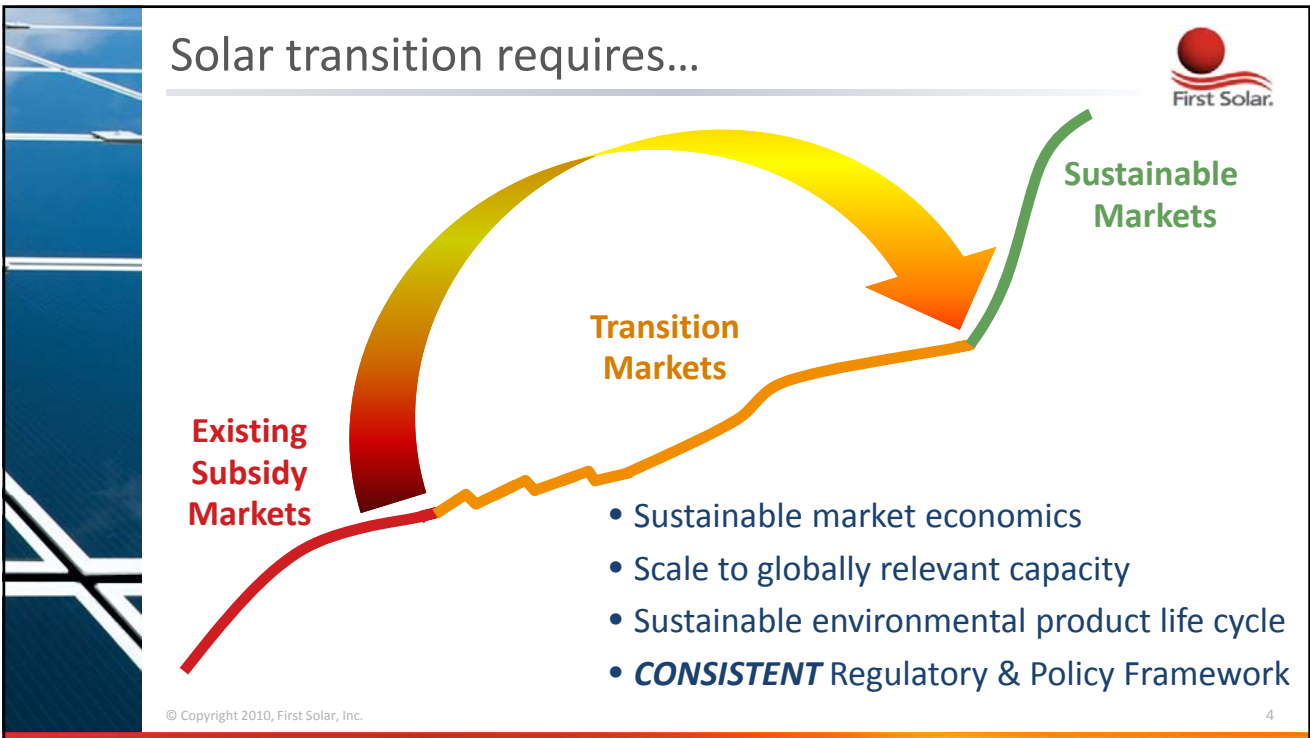
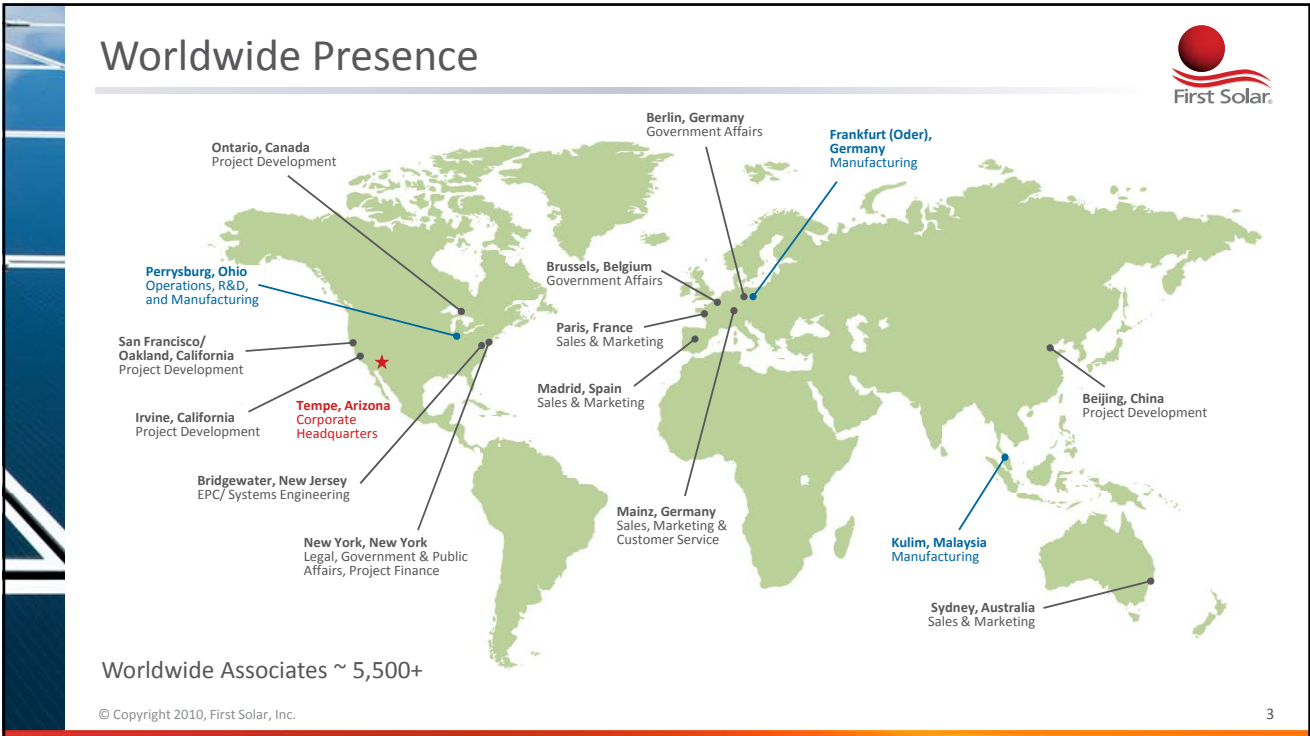


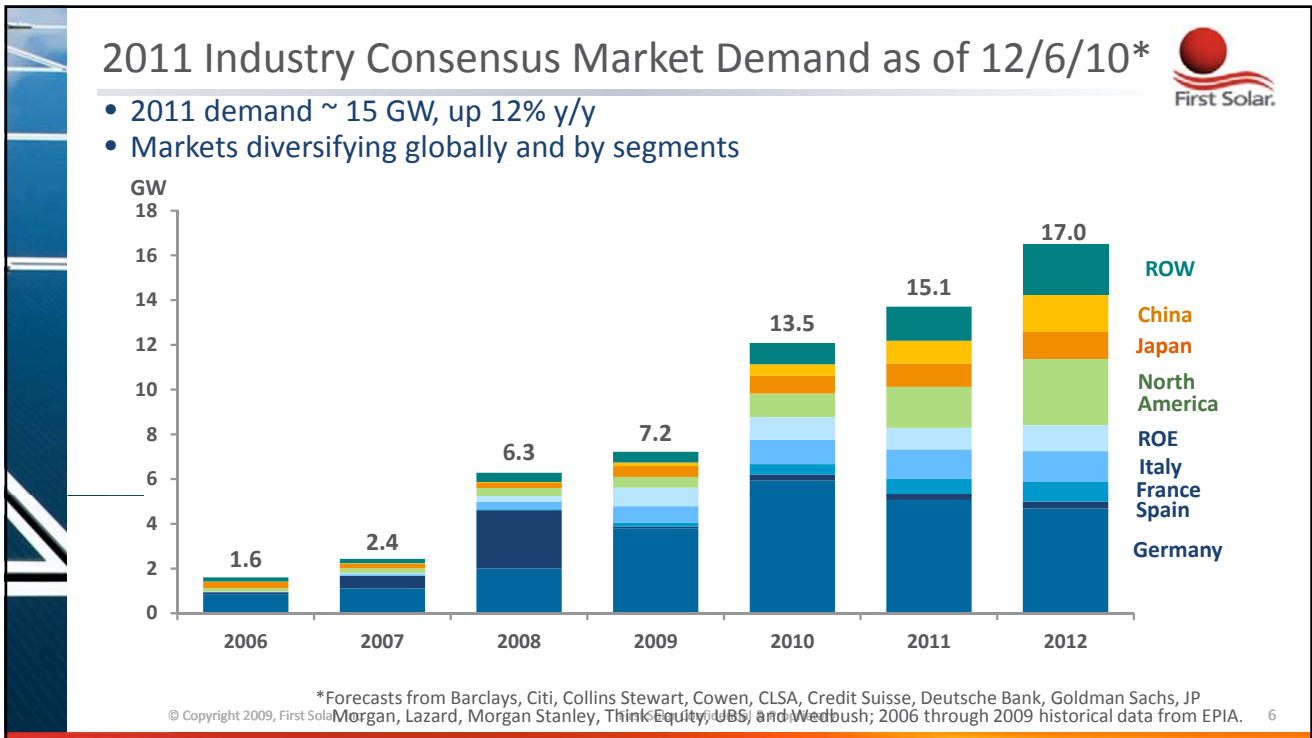
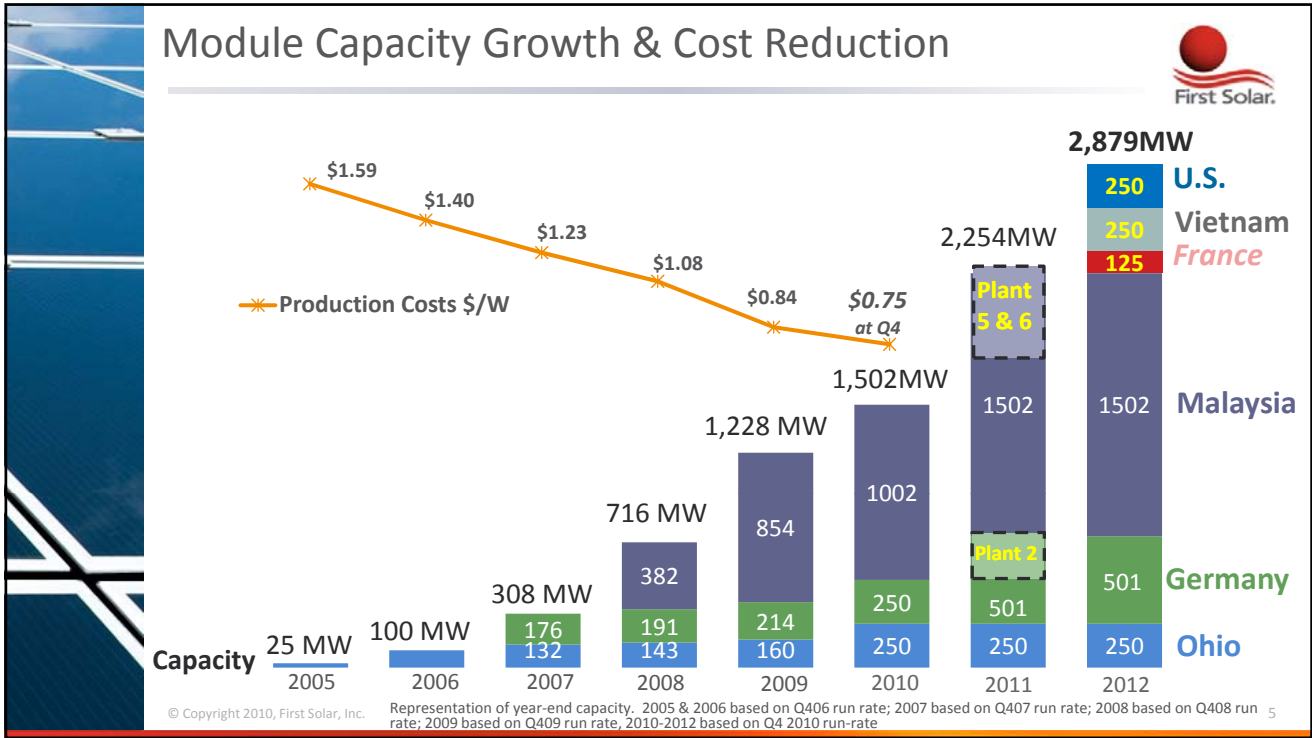
First Solar Headquarters, Tempe, AZ

Robust Track Record Built on Clear Vision and State of Art Technology

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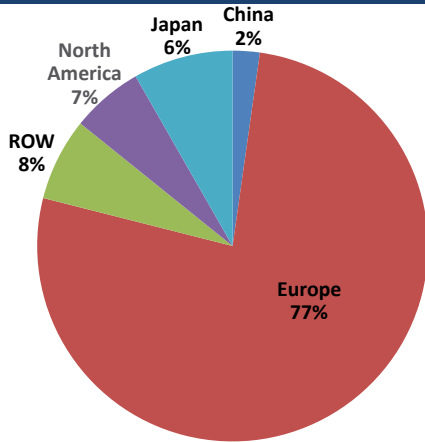






Feed-In Tariff Programs Are Effective

Rapid scale-up and improvement trajectories have been enabled by well structured market demand incentive programs



2009 Market: 7.2 GW

Why Feed-In Tariff Programs have worked:

- Guarantee access to the grid for renewable energy
- Oblige grid operators to purchase renewable energy
- Set RE price for long, fixed periods
- Establish multi-year, high volume markets
- Set rules for annual price degradation



Recent U.S. Federal Policies in the ARRA are Helping

- The Treasury Grant Program
- DOE Loan Guarantee Program
- Manufacturing Investment Tax Credit
- Interior Department's Fast Track initiative



First Solar Differentiation in China

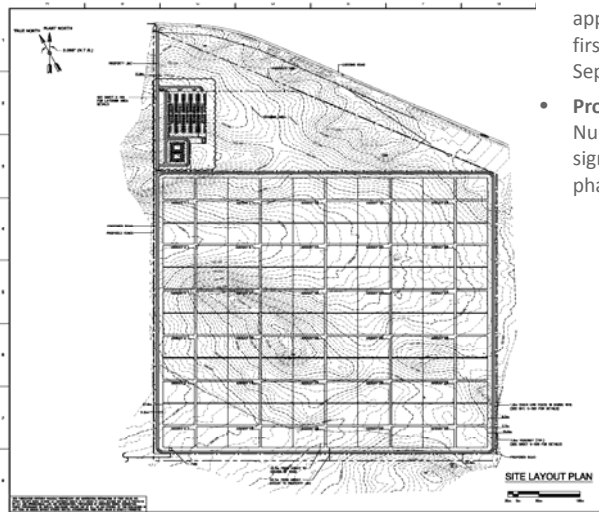


- More advanced technology and performance advantage
- Proven performance and reliability; ~4 GW of modules produced, installed and projects financed
- Proven ability to scale production; > 1.5 GW of capacity, expanding to 2.9 GW by 2012
- European system integrators and IPP partners, growing U.S utility relationships, growing China Genco relationships
- EPC and project development experience: transfer knowledge and experience to Chinese Genco partners
- US-China solar PV cooperation: the largest North American utility-scale project development pipeline, FS 2 GW MOU with Ordos City and other potential projects in China
- Industry's first comprehensive, pre-funded end-of-life collection and recycling program



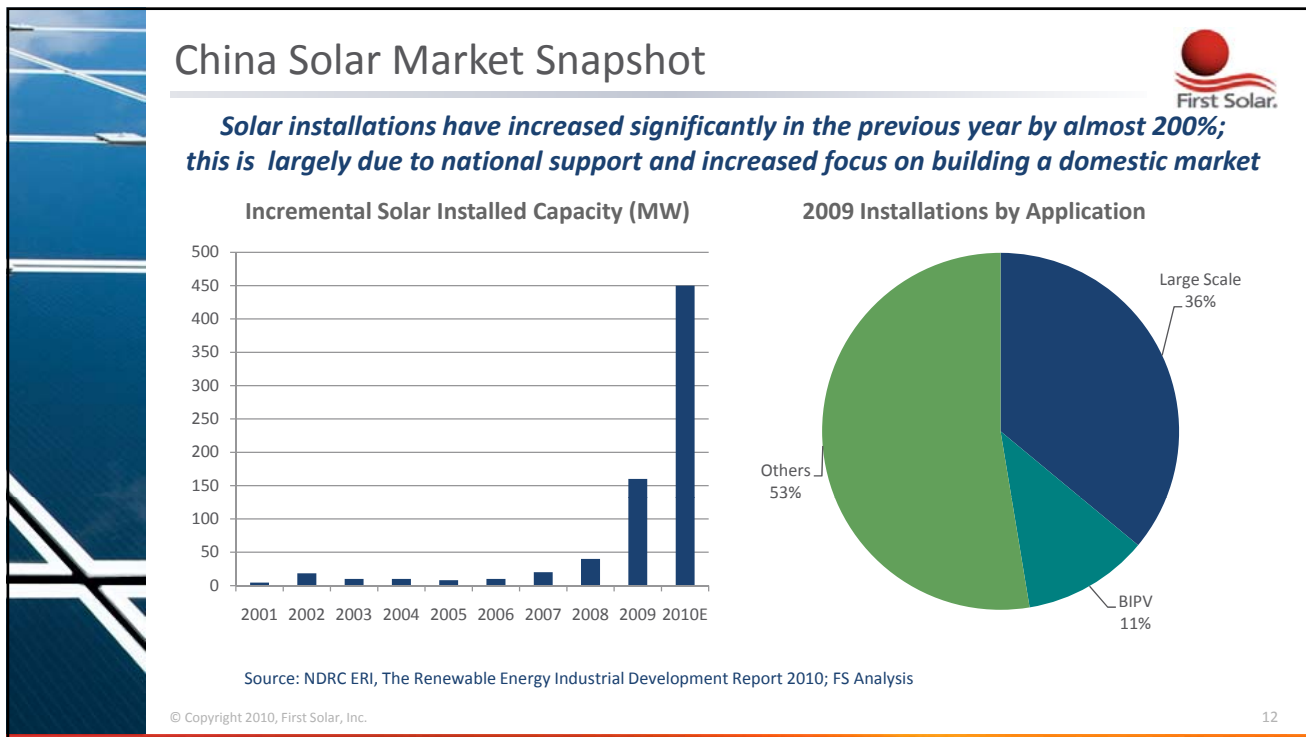
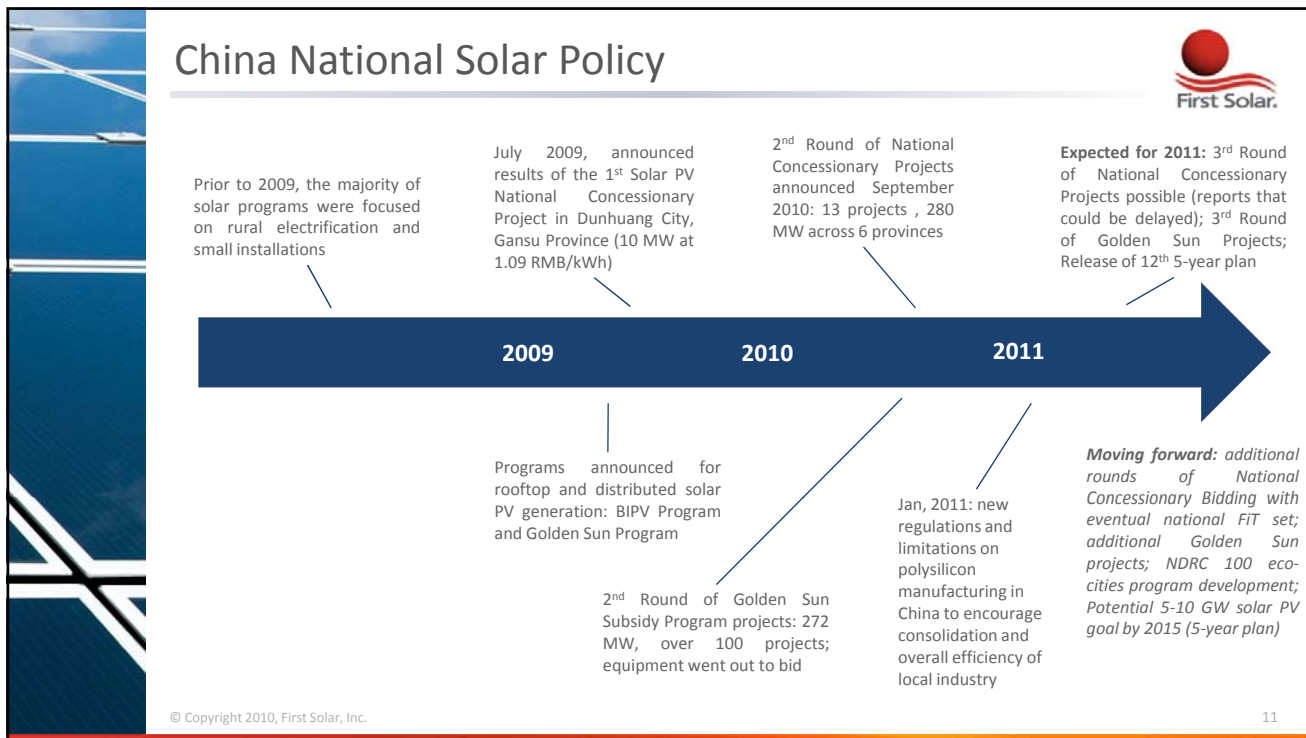
First Solar is focused on building a long-term presence in China, a key strategic transition market that will help move the solar PV industry towards sustainability


First Solar – Ordos Project Update




- **Pre-feasibility study approval:** First Solar received approval of the pre-feasibility study for the 30 MW AC first phase of the planned 2 GW AC Ordos project in September 2010
- **Project Partner:** First Solar and China Guangdong Nuclear Solar Energy Development Co. ("CGN SEDC") signed an MOU to jointly develop the 30 MW AC first phase project in January 2011








China National Solar Policy




China has effectively created two markets with separate policy programs: distributed/rooftop and large-scale PV

Distributed/Rooftop Solar PV	Large-Scale Solar PV
<ul style="list-style-type: none"> • BIPV Program <ul style="list-style-type: none"> – Administered by MoF, MOHURD and NEA, starting 2009 – Upfront project cost subsidy focused on rooftop and BIPV solar PV installations – Subsidy: <ul style="list-style-type: none"> – 2009: 20 RMB/w (BIPV); 15 RMB/w (rooftop) – 2010: 17 RMB/w (BIPV); 13 RMB/w (rooftop) – Subsidy will decrease annually; total of 91 MW constructed • Golden Sun Program <ul style="list-style-type: none"> – Administered by MoF, MOST and NEA, starting 2009 – Upfront project cost subsidy focused on distributed installations, no less than 300 kWp – Subsidy: 50% upfront project cost subsidy for on-grid; 70% upfront project cost subsidy for off-grid – Electricity generated is primarily for self-consumptions; surplus power bought at local market rate – 2009: 294 projects, total of 642 MW awarded; not clear how much of this has been built (39 projects/54 MW called off) – 2010: over 117 projects, 272 MW awarded <ul style="list-style-type: none"> – Bidding for equipment: c-Si modules, inverters and batteries 	<ul style="list-style-type: none"> • National Concessionary Bidding <ul style="list-style-type: none"> – Similar to wind, China has adopted a national concessionary bidding model for large-scale solar PV projects, located mainly in Western China – 1st Round: 2009 <ul style="list-style-type: none"> – 1 project: 10 MW, Dunhuang City, Gansu Province – Winning criteria: lowest price – 80% domestic content requirement – Winning bid: 1.09 RMB/kWh by China Guangdong Nuclear, Enfinity and Best Solar – 2nd Round: 2010 <ul style="list-style-type: none"> – 13 projects: 280 MW across 6 western provinces – Winning criteria: lowest price (see next slide for prices) – No domestic content requirement; Golden Sun Certification Requirement – Winning bids: under 1 RMB/kWh, average of 0.85 RMB/kWh; lowest at 0.7288 RMB/kWh – Reportedly likely to have a 3rd round of bidding in 2011 or 2012 • Projects outside of bidding will presumably receive a tariff equal to the lowest bid within the region from the most recent round of bidding • Likely 2-3 more rounds of bidding before the establishment of a national FIT structure similar to wind

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China National Development Plan (12th 5-year Plan)




- Solar Energy
 - Recent reports that will increase solar target in 2015 from 5GW to 10GW
 - 100 New Energy Demonstration City Project
 - Solar energy deployment will be featured in these developments/demonstrations
- Carbon Reduction Goal
 - 16% to 17% reduction from 2005 level in carbon intensity by 2015
- Renewable/Clean Energy Target
 - Many large state-own utility companies have set aggressive goal in renewable energy, such as China Power Investment Co. plans to invest 40% into clean energy
 - Other technologies, such as smart grid and electric car, are also going to be the priorities in the 12th 5-Year plan

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China Solar Policy Recommendations




- **National Feed-in Tariff:**
 - Concessionary bidding forces companies to bid below profitable levels; does not provide the industry with the long-term price guidance it needs to reduce its costs
 - Critical to adopt a transparent national feed-in tariff set at a level that allows the value chain to invest in technology and continue reducing costs
 - Such a tariff should enable reasonable returns and the participation of international project investors and suppliers
 - First Solar welcomes the joint study of tariff policy and where such a price should be set in China
- **Standards Development:**
 - China is currently developing a series of standards related to solar energy deployment, including grid integration, quality, safety, rooftop solar standards, etc.
 - Critical to ensure that such discussions regarding standards include the expertise and experience of global solar market participants to create effective, efficient and universal standards for solar deployment in China
- **Life cycle Assessment:** environmental benchmarks and standards to govern future expansion of the industry
- **Project Approval Process:** streamline project approval process based on project size
- **IP Protection and Investment:** Creation of a template for cross-border investment and IP protection
- **Interconnection:** identification and designation of specific areas or zones by the grid company for renewable energy integration
- **Tax Incentives:** tax rebates for renewable energy projects, i.e. re-institution of the VAT reduction for renewable energy projects

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Sustainable Value – Key Drivers



- **Stability** & Continuous improvement in regulatory/incentive framework
 - Market attractiveness and **stability** drives investments, supports development of a robust local value chain and creates sustainable growth
 - Legislative frameworks that allow industry cost digressions to filter through into lower FITs
 - Provide financing conditions that allow industry to mature and become sustainable quickly
 - Reduced permitting time, increased availability of grid capacity/interconnection
- **Strong Industry /government partnership in achieving sustainable markets**
 - Industry needs to actively work with policy makers to ensure regulatory regimes create long-term sustainable markets
 - Regional and local taxation regimes should be shaped on same national level targets supported by FiT programs or stable tax incentives
- Modules and balance of system cost reduction cannot drive to grid parity without cost of capital optimization
- Recycling programs key to environmental sustainability... Industry-wide

Continuity, Commitment, Financing Optimization... ALL REQUIRED

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Sustainable.
Global.