



*Harnessing the Power of the Future*

***SunShot Workshop***

***March 25, 2010***

# Key Factors Influencing Decision to Manufacture in US

- **Scale of Production Line**
- **Location**
- **Government Incentives**
- **Financing: Equity and Debt**
- **Corporate Partners**

# Scale of Production Line

- Different technologies have different sweet spots
  - Equipment throughput considerations
  - Capex (\$/W) considerations
  - Manufacturing Cost (\$/W)
  - Solexant sweet spot is 100MW scale for commercial production line that can be replicated to increase capacity to GW level
  - About \$100M is necessary to build the plant and fund the operating expenses until the high volume production launch

# Key Factors Influencing Location Decision

- **Close Proximity to R&D Facility**
- **Close Proximity to Pilot Manufacturing Line**
- **Ease of Technology Transfer from Pilot Line to Production Line**
- **Low taxes (preferably tax exemptions)**
- **Skilled but low cost labor pool**
- **Low cost electricity**
- **Low cost land and building**
- **Lack of regulatory burden**
- **Markets served (close to the customer)**
- **Low shipping cost**

# Government Incentives

- **Cash is king – need upfront cash**
- **Upfront cash grant is the best mode of incentive. This will help attract equity dollars which are extremely difficult to raise.**
- **Tax Credits such as 48C do not help start-up companies**
- **Cashable tax credits such as BETC in Oregon are more helpful but require significant equity be invested first to build the plant**
- **Government backed loans can help if they are structured properly**
- **Enterprise zones with tax exemptions are necessary**
- **Training grants**
- **R&D grants**

# Financing

- **\$100M total investment necessary for most solar companies**
- **\$50M incentives. \$50M equity + debt.**
- **Very difficult to get equity financing**
  - **Too late a stage for most VCs**
  - **Too early a stage for private equity investors**
- **Debt financing is extremely challenging for most startups**
  - **Start-ups do not have the necessary balance sheet strength**
  - **Banks do not lend**
  - **Government backed loans such as Oregon SELP are necessary but must be structured appropriately to provide cash when needed during the construction and ramp (not when profitable)**

# Corporate Partnership

- **Corporate partnerships are being used by some start-ups. Double edged sword. Some VCs like it but many don't.**
- **Asian based companies are much more active than US based companies in establishing such partnerships with start-ups.**
- **Utilities can be encouraged (or mandated) to invest in start-ups to set-up production lines.**