



HEAT'08 – Friday 28th November 2008, Cambridge

**Transparent Architectural
Photovoltaic Glazing**

POLYSOLAR LTD



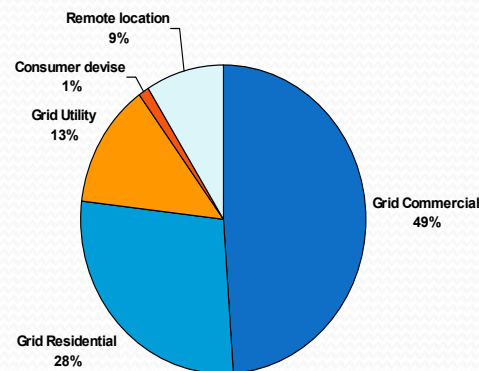
Polysolar - who we are

- Cambridge start-up; founded 2007; fund-raising now
- Aim to be the leading manufacturer and distributor of world's first transparent photovoltaic glass for building facades and windows – an unmet need
- Developing core platform of innovative low-cost photovoltaic processing technologies
 - Patented post-processing of off-shelf thin-film
 - Full manufacture of polymer organic PV modules
- Customers already & good supply chain relationships

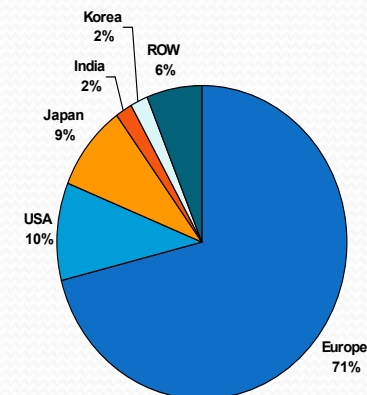
PV Market

- PV is one of the world's fastest growing industries - averaging 34% cagr for 30 years and 44% in past 5 years with doubling in 2008 alone
- Installed capacity was only 252MW in 2008, 3073MW in 2007 and some 5000MW in 2008
- Growth reflected in application shift. In 1997 only 8% PV was grid connected. In 2007 90% was grid connected
- Yet the opportunity is just touching the surface. Germany and Spain alone represent 70% of demand and Japan and California most of the remainder

2007 PV Application Breakdown



2007 PV Regional Breakdown



Market Developments

- PV market worth some €6bn in 2007 and projected to be worth €10bn in 2008 growing to €30bn by 2012
- Forecast for 2013 is \$100bn revenues and 23GW (Lux Research)
- Production doubled in 2008 and forecast to reach 29000MW in 2012
- Commercial investment in PV in 2007 alone has been €32bn rising 77% over the previous year
- Main drivers:
 - Energy Security
 - Fuel costs (grid parity within reach)
 - Global warming
- Market is driven by subsidies + there is scope for a crash
 - Feed in tariffs
 - Net Metering
 - Tax breaks
 - Regulation

BIPV

- Building Integrated Photovoltaics - the incorporation of photovoltaics in the structure of a building
 - Large existing available area (70% unique to Polysolar)
 - Onsite renewable power generation (Merton rule)
 - Substitutes for existing materials (glass façade)
- Nascent market worth €150m but growing at 33% pa
- Forecast to become fastest growing element of market



PV Technologies

- **Traditional photovoltaics based on crystalline silicon wafers (80+% of market)**
 - Durable & high efficiency (circa 15-18%) but high cost to manufacture
 - **New thin-film technologies (CIGs, aSi, CdTe)**
 - Lower cost, larger area but lower efficiency (8-12%)
 - **Third Generation Organic Photovoltaics (dye, nano & heterojunction polymers)**
 - Low cost material
 - Low cost ultra thin liquid deposition
 - Large area flexible substrates
 - Spectrum management/Transparent
- But
- Current low efficiency (5-8%) – DP factor ~100%
 - Current high degradation – improving fast



Polysolar's Technologies

- Photo-lithographic Process
 - Raising finance now for pilot manufacturing line
 - Patent-protected post-process
 - Mid-2010 product is a “tinted” window generating ~50Wp/m² with transparency ~30-60%
- Organic Photovoltaics
 - Awarded £1.2m collaborative project funding by TSB to develop large area manufacturing process – partnered with Pilkington; Linde; Sagentia; Imperial College
 - Targeting 2012 product based on cheap coating process & off-shelf materials



Thanks for your interest

Polysolar Limited,
Beech House,
Melbourn Science Park
Cambridge
SG8 6HB
Tel: +44 (0)1763 226560

michael.priestnall@polysolar.co.uk