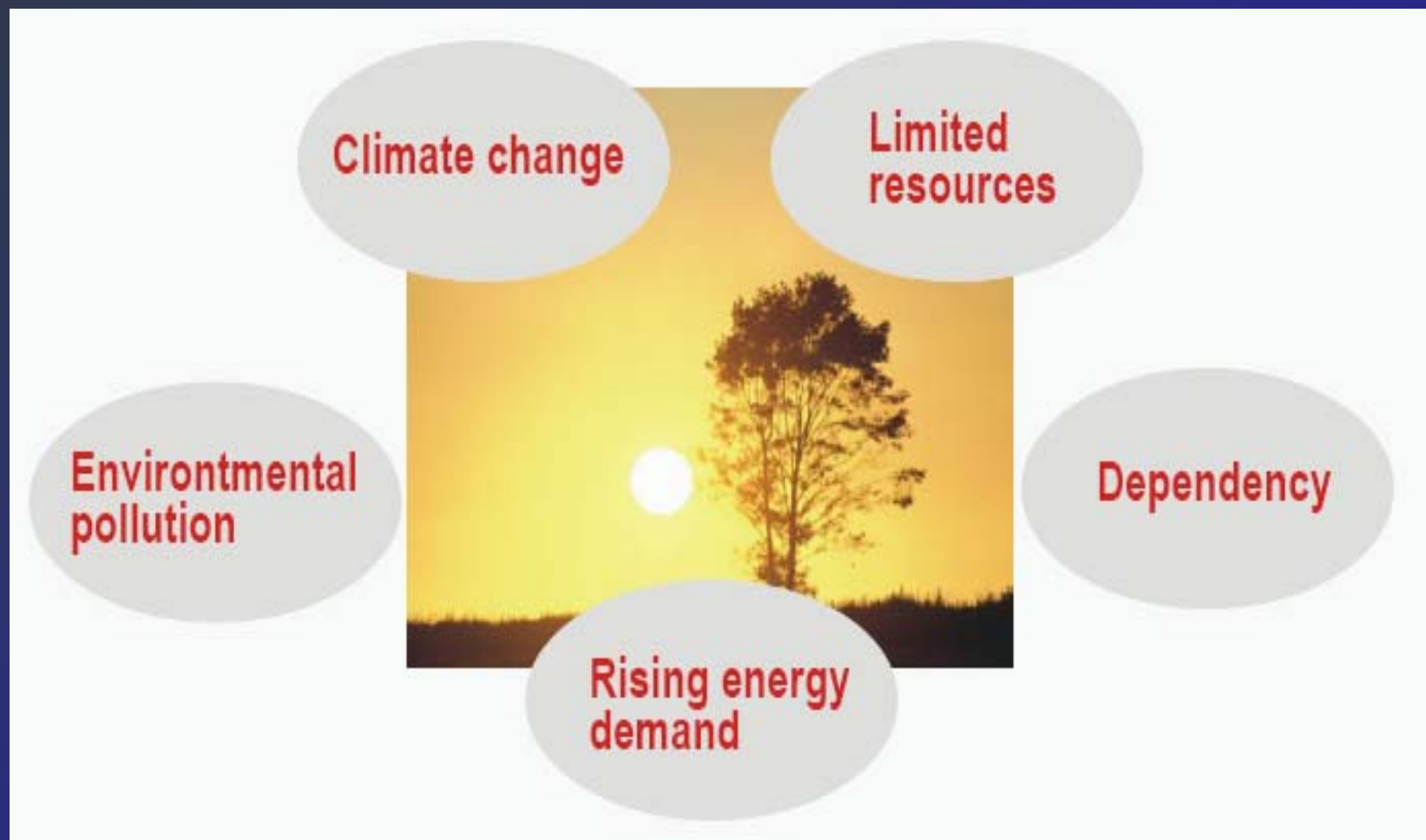


Energy Issues



Clean energy represents both a challenge and major opportunity

Renewables - US Is Left in the Dust...

Landmass vs. Wind energy (MW) in Germany and Continental United States (2005)



Area

Germany: 357,030 km²
US: 8,154,157 km²

(~23 times larger, not counting Alaska)



Installed Capacity

US: 9,149 MW
Germany: 18,428 MW

(~2 times larger)

Map credit: Ryan Perroy, University of California, Santa Barbara

Florida's Energy Issues

- ◆ Climate Change – Political leadership is there
- ◆ Florida requires 0.5-1GW annually of new capacity (1-2 fossil)
- ◆ Over-reliant on fossil fuels; imported Gas > 50% power
 - \$100 oil - FL's long term electricity costs?
- ◆ Coal not an option
- ◆ Nuclear ? 8 yrs w/out opposition
- ◆ Renewables - Speed
 - Currently < 2% of power generation mix
 - Limited hydro & wind, some biomass
 - Solar – the Sunshine State

Renewables – Why Bother?

- ◆ Energy Security
 - Reduced dependency on imports of fossil fuels
 - Conventional energy costs trebled and set to rise further
 - Gazprom, Chavez, Iran

- ◆ Wealth Creation - Jobs
 - Higher local ownership; beneficial impact on local economy
 - Germany employs 250,000 – forecasting 500,000; “Export Machine”
 - Germany – 2006 - Net benefit \$8BN per annum

- ◆ Environmental Benefits
 - Hydro, wind, solar minimal CO2
 - Fuel is free & reliable
 - Cap and Trade; Carbon Costs – “Carbon Principals”
 - Solar grid parity in major markets expected from 2012

Business Perspective – The Opportunity

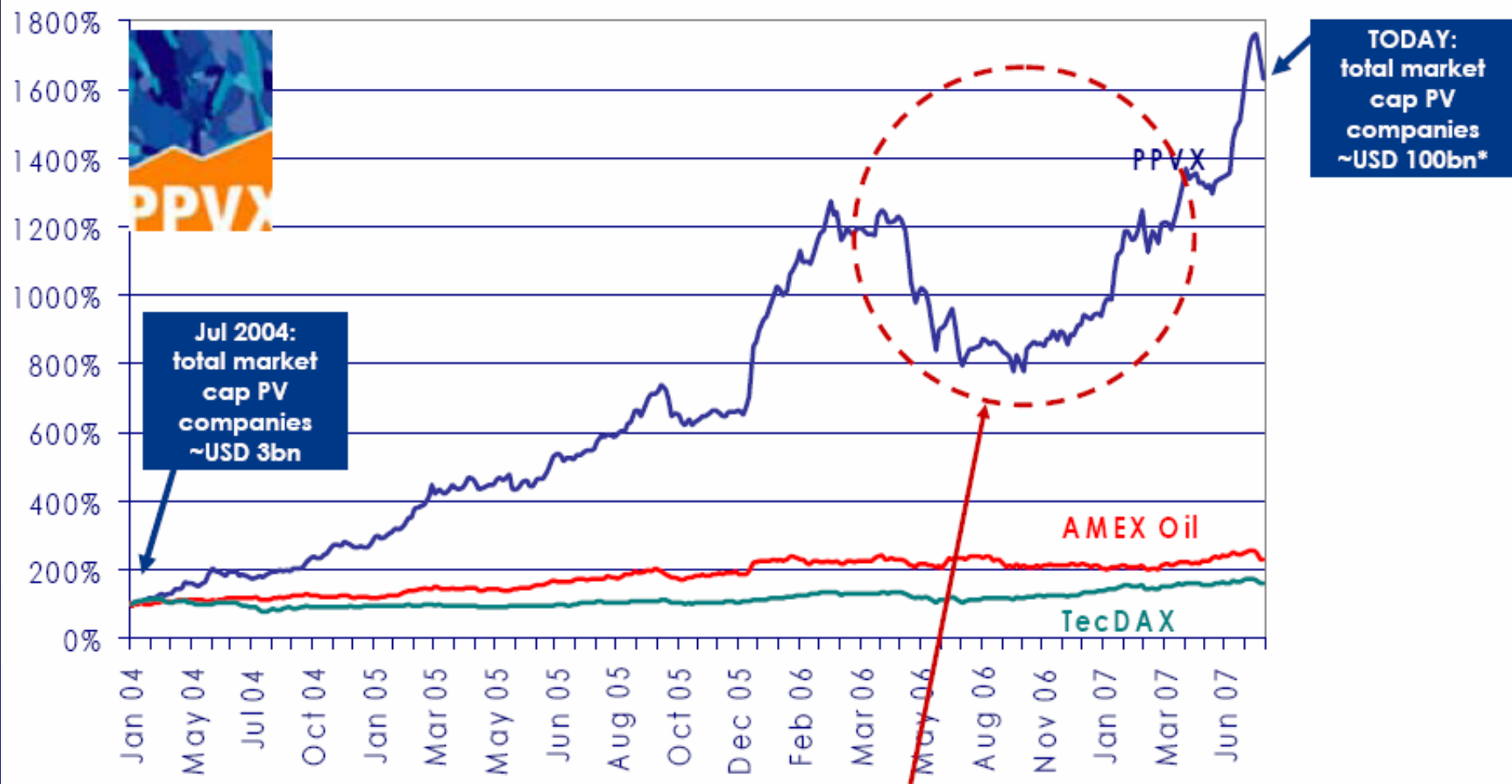
- ◆ Massive VC investment in clean energy - \$117 BN + 35% 2007 (NEF)
- ◆ Solar is a \$ 30 billion industry – \$120BN sales by 2011 - 50% CAGR
 - Solar - global installed capacity 5GW; expected ~ 15-20GW 2011 50% CAGR
 - ~\$170BN stock market valuation for solar
- ◆ US solar producers largely for export
- ◆ European/Asian investors cannot get enough
- ◆ US Government / Florida State solar initiatives deeply flawed; deterring investment
- ◆ RPS unattainable without changes (Ask CA Energy Commission)
- ◆ Florida is missing massive solar investment opportunity:
 - \$5BN sales - export industry
 - Employing 25-50,000 people; Construction/Manufacturing, High tech R&D

**Florida has < 2MW of solar. Germany will install
~2Gigawatts/2008 \$12BN – 75% CAGR**

Renewables - What Do The Experts Say?

- ◆ **“This will be the largest economic opportunity in the world”** John Doerr, Managing Partner in Kleiner Perkins one of the leading Silicon Valley VC groups
- ◆ **“This could get very big. The potential for the global green energy market is \$1 trillion by 2030, with solar 45% of it”** Morgan Stanley Research Report October 16, 2007
- ◆ **“We expect solar demand to grow by 50% in 2008 – whatever gets produced will get sold. Solar is already competitive with peak power”** Lehman Presentation October 2007
- ◆ **" That's orbiting at 19 miles a second, // so it's reckoned, //the Sun that is the source of all our power. "** Monty Python, "The Galaxy Song"

Solar Has The Highest Growth Rate But...



Jul 2004:
total market
cap PV
companies
~USD 3bn

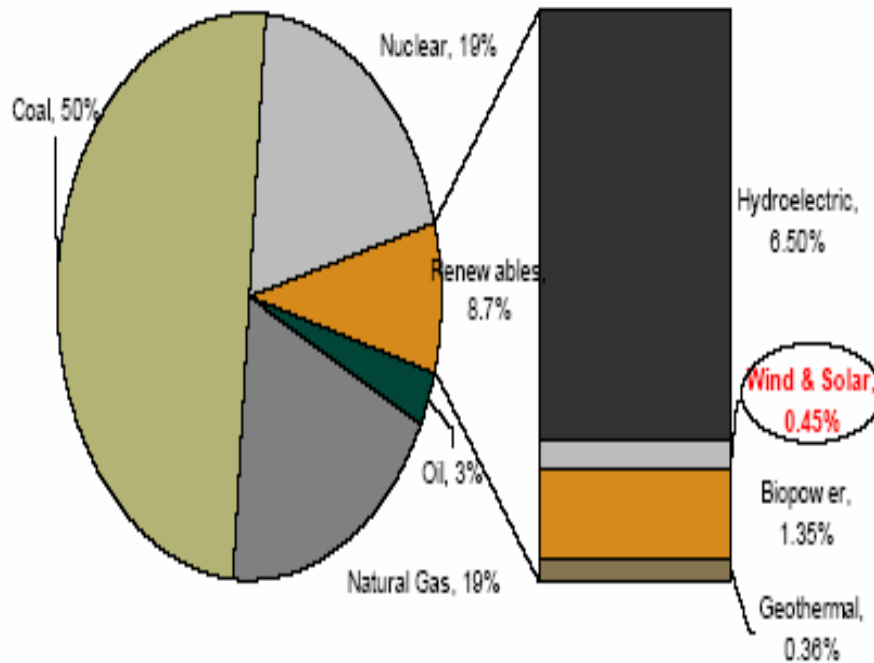
TODAY:
total market
cap PV
companies
~USD 100bn*

...high volatility & related risks as market not mature yet

Source: Solar Verlag 2007, 30 PV companies (sales in PV > 50%), August 2007

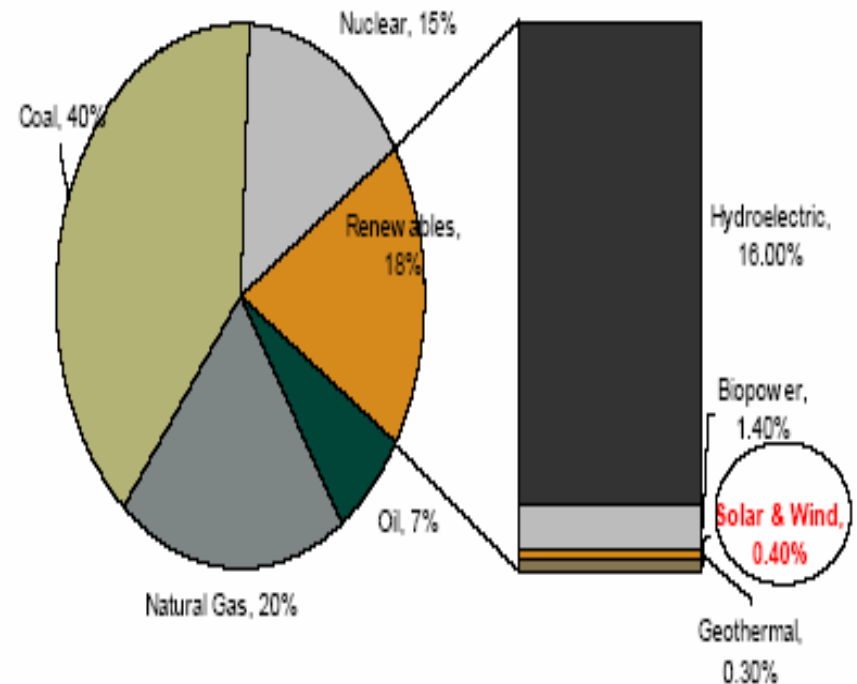
Early Stages...Solar < 0.5% of \$1 trillion electricity market

US Electricity Generation By Fuel Type



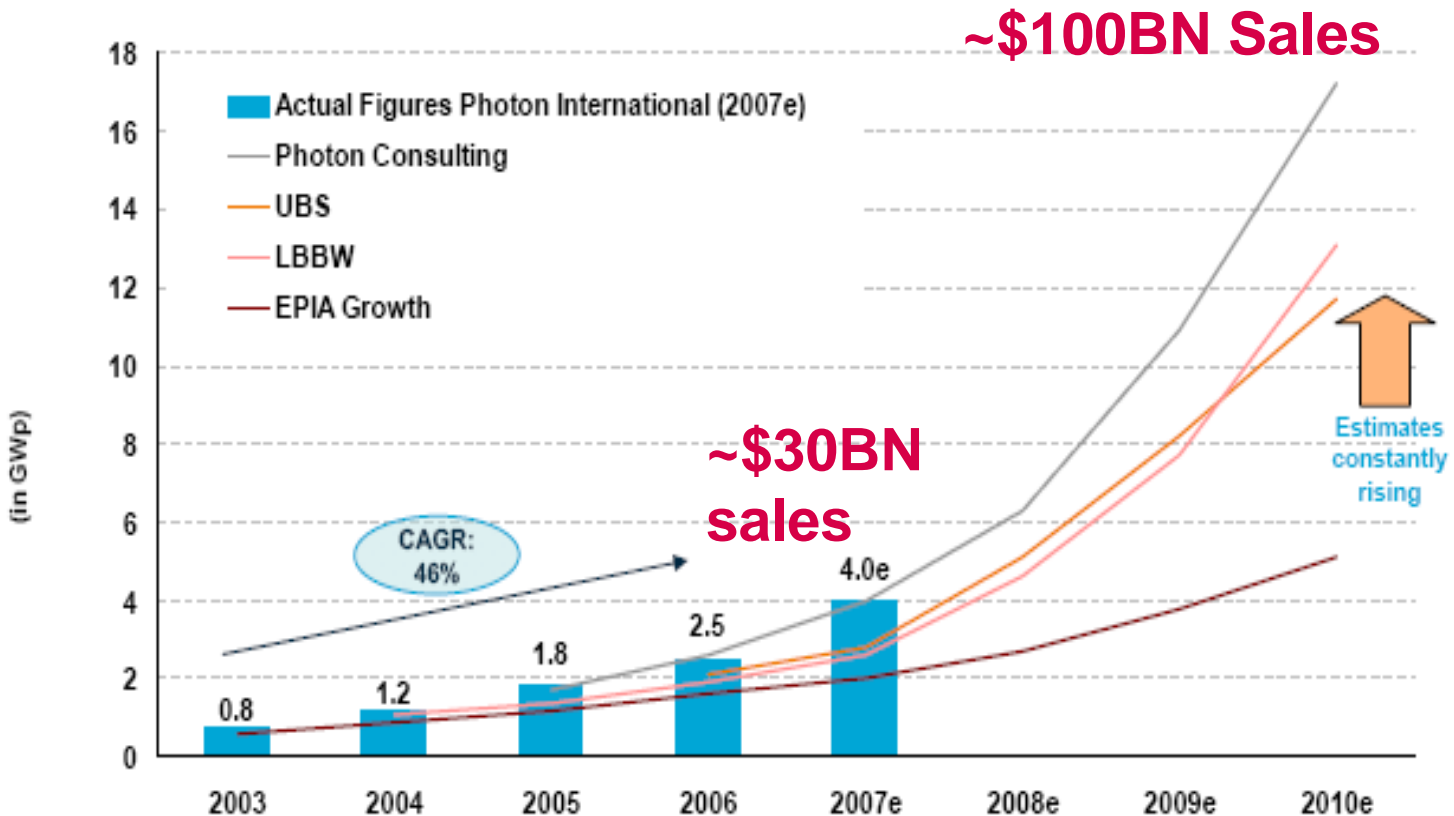
Source: EIA, Lehman Brothers Research

Global Electricity Generation By Fuel Type



Source: EIA, Lehman Brothers Research

Strong Global Solar PV Market Growth



Favourable development with expected growth rates of 30% p. a. and higher

Energy Security – A Major Driver for Solar

| Country | Net energy imports as % of energy use | Primary electricity source | Total installed capacity (GW) | Installed solar capacity (GW) |
|-------------|---------------------------------------|----------------------------|-------------------------------|-------------------------------|
| Germany | 61% | Coal (60%) | 120 | 2.6 |
| Japan | 84% | Oil | 248 | 1.7 |
| US | 28% | Coal (33%) | 960 | 0.6 |
| France | 50% | Nuclear (60%) | 113 | 0.1 |
| Spain | 76% | Coal | 67 | 0.2 |
| Portugal | 83% | Coal | 12 | 0.02 |
| Italy | 85% | Oil | 77 | 0.06 |
| Greece | 67% | Coal | 12 | 0.03 |
| Ireland | 87% | Oil | 6 | 0.01 |
| South Korea | 82% | Coal | 62 | 0.05 |

Ex-nuclear, Florida imports > 98% of energy

Policy Incentives Required Until Tipping Point Reached...

| | Japan | Germany | US | Italy | Spain | China |
|-------------------------|--|--|---|---|-------------------------------|---|
| 2006 Solar PV Capacity | 1,716MW | 2,591MW | 610MW | 60MW | 50MW | 20MW |
| Government PV Targets | 4,820 installed capacity by 2010 | No specific target for PV | 3,500MW by 2015 (3,000 MW under Calif Solar Initiative) | 1,000MW capacity by 2015 | 400MW capacity by 2010 | 300MW capacity by 2010 |
| Primary Govt. Incentive | Net-Metering Net-Metering at retail electricity rates (21c-22c per kWh) | Feed-in tariff (EUR/kWh) <30MWp: 49.2c >30MWp <100MWp: 46.8c >100MWp: 46.3c | Net-Metering Net-Metering at retail electricity rates (8c-17c per kWh) | Feed-in tariff 1-20kWp: EUR 44.5c/kWh 20-50kWp: EUR 46c/kWh 50-100kWp: EUR 49c/kWh | Feed-in tariff EUR 44c/kWh | Feed-in tariff Cost plus reasonable margin |
| Annual Adjustments | None | 5% reduction for new installation | Follow retain electricity rates | 5% annual reduction | None | Not certain |
| Duration | No timeline set | 20 years | None | 20 years | 25 years | Project based |
| Other Incentives | None | None | Tax deduction upto 30% of installation cost | None | None | Solar cells import currently tax free |
| PV R&D support | Govt. funding through NEDO | Sizeable government funding on both c-Si/TF | \$140M solar R&D in 2007 | Roughly Euro 5m by ENEA and CESI | No major govt. funding | ~\$10-15M annual R&D spending |

Florida – Solar Business Objectives

- ◆ To create a high tech solar industry
- ◆ 1000MW of solar by 2011 – 5GW by 2017?
- ◆ Combination of CA's Million rooftops program & larger scale commercial size installation of 1-50MW
- ◆ How do we kick-start solar? What's needed for large-scale solar to develop?

What's Required?

- Adequate insolation (incoming solar radiation) ✓
 - Sunshine State very high; 85% of max.
- Long-term fixed pricing/same as utilities X
 - Payment/Recovery mechanism
 - Renewables priority grid access
- Available/affordable land near demand ✓
 - ~10,000 acres per 1000MW
- Simple siting and permitting process X
 - Statewide CEO of Renewables
- Entrepreneurs/Developers ✓
 - State must allow new entrants

Solar Business Cents for Florida

- ◆ Improves energy security
 - No fuel imports – Better distribution
- ◆ Proven
- ◆ Zero CO2 emissions
- ◆ No water
- ◆ Construction speed (1 yr vs. 5+ for fossil, 8+ for nuclear)
- ◆ Economic Impact
 - Germany - 50,000 employed in solar ; higher paying
 - Revenue for farmers; construction employment
 - Manufacturing modules - 100MW production = \$200MM Capex investment, employing 100 people
 - High tech R&D / Clean energy – a “Solar Silicon Alley”

Issues ► Solution

◆ Issues

- Utilities finance fossil fuel under 20 yr rate base
- Fixed & Guaranteed – cost pass through

◆ Renewables require same treatment; private sector will finance

◆ Solution

- A Florida Renewable Energy Security Act
 - Covers all renewables; solar likely to be most productive
 - Differentiated pricing, renewables priority, open access to grid, 20 yr contracts
 - CA, WS, MI, Ontario, BC
 - 18 countries in Europe operate them w/ great success
- ## ◆ **We need to allow every school, church, farmer, household and real estate developer to sell back power & in doing so drive us to a more secure clean electricity future**
- FACT – happening now throughout Europe
- ## ◆ Florida Legislature should prioritize immediately

Economic Incentives

- ◆ Spur creation of Solar “Silicon Alley” by targeting Solar City
 - Adopt similar mix of grant, subsidies & tax holidays as Germany, Spain, Singapore
- ◆ Manufacturing industry will only come once there is a market
 - Demand must be > 250MW p.a. otherwise just importing modules instead of oil
 - High tech research centers will follow manufacturing
- ◆ Massive private sector financing opportunity
 - Germany 2008 ~ \$12BN
 - Local banks; regional private equity

Direct Cost – Price of a Loaf of Bread

- ◆ Germany - 4GW solar; 13% renewables mix growing to 27% driven by Government policies/entrepreneurs
 - Household cost \$2.50 month via utility surcharge
 - NET BENEFIT of \$8BN per annum
- ◆ If FL had 1GW of solar – less than German cost
 - High initial renewable incentives to trigger build out
 - Incentives reduced over time
- ◆ Economic benefits to FL higher than coal, nuclear, gas plants
 - Construction done locally
 - Sourcing of locally manufactured panels
 - Stimulates FL job creation, tax base

What Can Business Do?

- ◆ Articulate solar investment opportunity in Florida
- ◆ Get buy in from State legislators, PSC and Governor's Action Team
- ◆ Encourage detailed evaluation of benefits to FL
 - Study success stories
- ◆ Work w/ beneficiaries to sponsor legislation
 - Farmers
 - Local Construction/Building industry
 - High tech
 - Regional financial community

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