Solar at the cost of coal

Flux = \frac{1}{360} \text{ W/m}^2
Domestic shale gas
US shale gas enables solar

$ / million BTU

- Crude oil
- Natural gas
SunShot: towards $1 / Watt
Silicon PV can reach coal parity

*LCOE calculated assuming 5.75 kWh/m²/day (17% capacity factor), a 7% discount rate, and a 30-year project life.
Solar at the cost of coal

Half of PV manufacturing cost is making wafers, but currently wasteful and slow

$0.73/W

Saw wafer

Cast brick

50% waste

Refine Silicon

3x wafers per kg Si

Current 1366

Silicon Wafer Cell Module

US% of Global Manufacturing

50% 40% 30% 20% 10% 0%

Silicon Wafer Cell Module

Direct Wafer

Locate near demand

Rapid solidification directly from silicon melt

Drop in replacement
Scales quickly
High efficiency (20%)
Path to 1GW Manufacturing

Build 50,000SF Facility

Build 250,000SF Facility

Scale 10 - 50 MW

1st Production Machine

Commercial sales

Optimize Process

Scale to 1GW

1 GW Breakeven
US versus Asia

Leave
- Tax
- Market access
- Inexpensive loans
- Lax environ. regs.
- Low cost suppliers
- Labor rates

Stay
- IP Risk
- Country risk
- Logistics
- Access to Equity
- Inexpensive Power
# US versus Asia

<table>
<thead>
<tr>
<th>1GW Plant</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Amount</td>
<td>% Sales</td>
<td>Amount</td>
</tr>
<tr>
<td><strong>Sales</strong></td>
<td>$400M</td>
<td></td>
<td>$400M</td>
</tr>
<tr>
<td><strong>Cost Drivers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxes</td>
<td>$15M-$30M</td>
<td>4%-7%</td>
<td>$0M</td>
</tr>
<tr>
<td>Labor</td>
<td>$18M</td>
<td>5%</td>
<td>$9M</td>
</tr>
<tr>
<td>Power</td>
<td>$3M</td>
<td>1%</td>
<td>$6M</td>
</tr>
<tr>
<td>Gov Loan</td>
<td>-$10M ?</td>
<td>-3% ?</td>
<td>$0M</td>
</tr>
<tr>
<td><strong>LOCATION COST DRIVERS</strong></td>
<td>$26M-$41M</td>
<td>7%-10%</td>
<td>$15M</td>
</tr>
</tbody>
</table>
SunShot

Innovation

Manufacturing

Market

Tax

Stimulate adoption
Remove barriers

Manufacturing

Carbon

Stimulate adoption
Remove barriers
A prize worth having!

1 Terawatt PV
>10 million Jobs