



# REVOLUTIONIZING ENERGY

A Plan to produce within 15 years  
50% of Israel required electrical energy by the sun

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# Strategic Considerations

Israel has 3 major strategic survival problems besides education, poverty, peace etc...:

**Defense**      **Water**      **Energy**

Israel knows how to handle **Defense**

**Water** can be produced if we have **Energy**

Israel has **THE SUN** to produce **Energy**

# Strategic Considerations

Producing energy from the sun at significant quantities requires large installations.

Israel produces today                      50 Bkwh

It will consume in 2025                      80 Bkwh

Producing until 2025 50% (40Bkwh) of the energy consumption will be a respectable goal

We shall present here how it can be done

# Definition of the solution

**Producing 40 Bkwh per year means erecting 20,000MW (20GW) of solar plants**

**The plan should be to build a production line of 2000MW/year during 4 years and thereafter building 2000MW/year during 10 years**

**MST has the technology doing it at the right cost and with minimum land use**

# **The CPV technology**

**MST has completed the CPV development**

**A 50 KW tracker having a demonstrated efficiency of 24.5% is installed in Arad**

**In production quantities beyond 1000MW/year, the production cost of a turnkey plant will be \$2M/MW installed, or \$2B/1000MW**

**The land required for 1000MW is 10 Kmsq**



# The Tracker

# **The CPV technology**

**Building a 2000MW/y production line will cost \$1B and will take 36 months to complete.**

**In 2015, 45% efficiency solar cells will be available and the tracker efficiency will be 30%**

# **The Storage technology**

**Solar plant installation larger than 5% of the grid power require storage to prevent grid collapse**

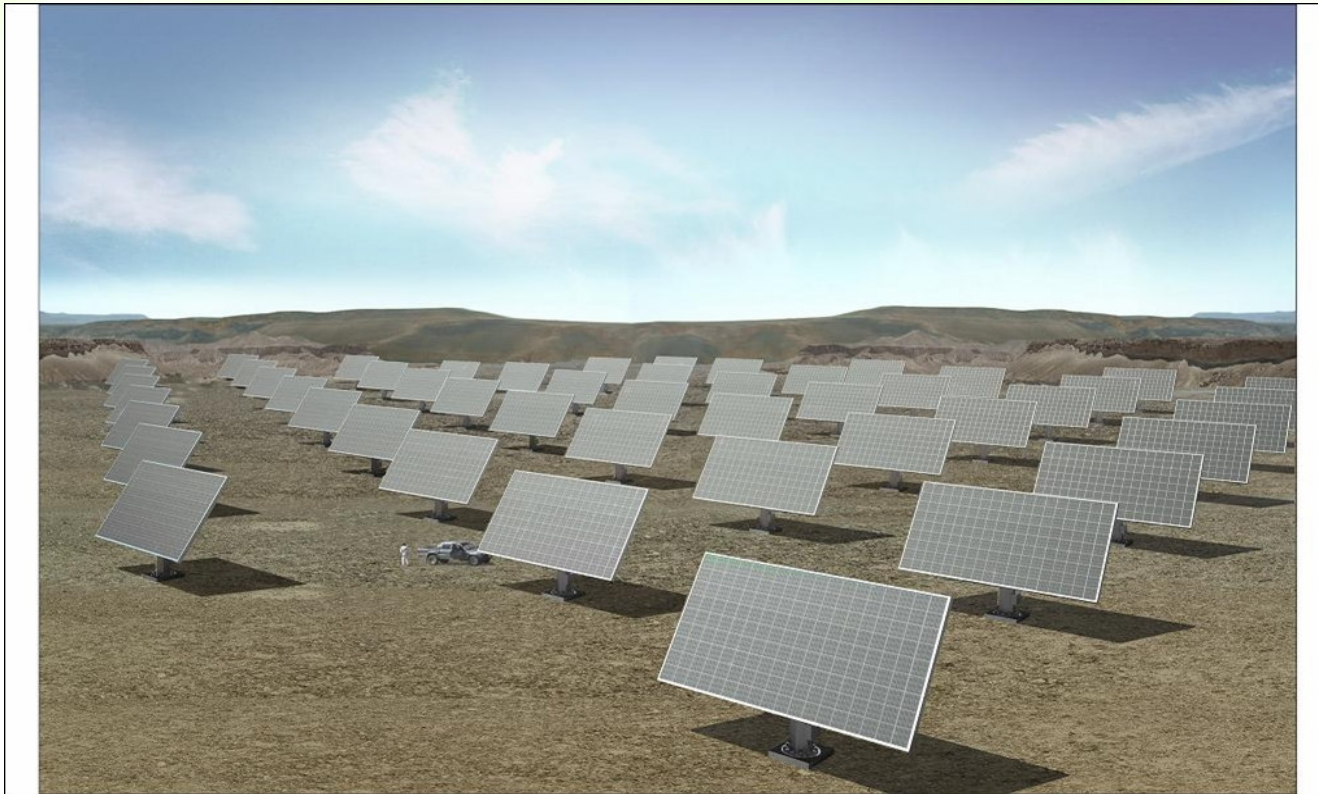
**20,000MW installation requires 20,000MW of battery storage**

**Cost of Storage \$650/KWe**

**Two way charge discharge efficiency 75%**

# Mission Statement

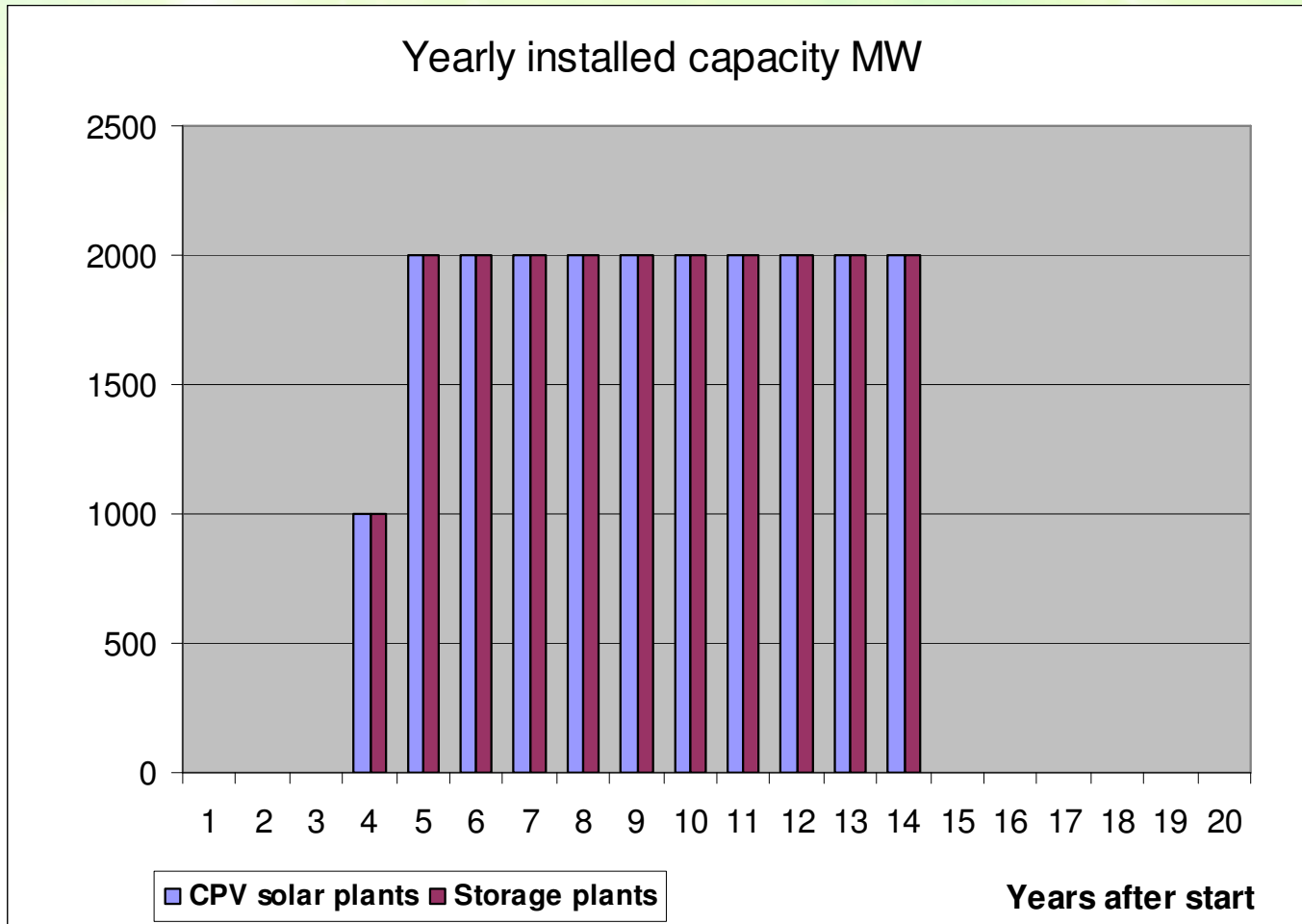
To install in Israel 20,000MW in order to produce in 2025-50% of the required electrical energy



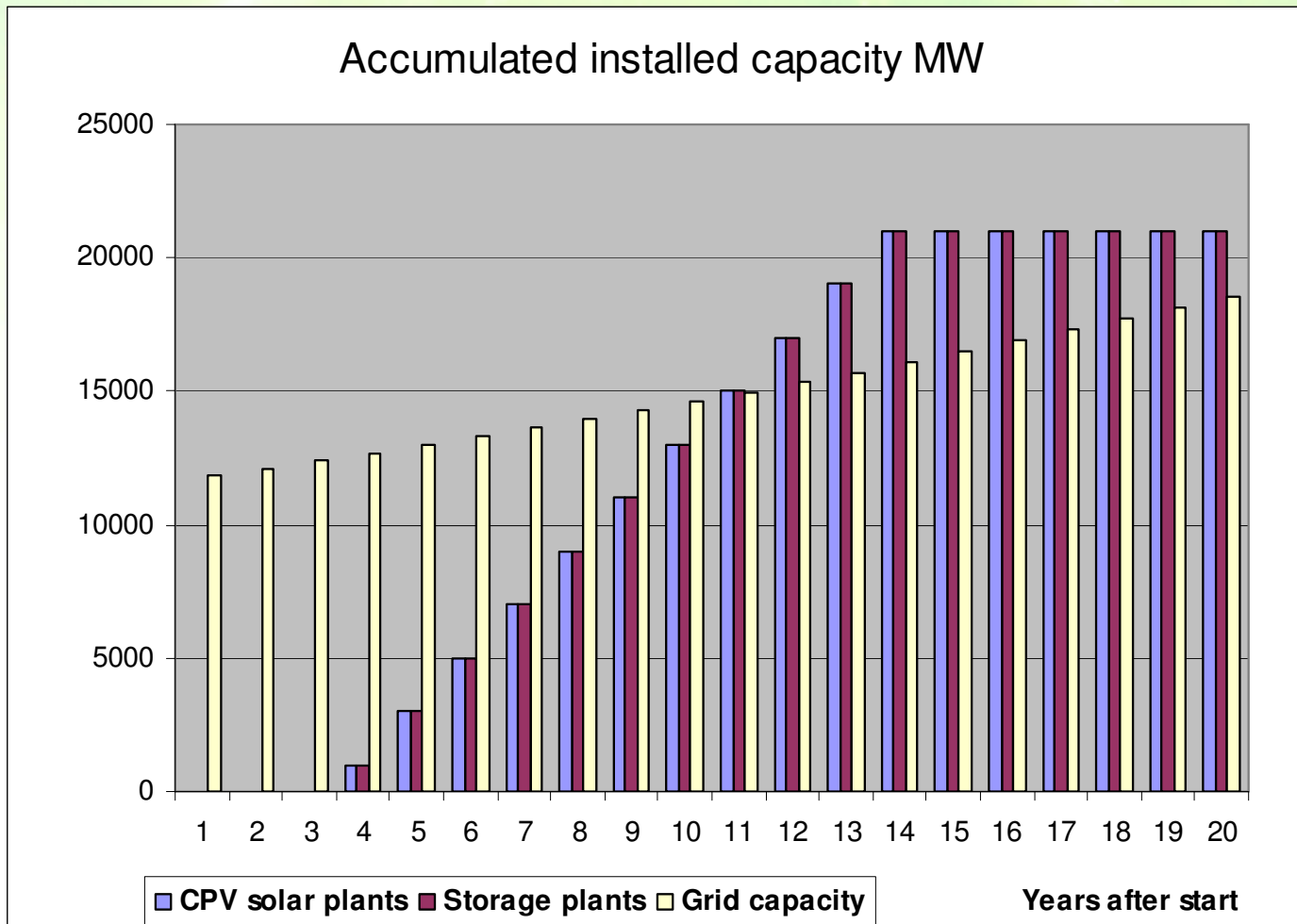
# The 1000MW Plant

<b>Number of collectors</b>	<b>20,000</b>
<b>Collector dimensions</b>	<b>20mx12m</b>
<b>Area of collector</b>	<b>240 msq</b>
<b>Collector power</b>	<b>50 KWp</b>
<b>Plant aperture</b>	<b>4 kmsq</b>
<b>Real estate covered</b>	<b>10 kmsq</b>
<b>Energy production in Israel</b>	<b>2 B KWh</b>
<b>Energetic Concentration</b>	<b>500 suns</b>
<b>Two axis tracking mount</b>	

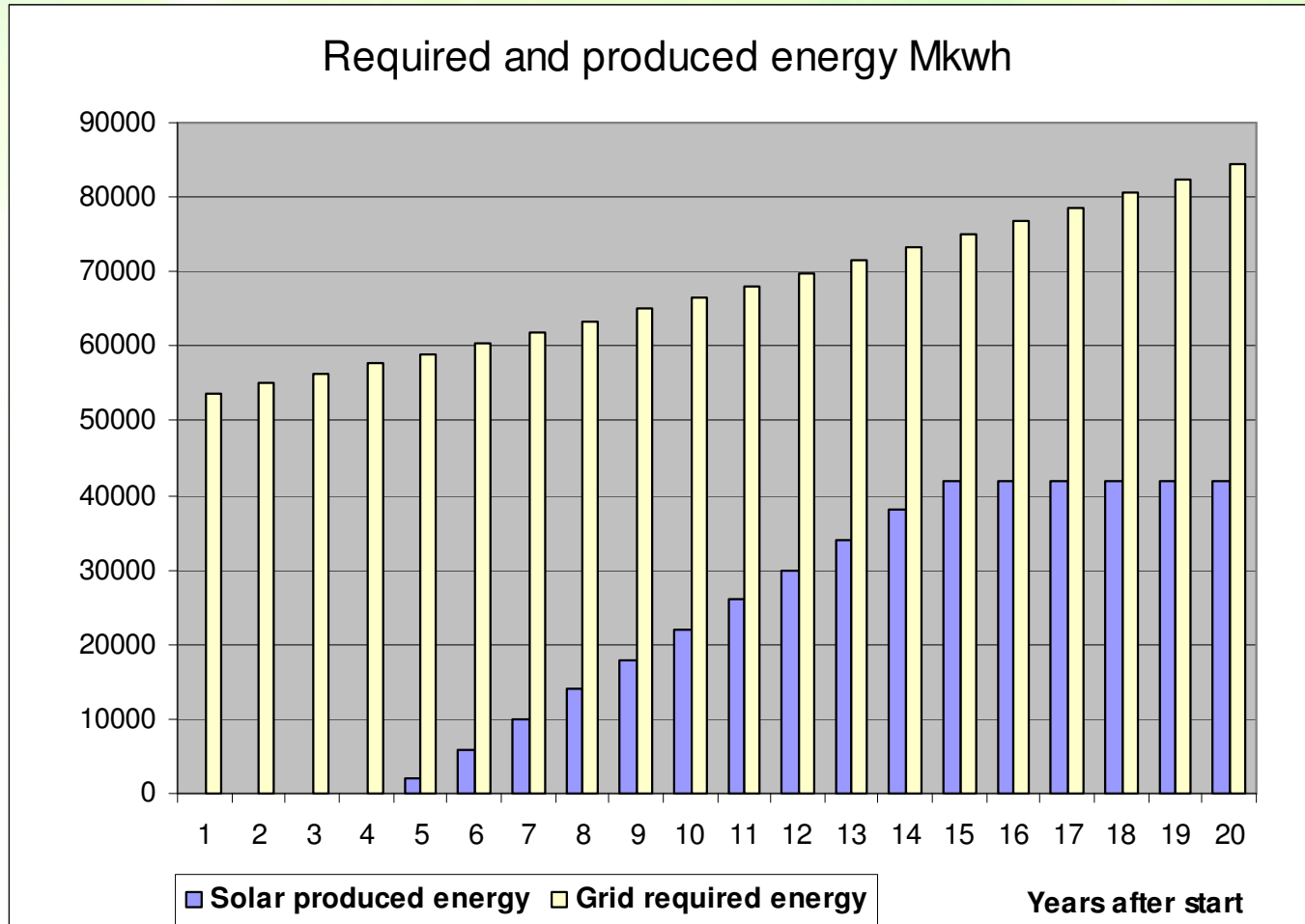
# The Installation rate



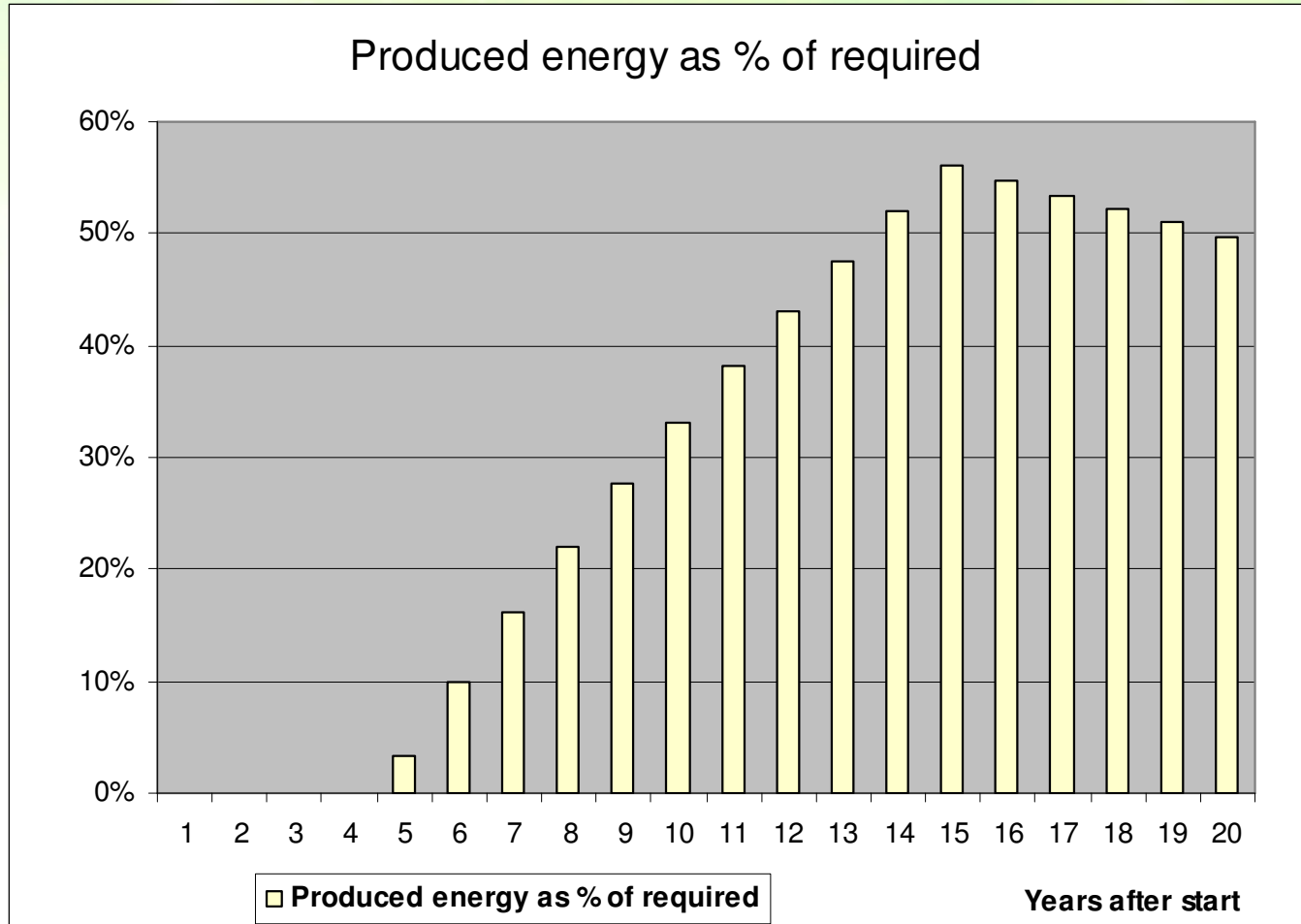
# The Accumulated Capacity



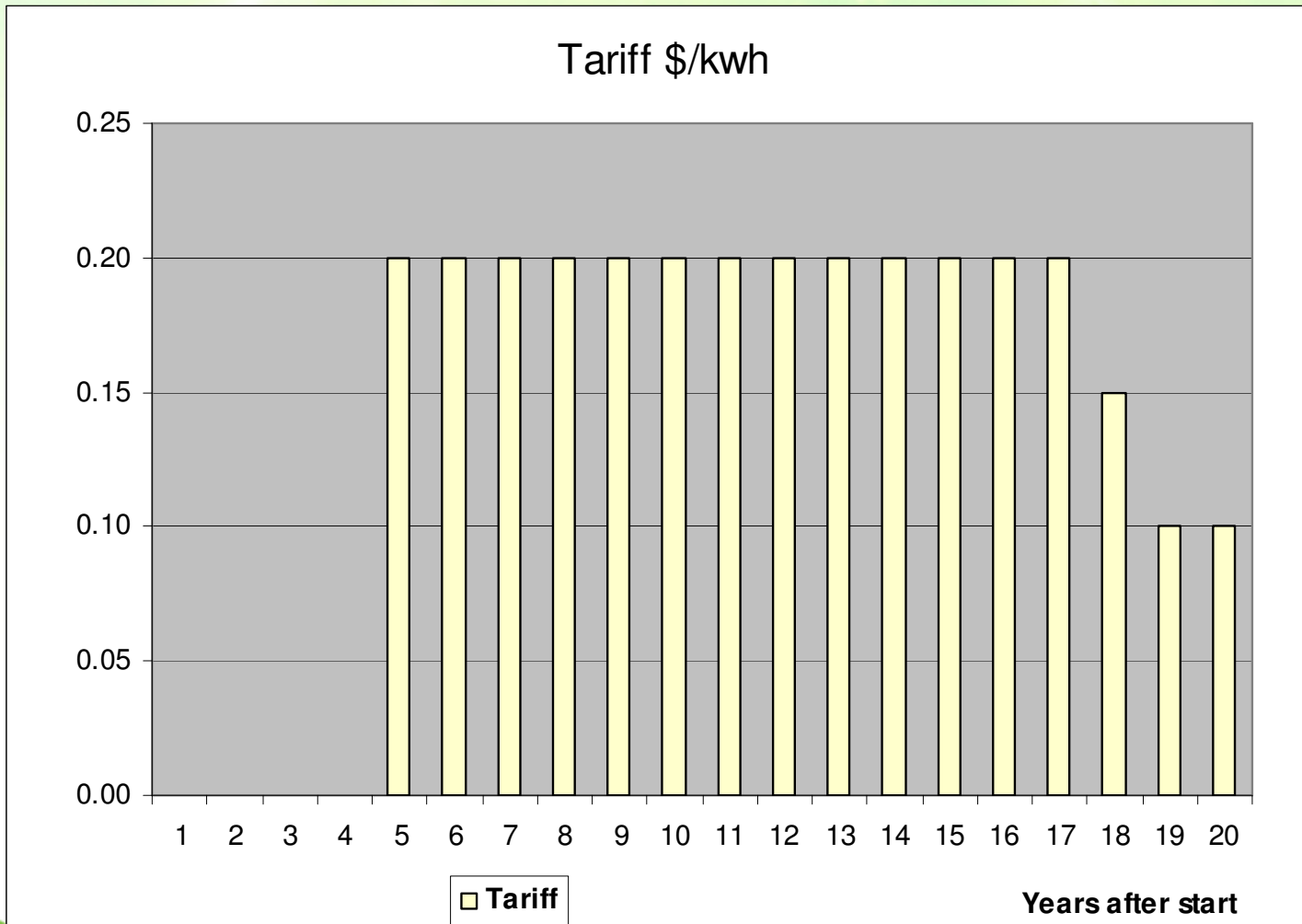
# The Required and Produced Energy



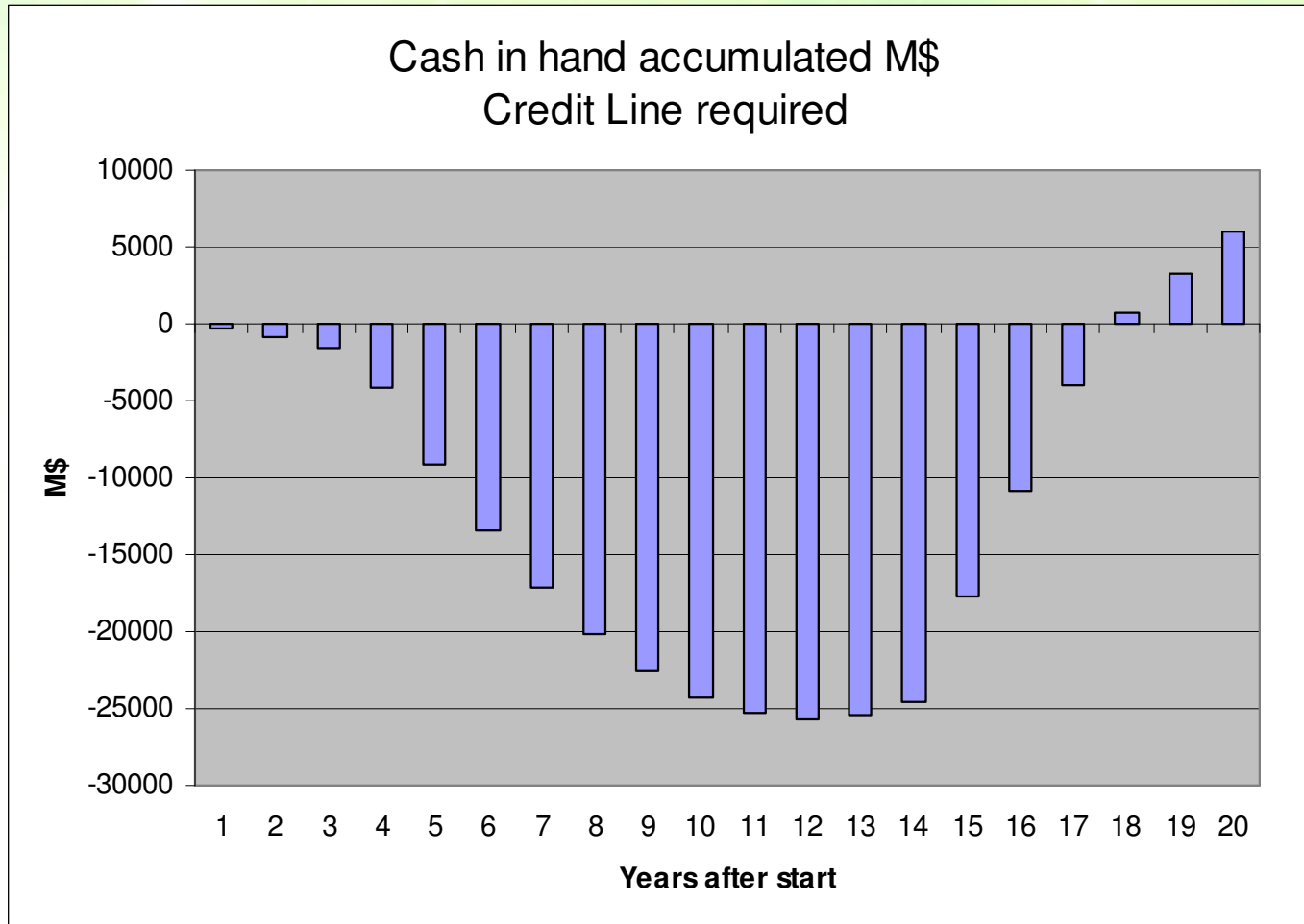
# Produced Energy as % of Required



# The Tariff Required

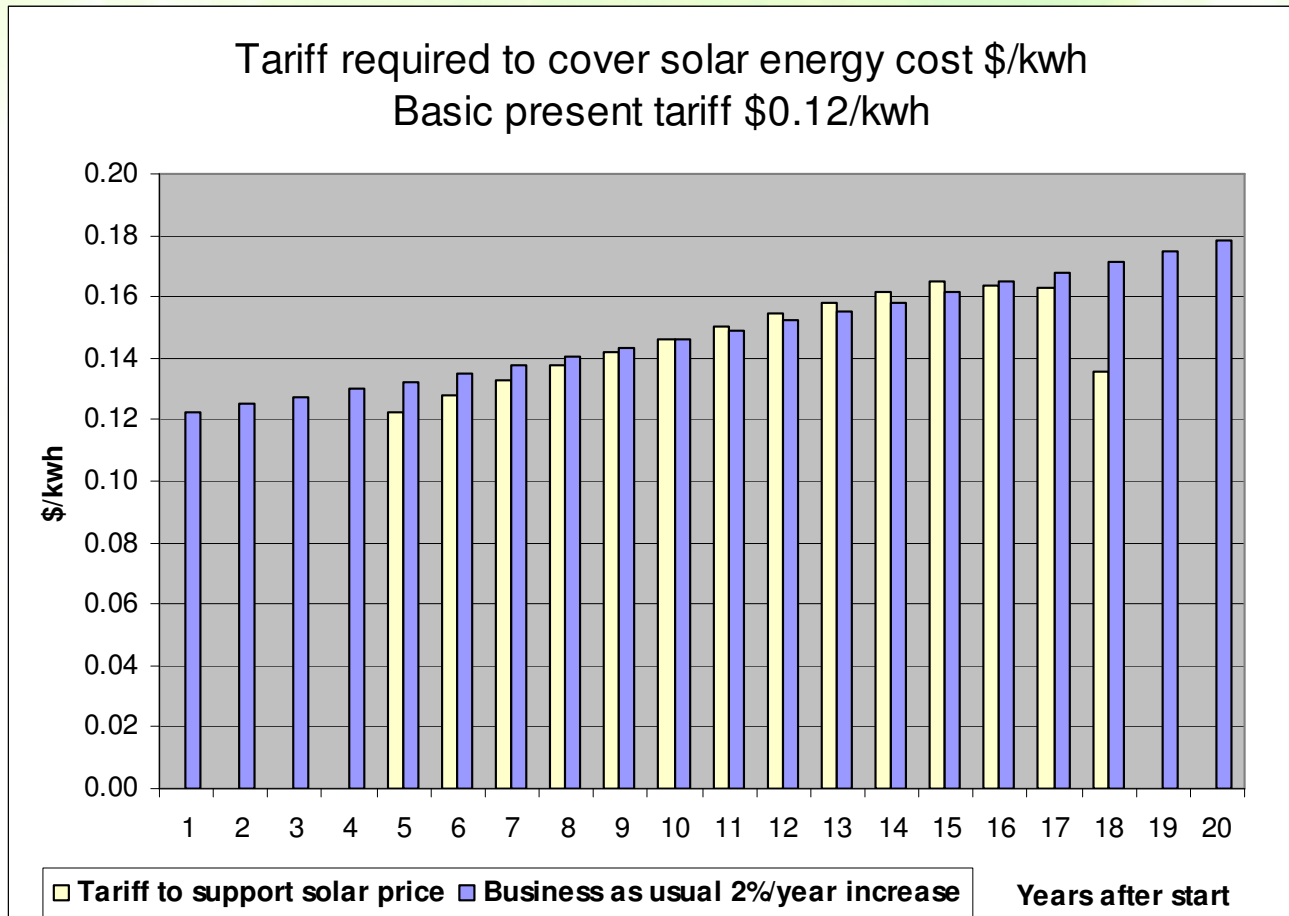


# The Credit Line Required

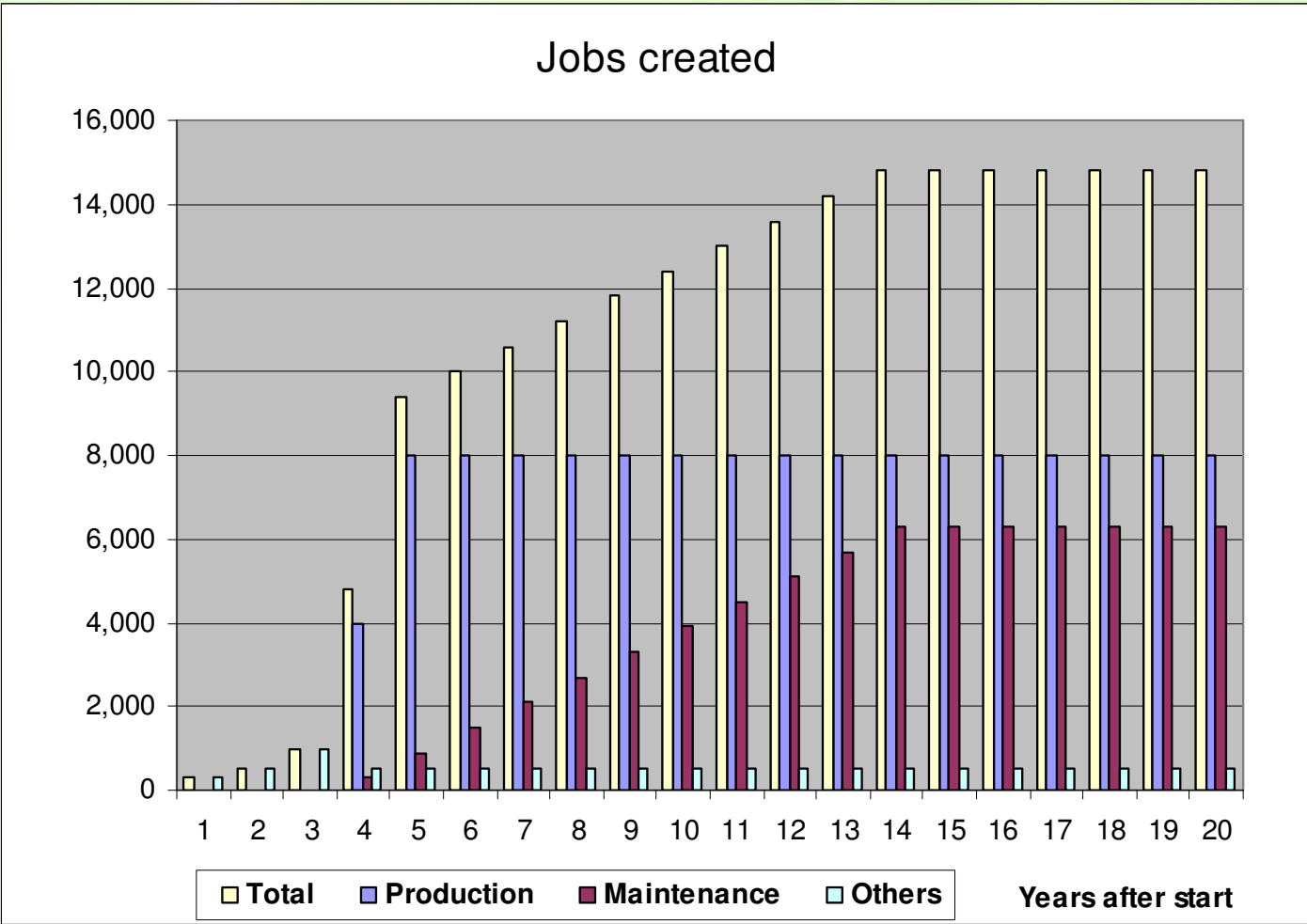


# Influence on Tariff

## Compared to 2% pa increase



# The Job Creation



# Solar System Comparison

	CPV	PV	Trough	Tower
One KW produces, kwh/year	1950	1700	1850	1850
One KW requires, msq land	10	18	25	35
<b>One msq of land will produce, kwh</b>	<b>195</b>	<b>94</b>	<b>74</b>	<b>53</b>
<b>One msq of land will produce, kwh</b>	<b>100%</b>	<b>48%</b>	<b>38%</b>	<b>27%</b>
Projected price in 2015, \$/KWp	2200	3000	3500	3500
<b>Investment \$/kwh/y</b>	<b>1.1</b>	<b>1.8</b>	<b>1.9</b>	<b>1.9</b>
<b>Investment \$/kwh/y</b>	<b>100%</b>	<b>156%</b>	<b>168%</b>	<b>168%</b>

**The solution is there and**  
**The Government must only stand up**  
**to the challenge**  
**It is its duty to do so**