

The 100MW solar power station – technology choice now and in the future

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The main runners



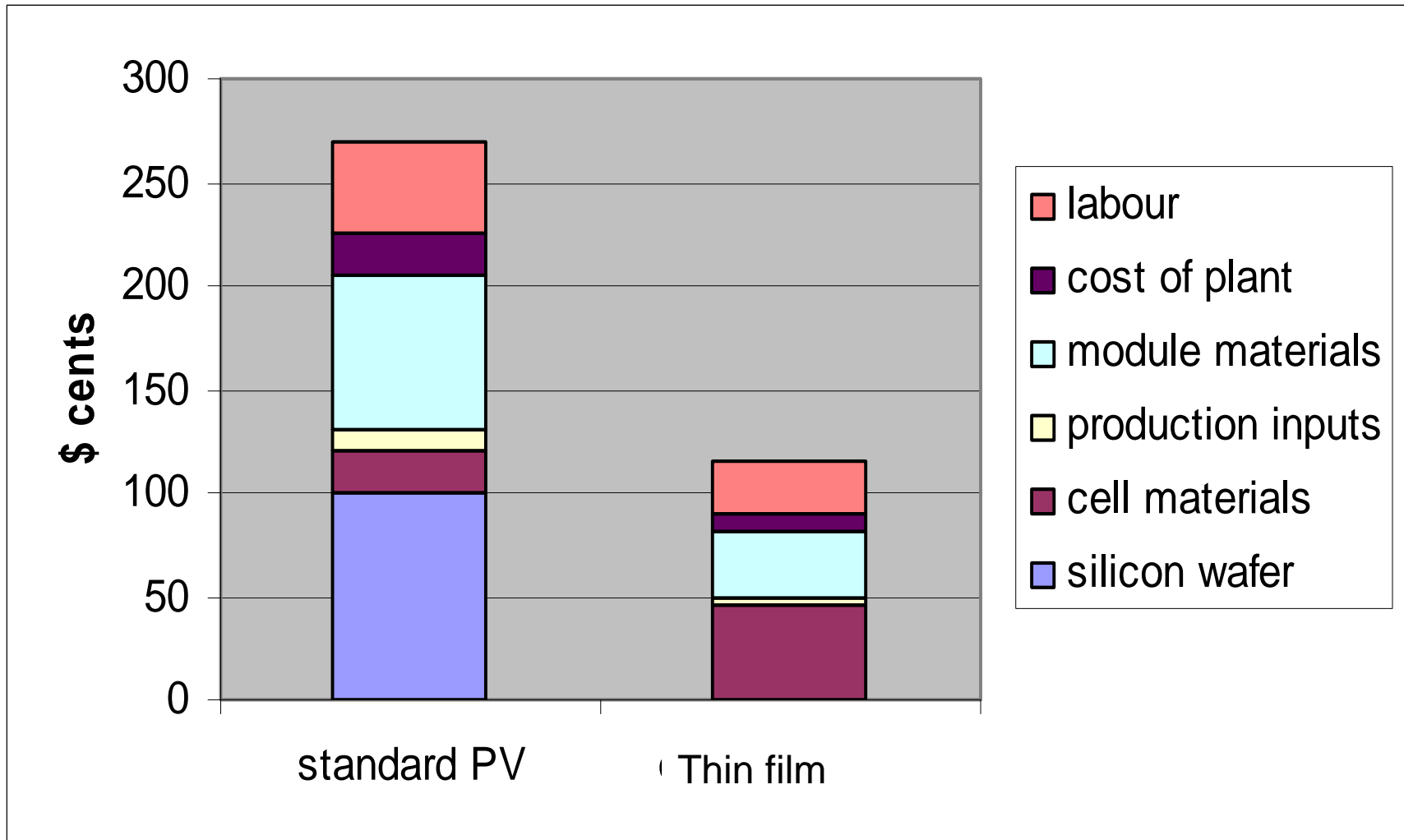
- Solar thermal - parabolic trough
- Solar thermal – Tower
- Photovoltaics – polycrystalline
- Photovoltaics – thin film

And some outsiders

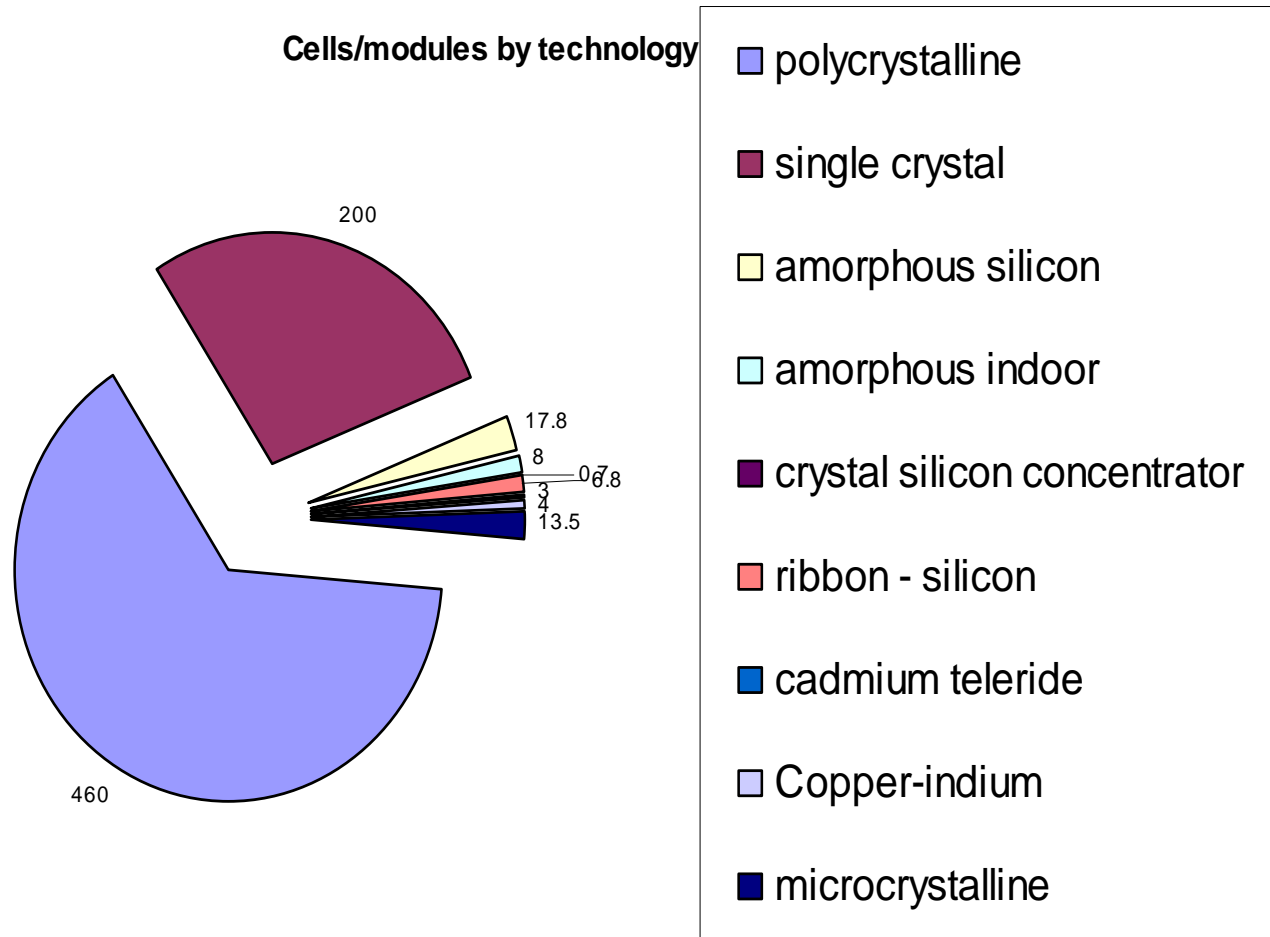
- Third generation PV – dye and organics
- Concentrator PV
- Hybrid thermal
- Space solar
- Fresnel and stirling systems

Market breakdown according to technology

| Technology | Typical application | % 2005 | % 2010 |
|-------------------------|--------------------------|--------|--------|
| solar thermal-radiative | hot water | 6 | 6 |
| solar thermal- trough | wholesale grid | 5 | 4 |
| concentrator/ PV | wholesale grid | <1 | 0 |
| amorphous PV | consumer electronics | 4 | 2 |
| high eff. Silicon | military - space | 3 | 1 |
| poly/multi Si | retail grid and non-grid | 80 | 75 |
| thin film CIGS/CdTe | Wholesale, retail, BIPV | 1 | 11 |
| | | | |
| | | | |



PV in 2006

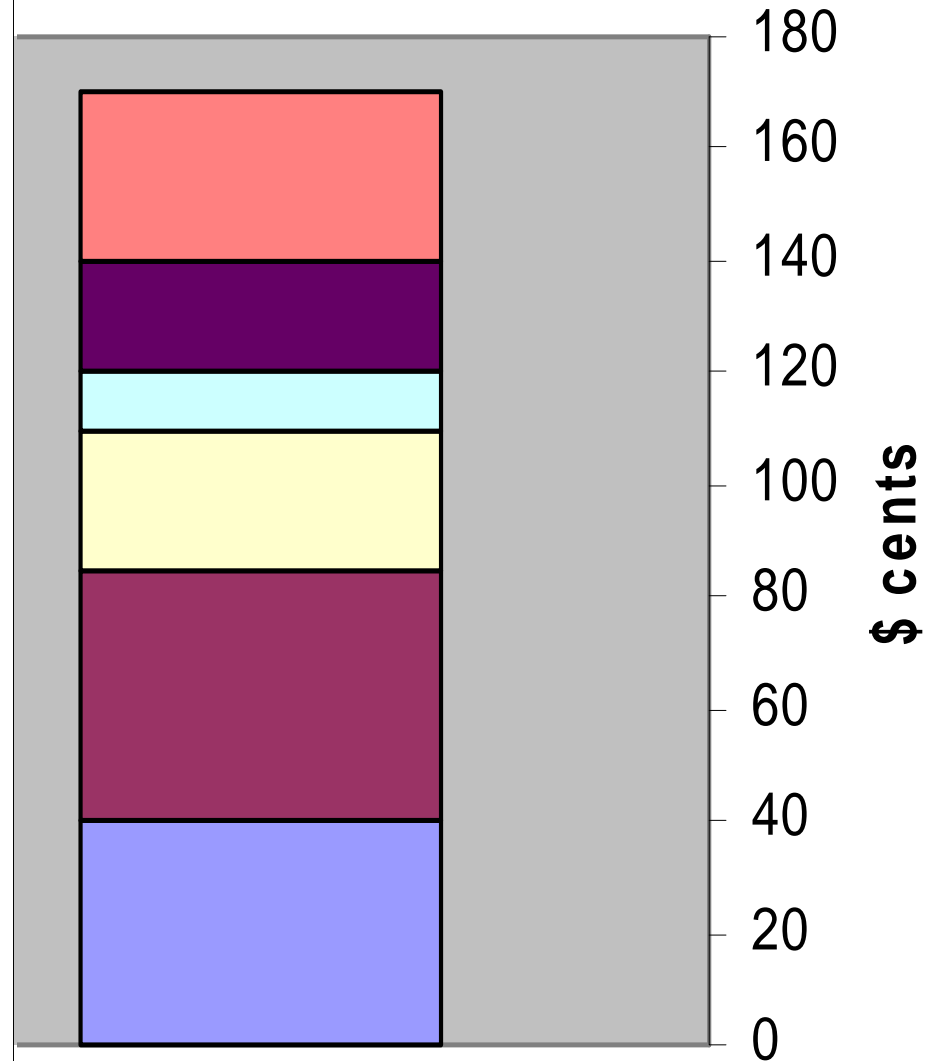


Technology comparison 2010. Blue positive – white negative

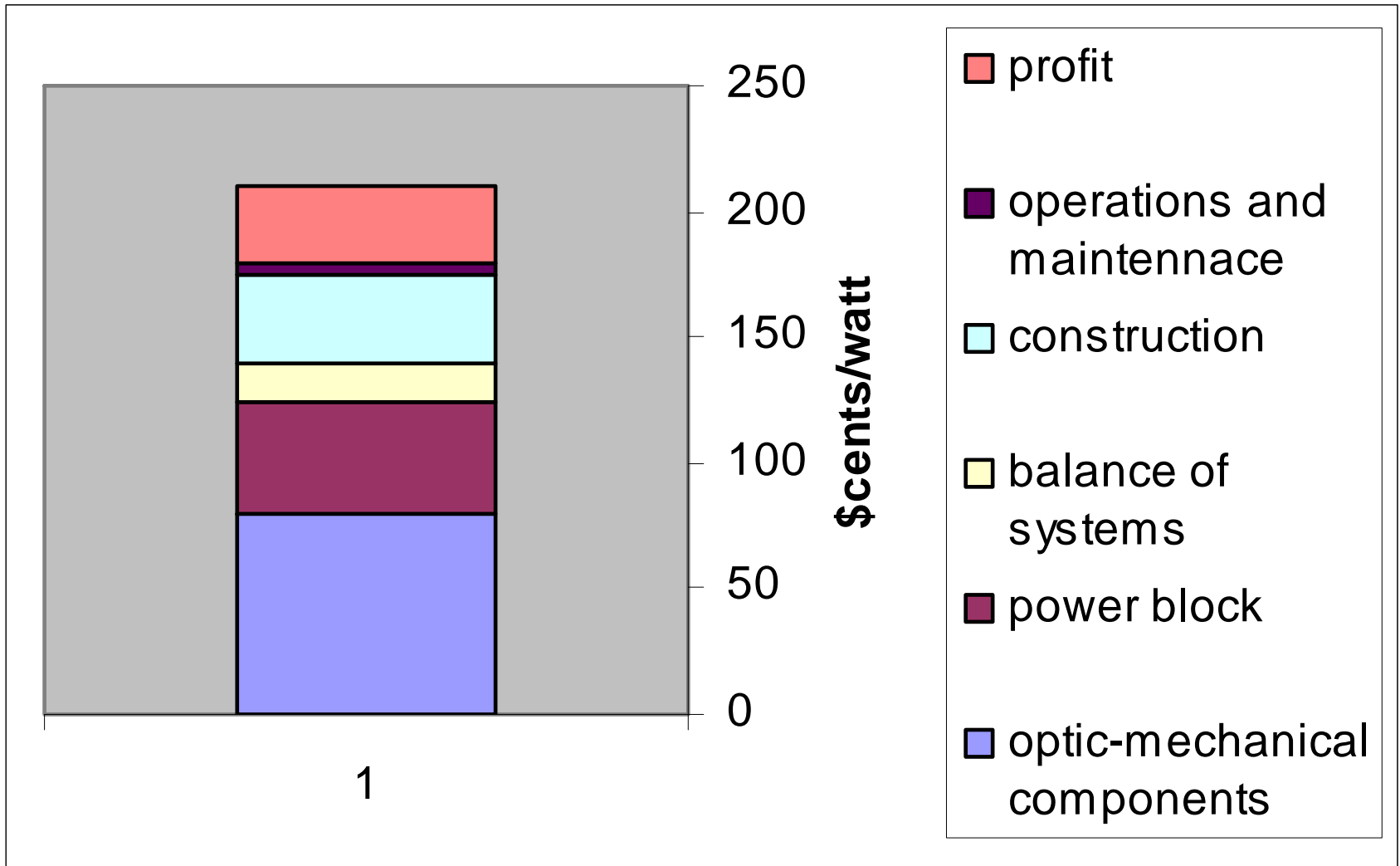
| | Thin film PV | Silicon PV | Solar thermal Trough | Solar thermal Tower |
|--------------------------|--------------|------------|----------------------|---------------------|
| Up front cost | Dark Blue | Blue | White | White |
| Operation | Dark Blue | Dark Blue | White | Light Blue |
| Ease of finance | Blue | Dark Blue | Light Blue | White |
| Geography/ Topograph. | Dark Blue | Dark Blue | White | White |
| Water | Dark Blue | Dark Blue | White | Light Blue |
| Installation | Dark Blue | Dark Blue | White | White |
| Land | Light Blue | Dark Blue | White | White |
| Lifetime | Light Blue | Dark Blue | Dark Blue | White |
| Storage/Peak supply | White | White | Dark Blue | Dark Blue |
| Hybrid use | White | White | Dark Blue | Dark Blue |
| Best rate of return 2020 | White | White | White | White |

PV costs

- profit
- install
- balance of systems - inverter
- module assembly
- cell manufacture
- solar silicon



Solar thermal costs



Producing kWh - a comparison

A bunch of assumptions

Geography good for solar thermal.

No land, finance, transmission connect, up-front, or insurance costs

Low water and labour costs

No peak time tariff, or storage advantage.

No raw material supply problem.

Established technology

25 year lifetime

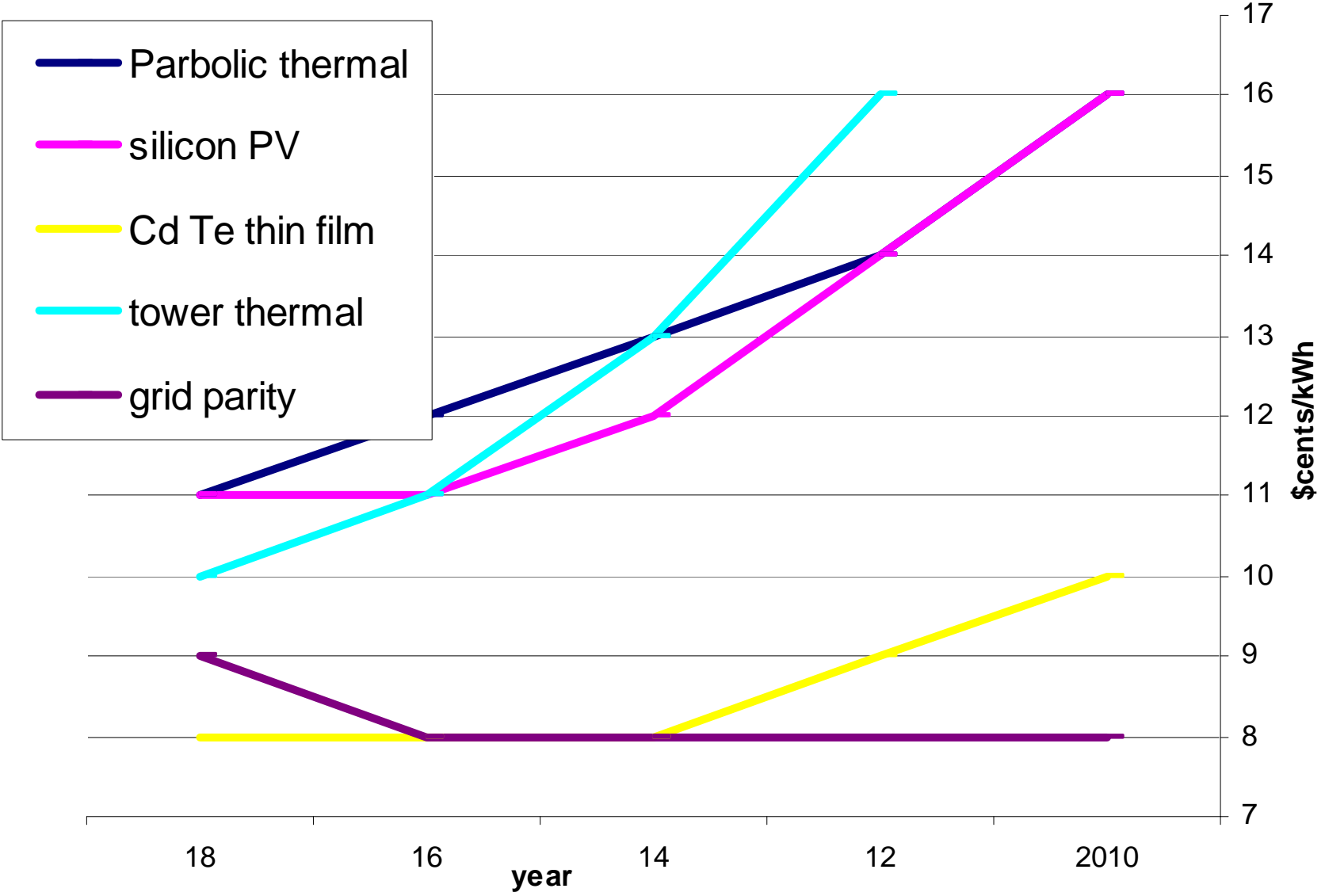
Future earnings discounted at a similar rate.

No technology upgrade possible.

Cheapest technology in category taken

5% cost of finance.

Solar costs – the future



The End