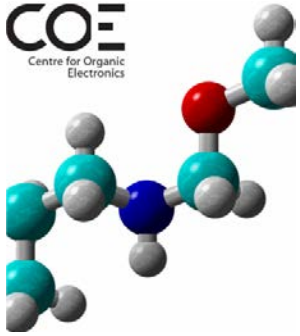
ANFF

NEWCASTLE INSTITUTE FOR ENERGY AND RESOURCES

COE Centre for Organic Electronics



Solar Paint

A Hunter Based Solution to Clean Energy

Dr Ben Vaughan

The Power of the Sun

"The amount of solar energy reaching the surface of the planet is so vast that in one year it is about twice as much as will ever be obtained from all of the Earth's non-

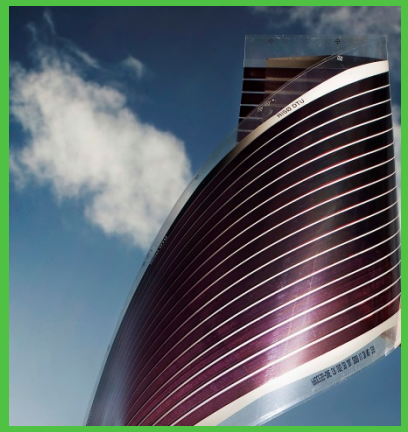
Solar Power

Thermal

Photovoltai

Traditional Solar vs. Solar Paint

VS.

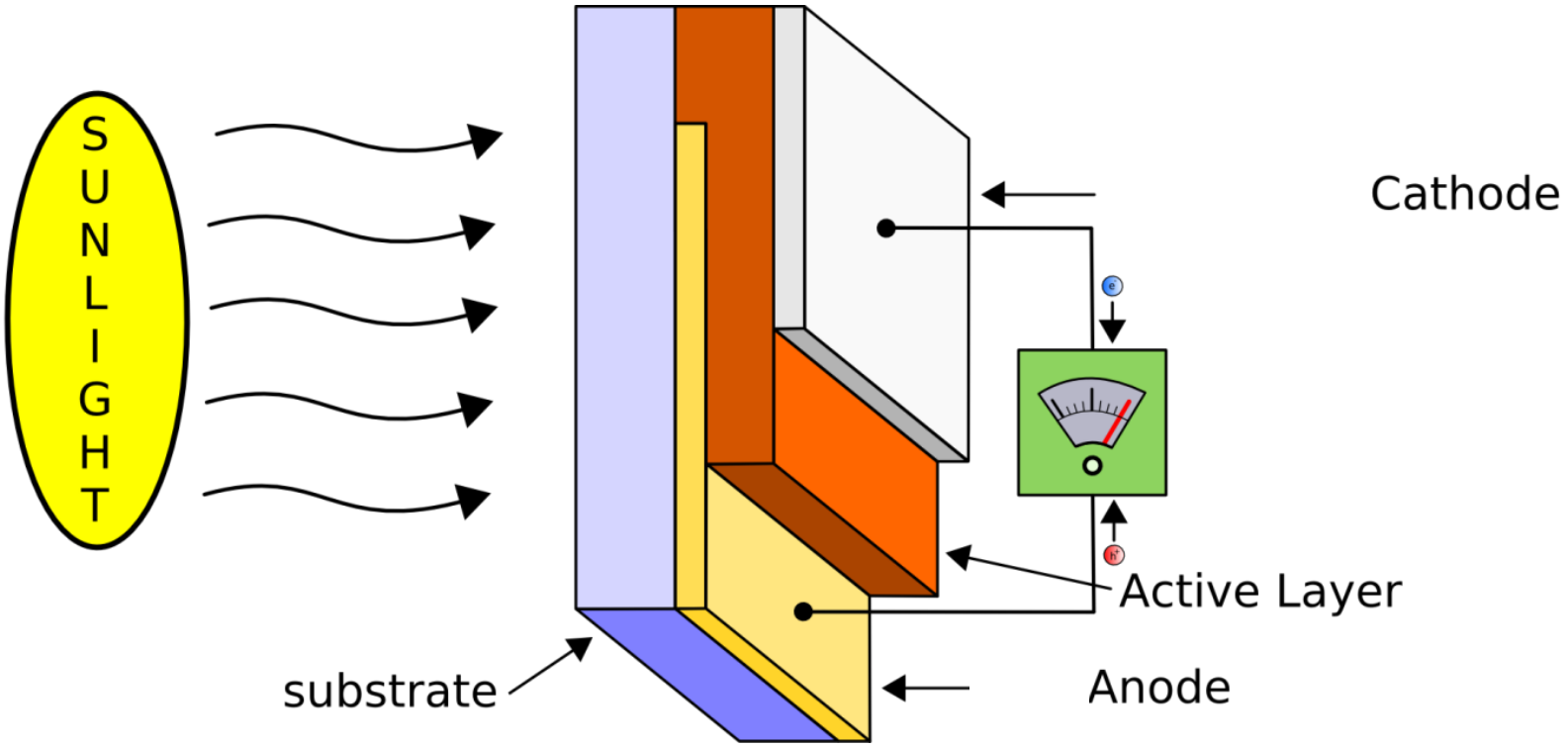


- 8-12% Typical Efficiency
- 20 Year lifetime

- 1-5% Typical Efficiency
- 1 - 5 Year lifetime

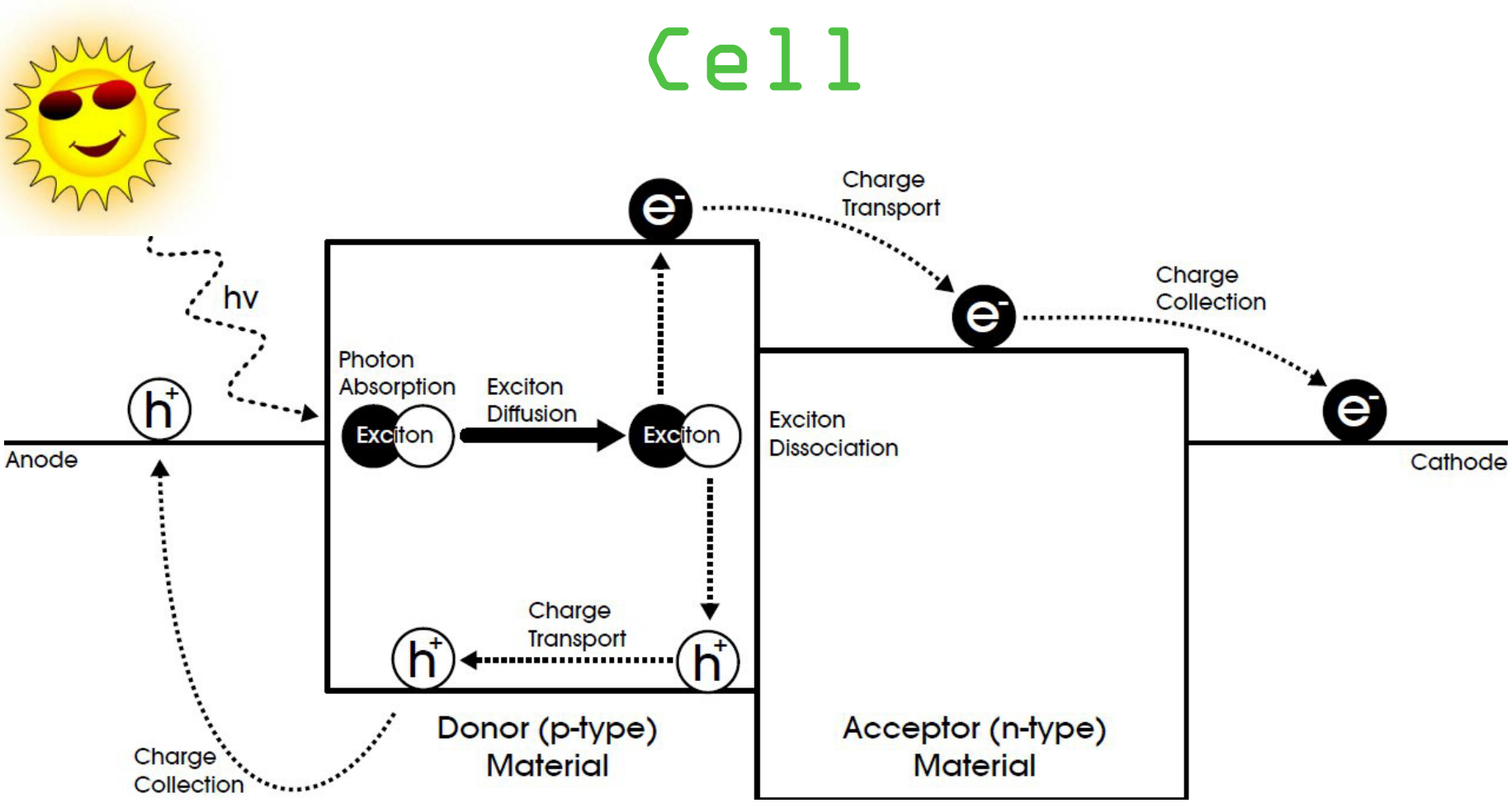
A clear winner… but perhaps

Solar Paint Cell Structure



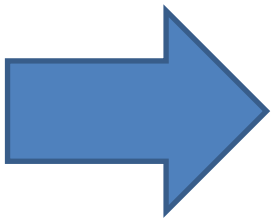
The active layer is 1000 times thinner tha

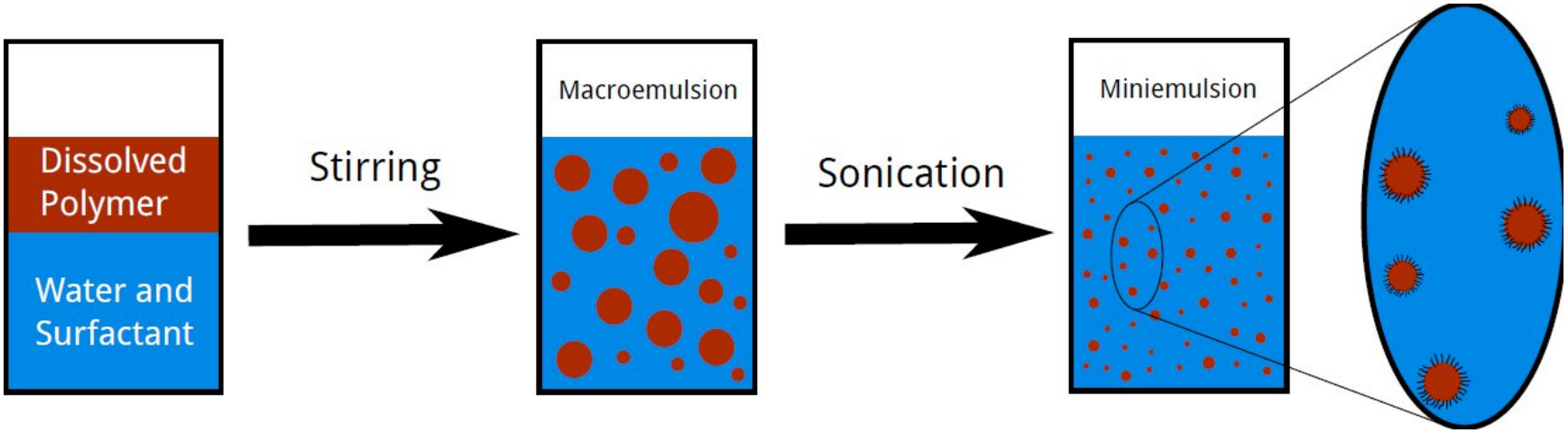
Inner Workings of a Cell



How Research Cells are Made

Solar Paint is Water Based



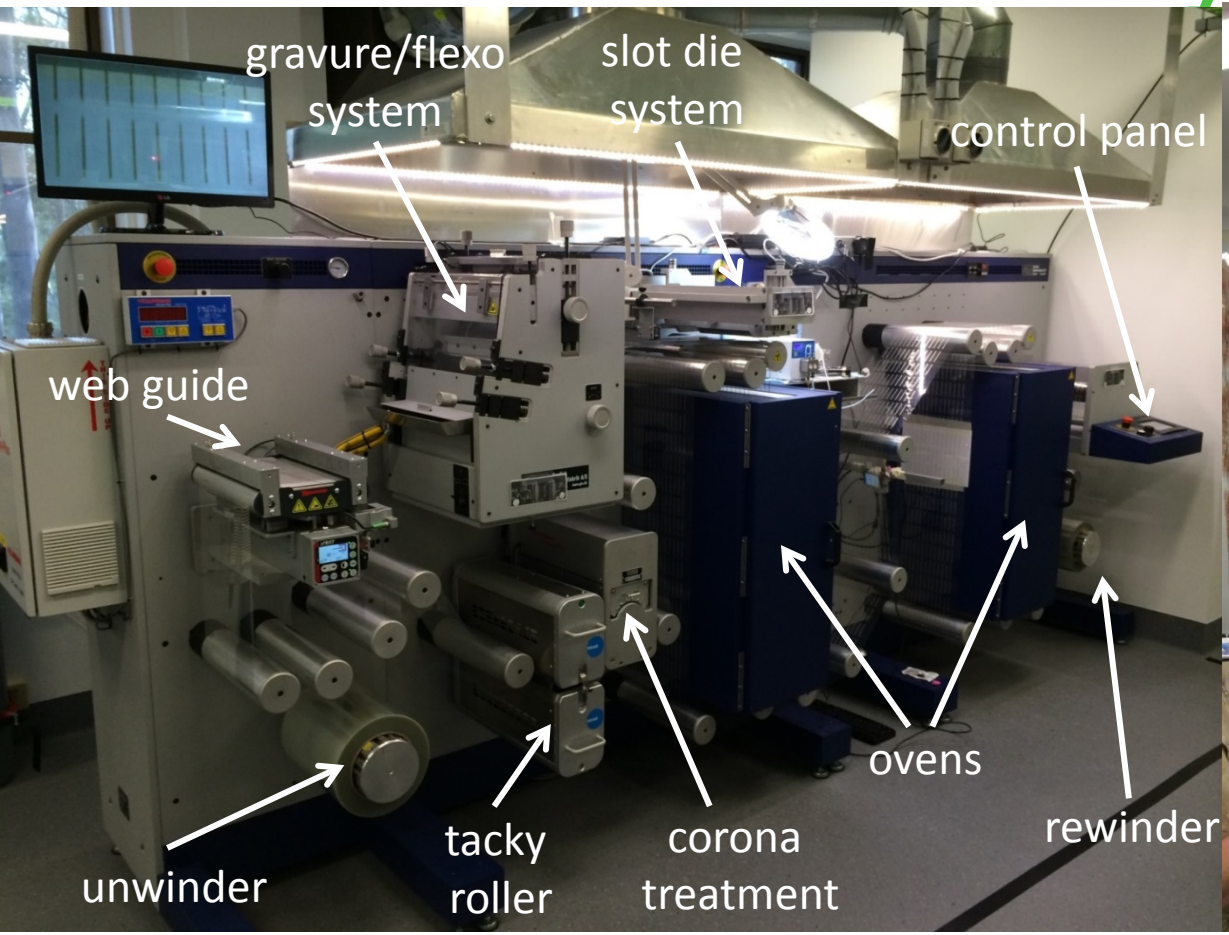


Large Area Solar Paint

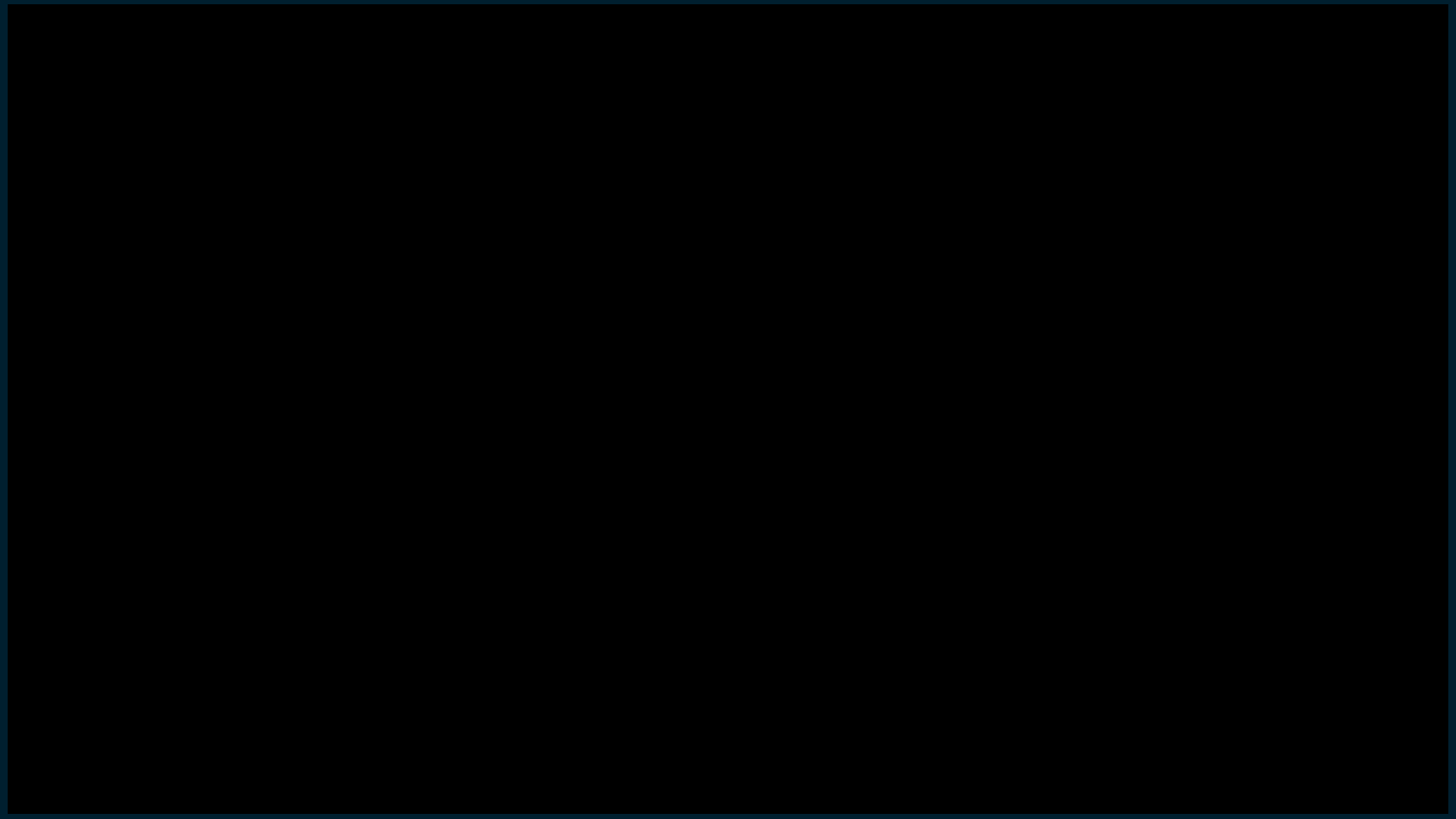
Roll-to-roll (R2R) coating is:

- Fast: 1 to hundreds of metres a
- Low cost compared to batch proce

Our Pilot Scale Facility



An OPV Module
How we make them

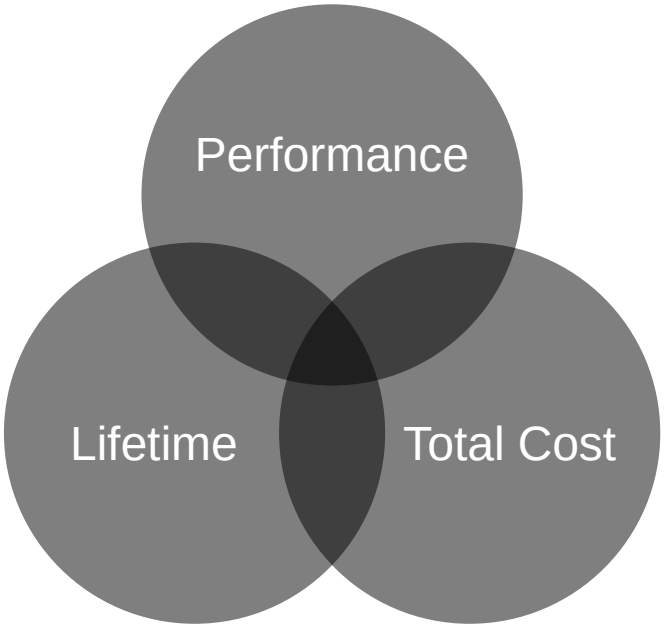


What is the Goal?

Stage 1: 1% Solar Paint Module

Stage 2: 3%, 1 Year Lifetime Solar Paint Module

Stage 3: 3%, 3 Year Lifetime Solar Paint Module



We've had some success already

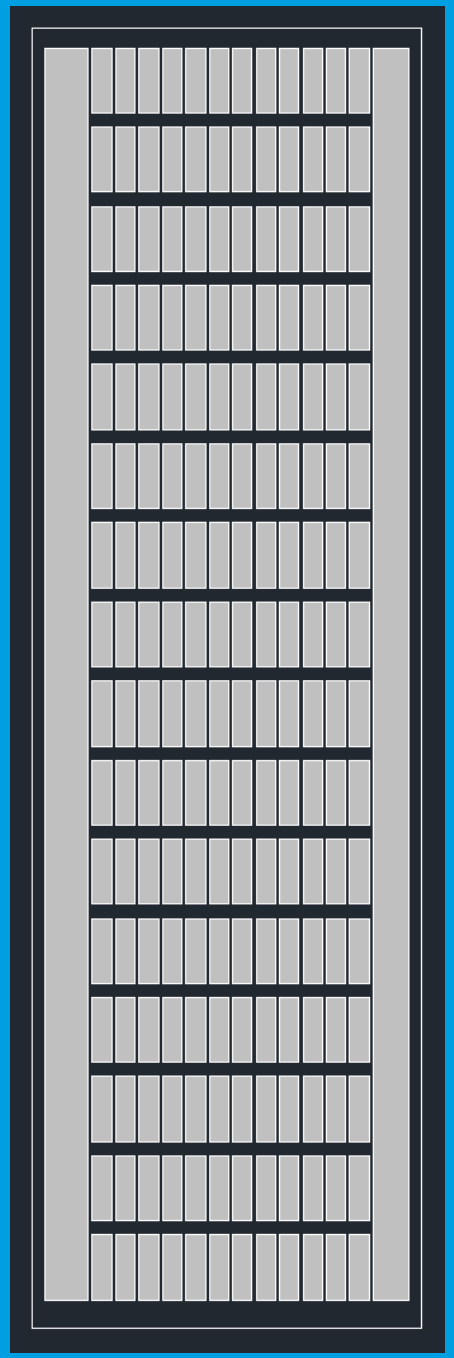
Module Architecture

2. Watts

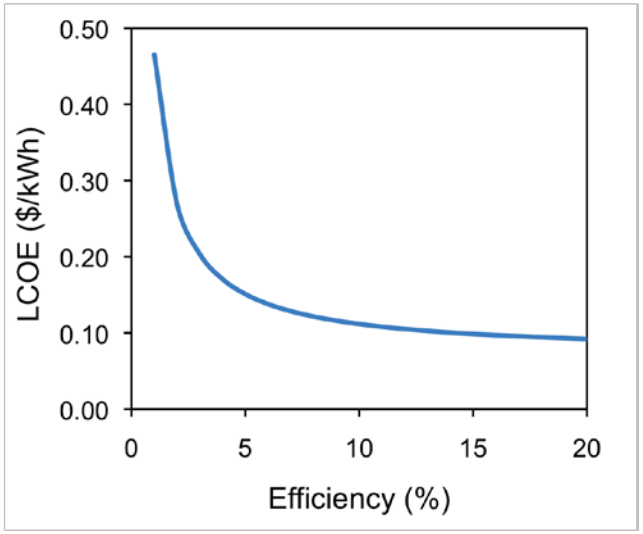
5

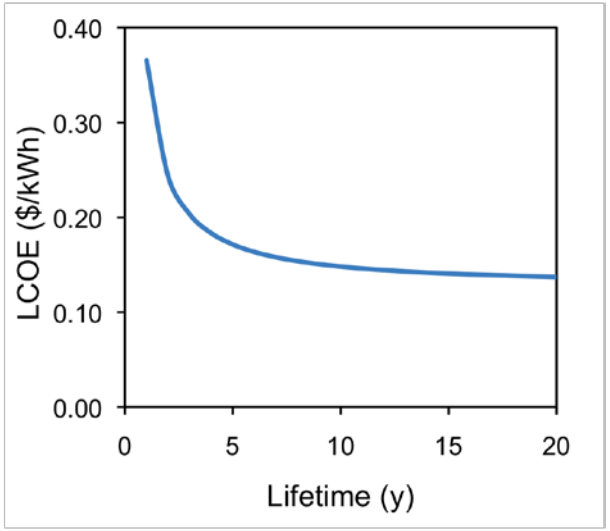
7.7 Volts

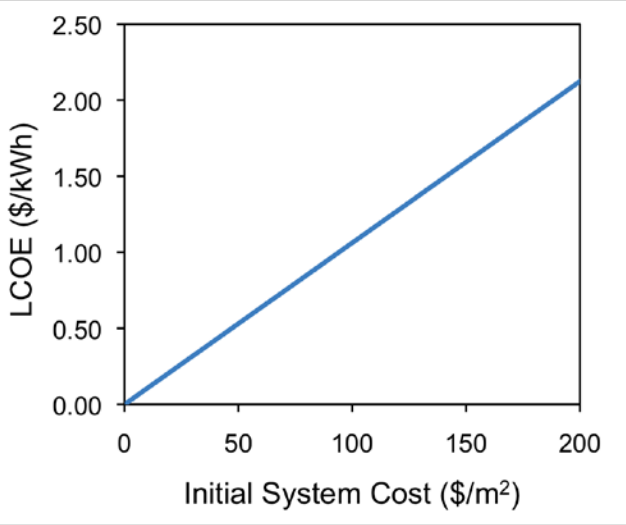
.32 4 Amps

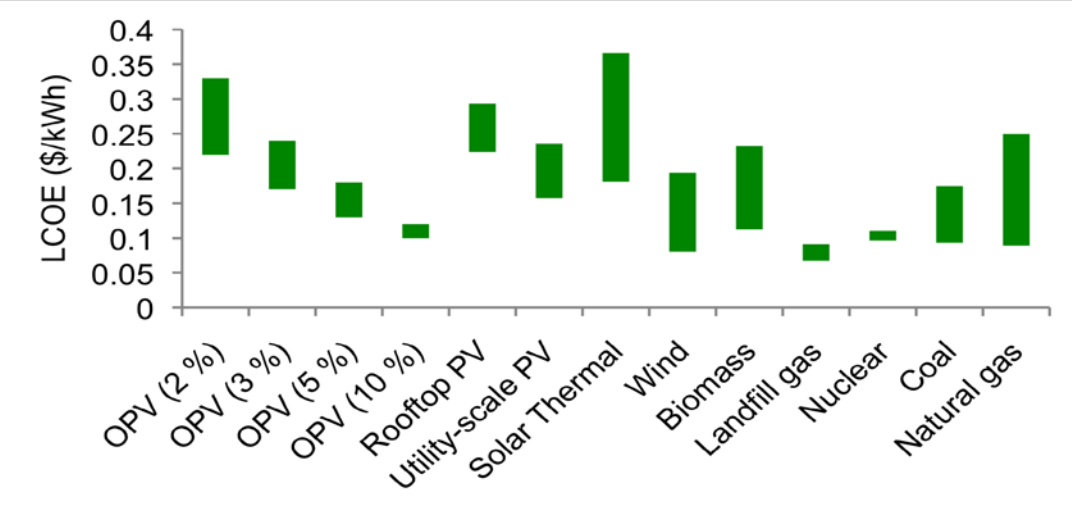


Cost Driven Design









Encapsulation
Making it last

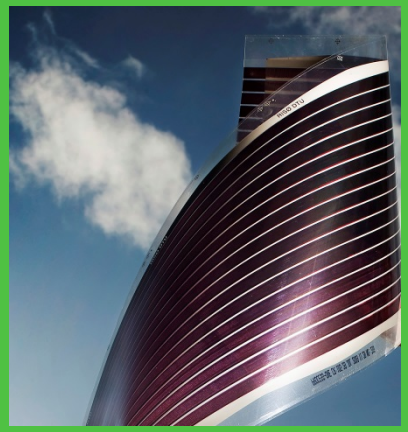
3M

$75

$5

A New Solar Business Model

VS.



- Locked in for 20 Years
- High up-front cost
- Relies on government

- Upgrades every 3 Ye
- Low up-front cost
- Self-sustaining

Similar to a mobile phone c

Potential First Markets

Greenhouses

Disaster Relie

In the next 3 years we could have a solar industry in the Hunter Valley producing recyclable solar modules that generate electricity cheaper than nuclear, gas or coal.

This is only The Beginning