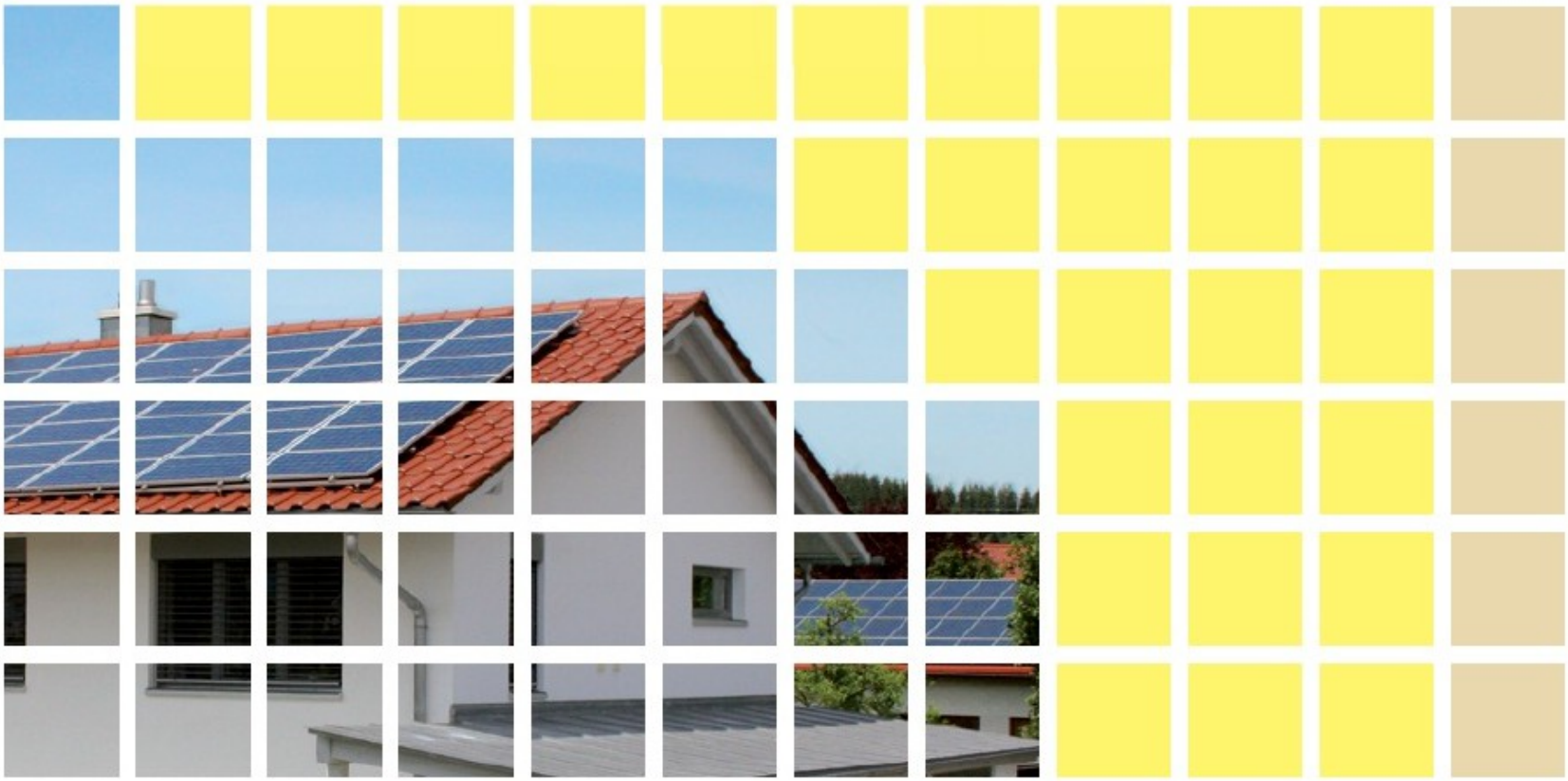
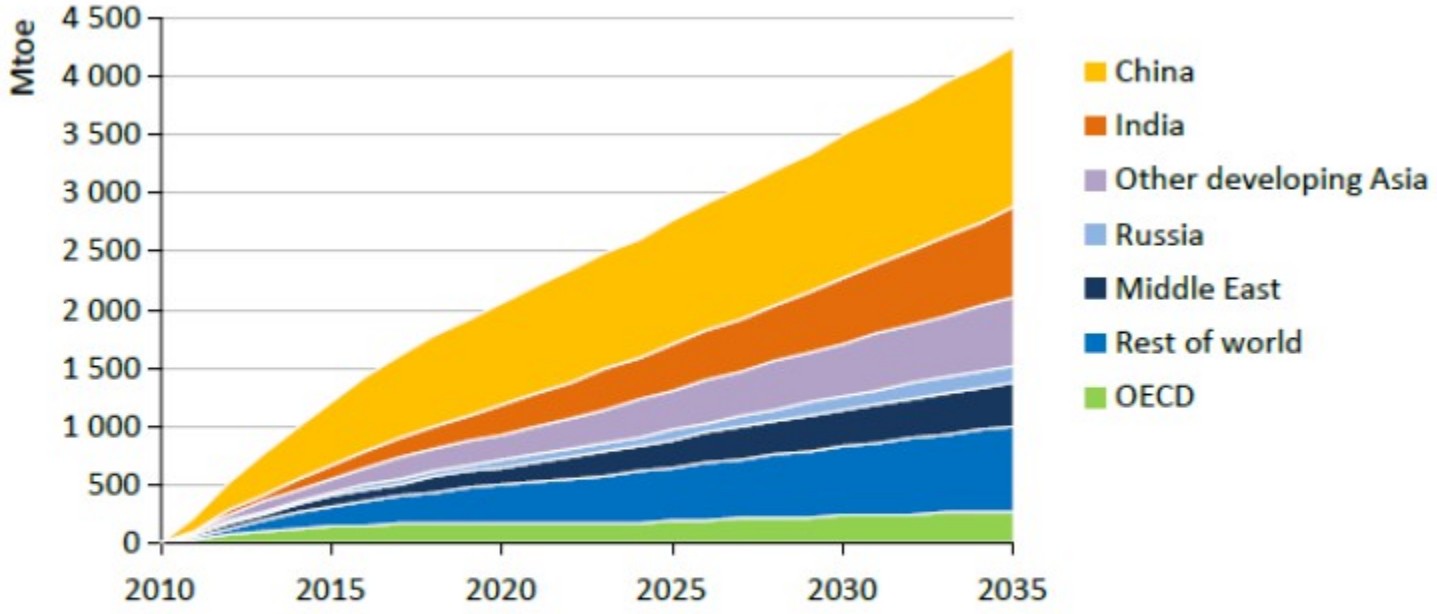
SOLAR POWER ENERGY SYSTEMS



Purple Edge Group

Engineering Sustainable Technology

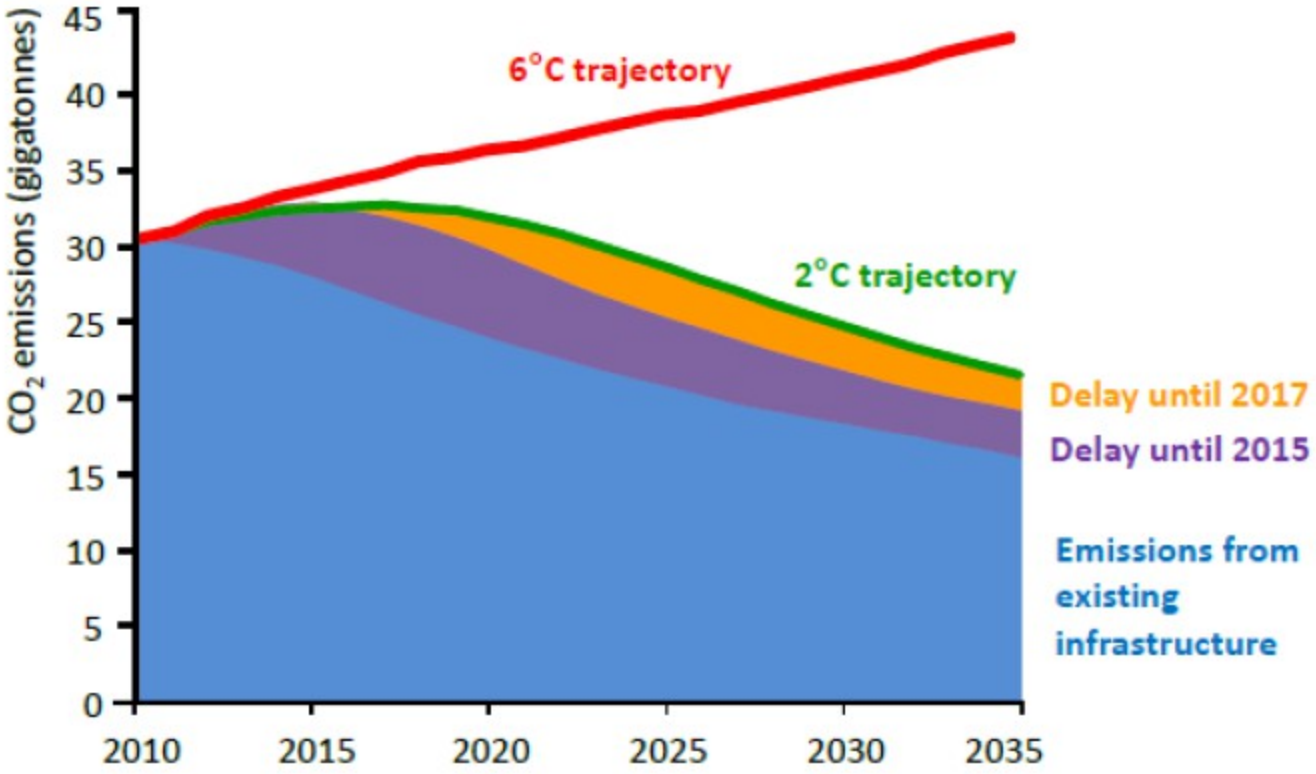
Introduction – Global Energy Demand



Global energy demand increases by one-third from 2010 to 2035, with China & India accounting for 50% of the growth

Energy demand set to increase due to population increase and development

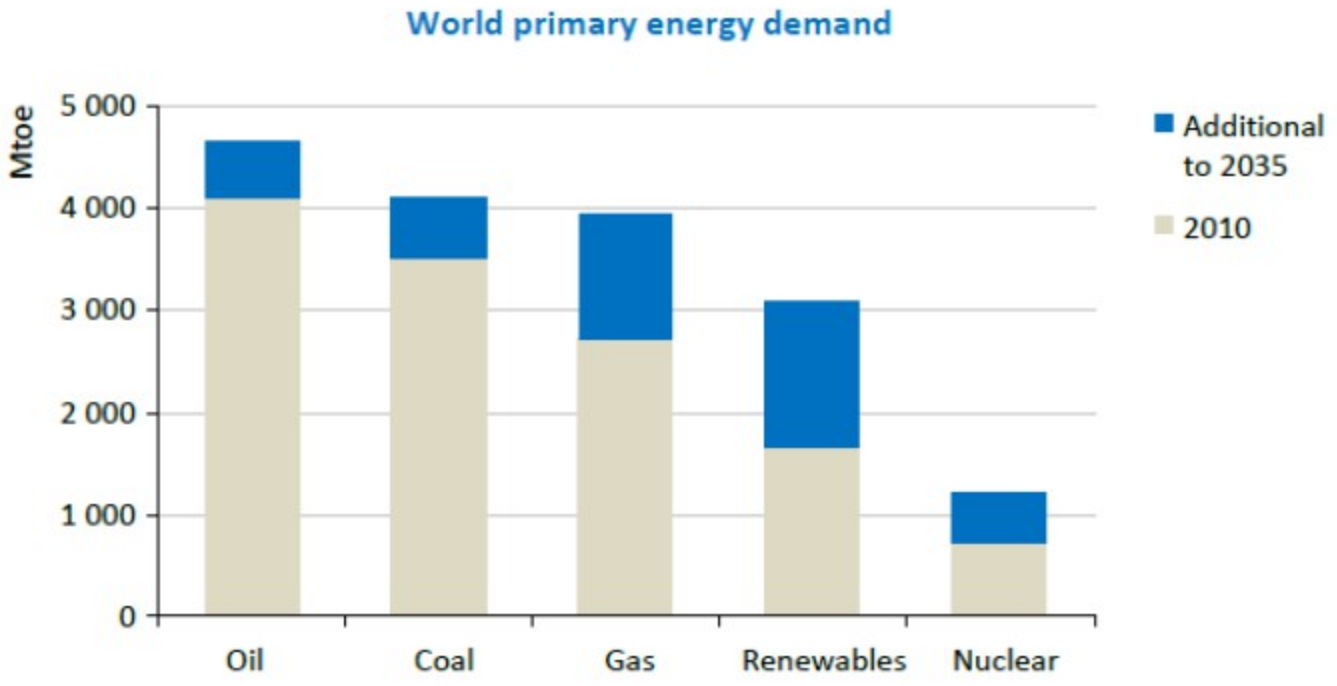
Introduction – CO_2 Emissions



Without further action, by 2017 all CO_2 emissions permitted in the 450 Scenario will be "locked-in" by existing power plants, factories, buildings, etc

Results in global warming and climate change

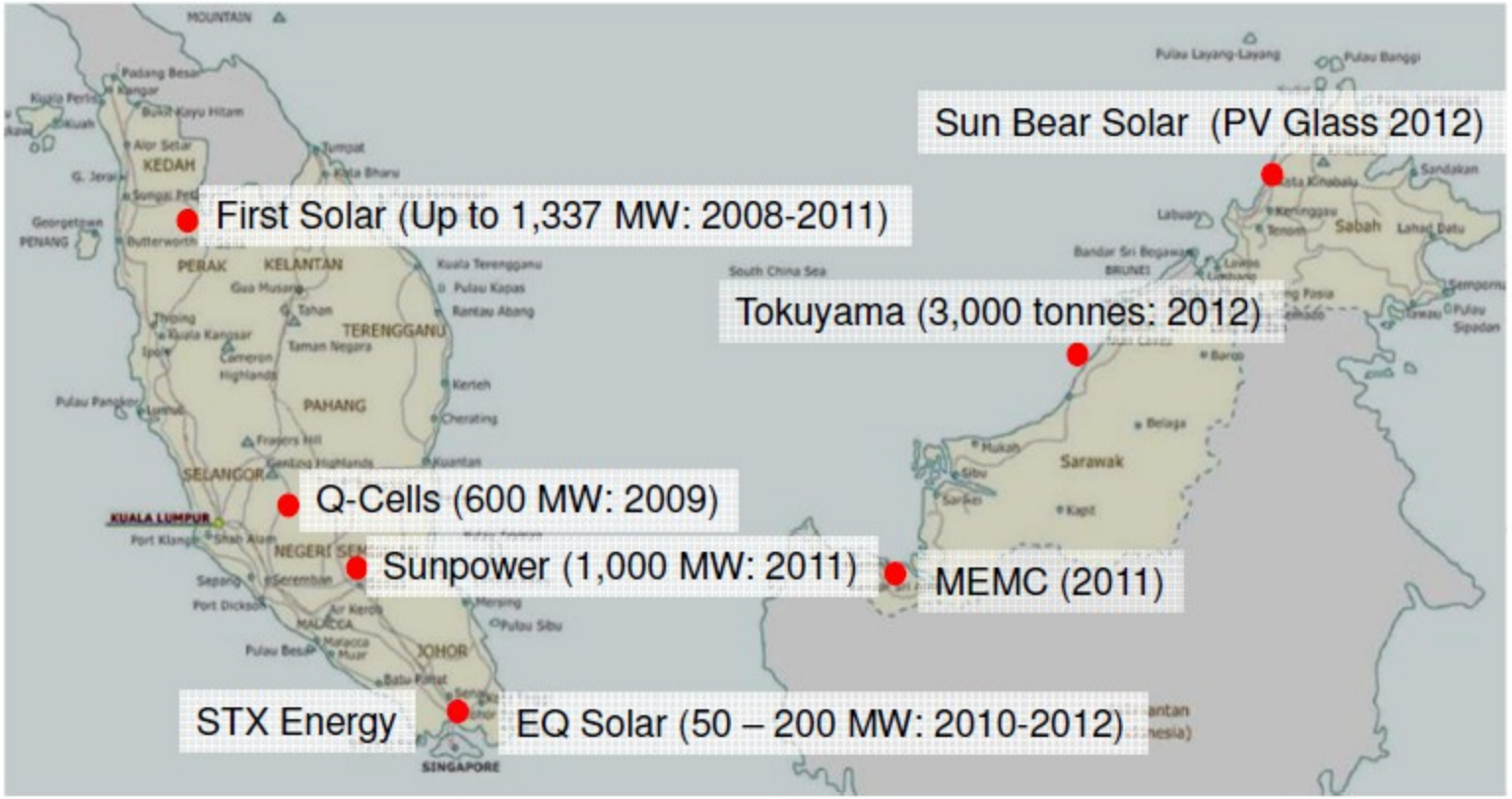
Introduction – Energy Sources



Renewables & natural gas collectively meet almost two-thirds of incremental energy demand in 2010-2035

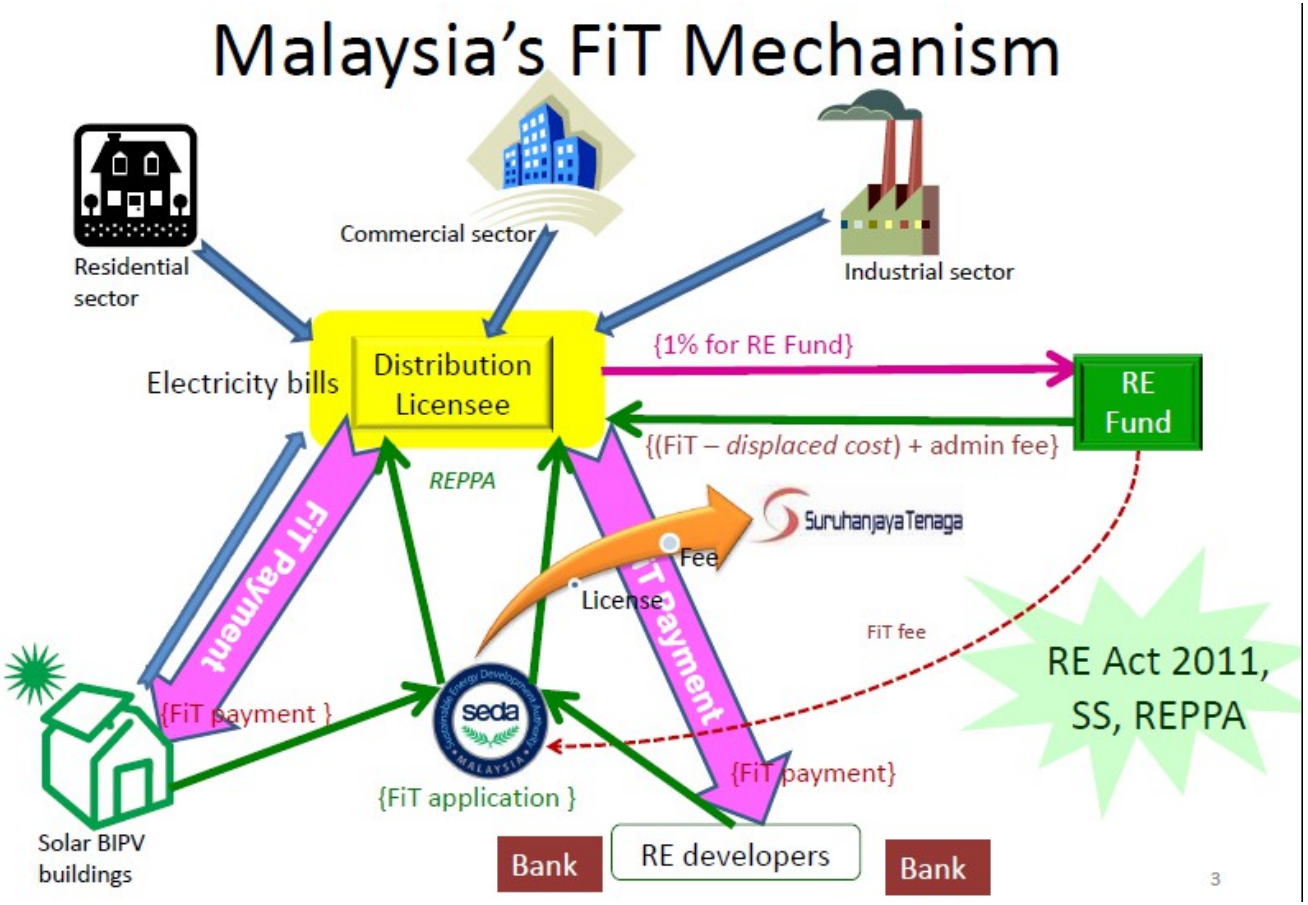
Disadvantages: Rising Fossil Fuel Prices
Pollution from Fossil Fuels and Coal

Photovoltaic Investments in Malaysia



Sites of Large-Scale Photovoltaic (PV) Investments / Manufacturing in Malaysia

FiT Mechanism in Malaysia

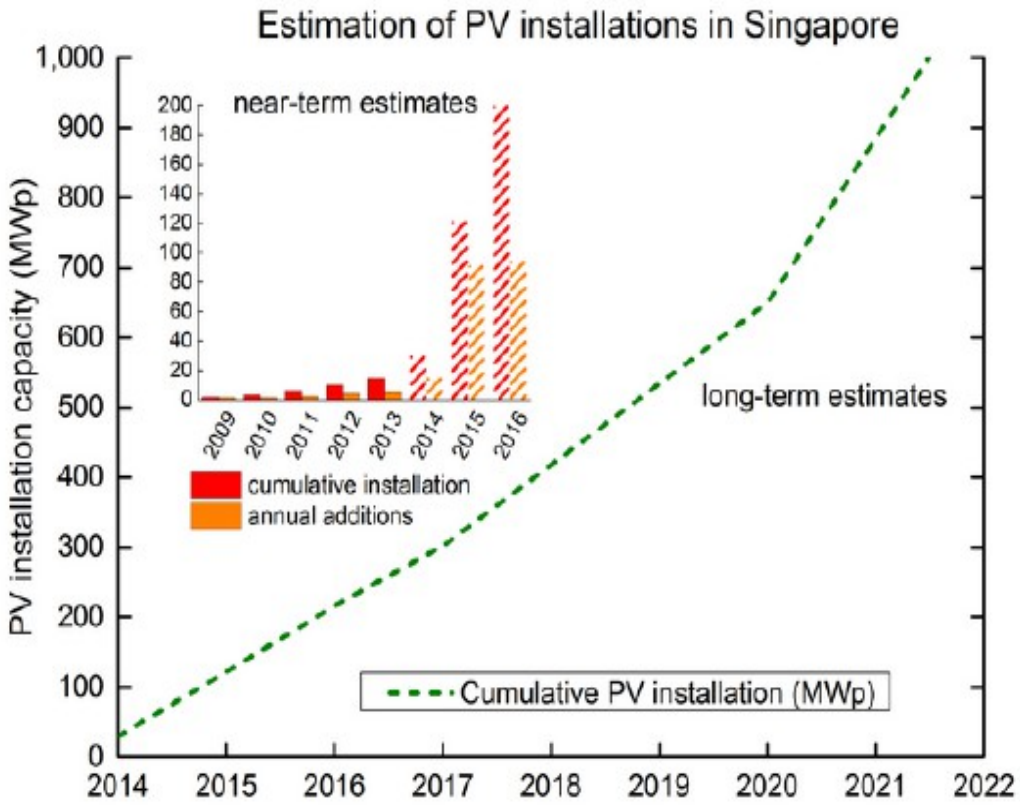


Feed-In-Tariff (FiT) Mechanism in Malaysia – Similar to Germany

Solar Enclave in Setia EcoPark

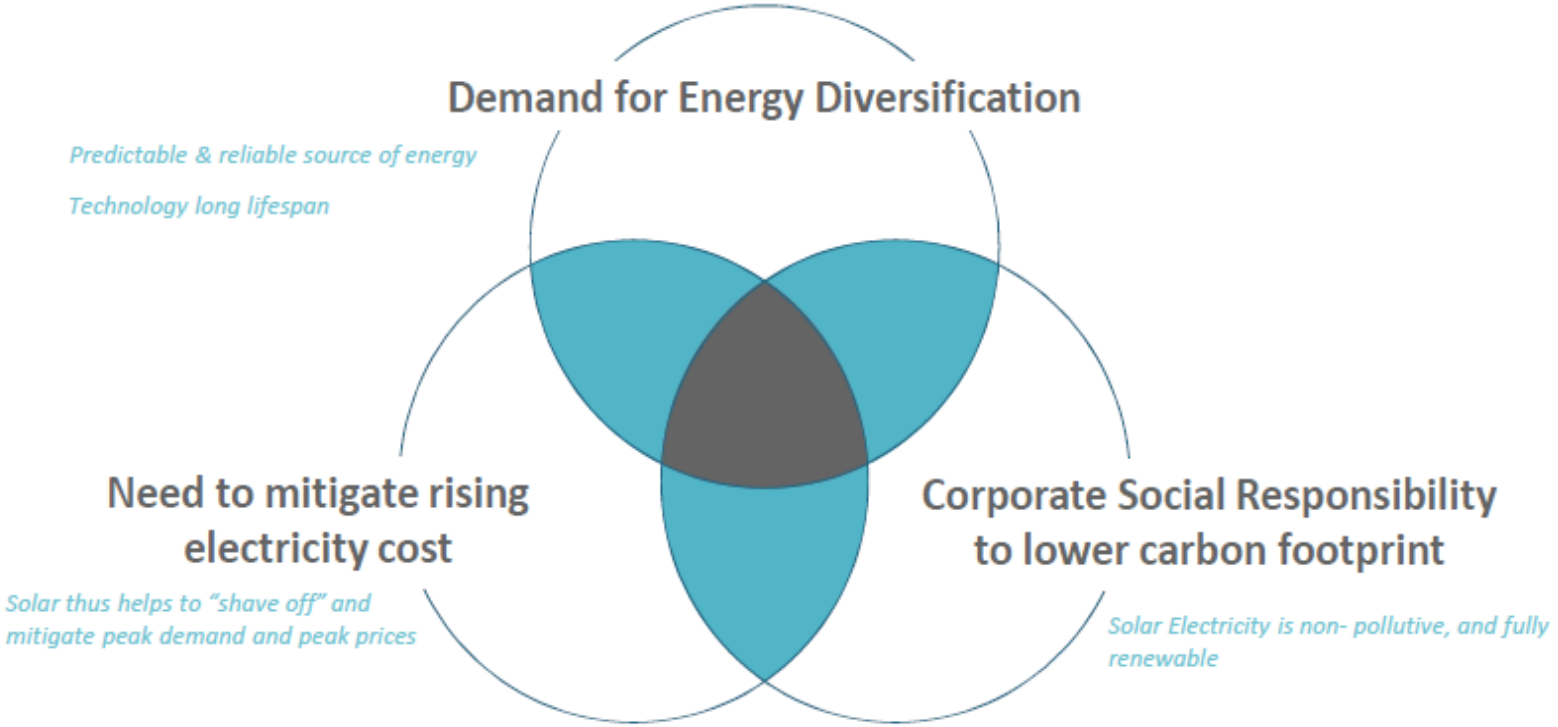
Sustainable Development - Integrating PV in a housing development in Malaysia

Singapore – Compelling PV Opportunity

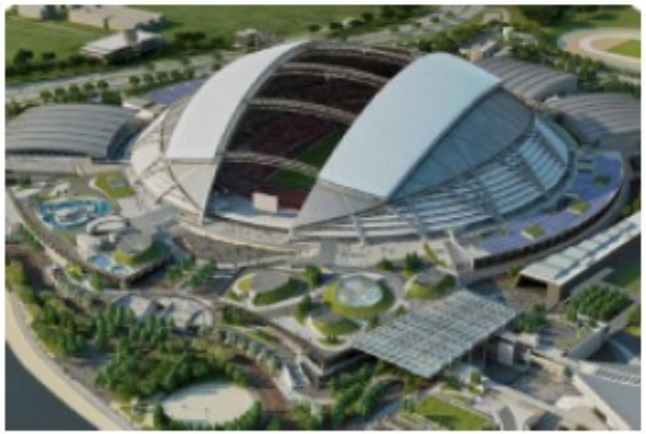


- *Q3 2014*: solar capacity installed **24.2 MWp** (EMA statistics)
- *Today:* solar capacity awarded **60 MWp** (internal analysis)
- *Singapore government* strongly support the solar industry by committing to install **350 MWp** by 2020 (Solar Nova Program)
- *SERIS* sets a conservative target of **2,000 MWp** solar capacity by 2025.

A Compelling case for Solar, at the Intersection of Powerful Trends



Solar Photovoltaic Technology Advantages



- **Reliable technology**:
  - sun radiance conversion ratio > 18%
  - Energy output guaranteed for 25 years
- **Maturing industry** over 30 years of history
- **Prevailing opportunity**: only 24.2 MWp deployed (2014) with total estimated capacity of over 2,000 MWp
- **Competitive prices**: solar kWh is cheaper than with traditional generation methods.
- **Adequate geography**: Singapore sits on the equatorial sunbelt with high and consistent irradiance.

Leveraging on Green Technology

MONETIZE YOUR ROOFTOP SPACE

Your roof top is an asset that you can leverage on to generate green and cheap electricity without spending your capital

Types of Solar Power Systems – Grid Tied

Residential systems

Residential Systems

Able to generate solar energy and sell back to the Grid

Commercial systems

Commercial Systems

Able to generate solar energy and sell back to the Grid

Types of Solar Power Systems – Stand Alone

Solar home systems

Non-inverter Systems

Suitable for rural areas and DC appliances

Inverter systems

Inverter Systems

Suitable for rural areas and AC appliances

Typical PV Calculations

Average daily sun hours in Singapore @ 1000W/m^2 = 4.5 hours

Peak Power per PV Module (REC230AE) = 230 Wp

Total quantity of PV Modules installed = 10

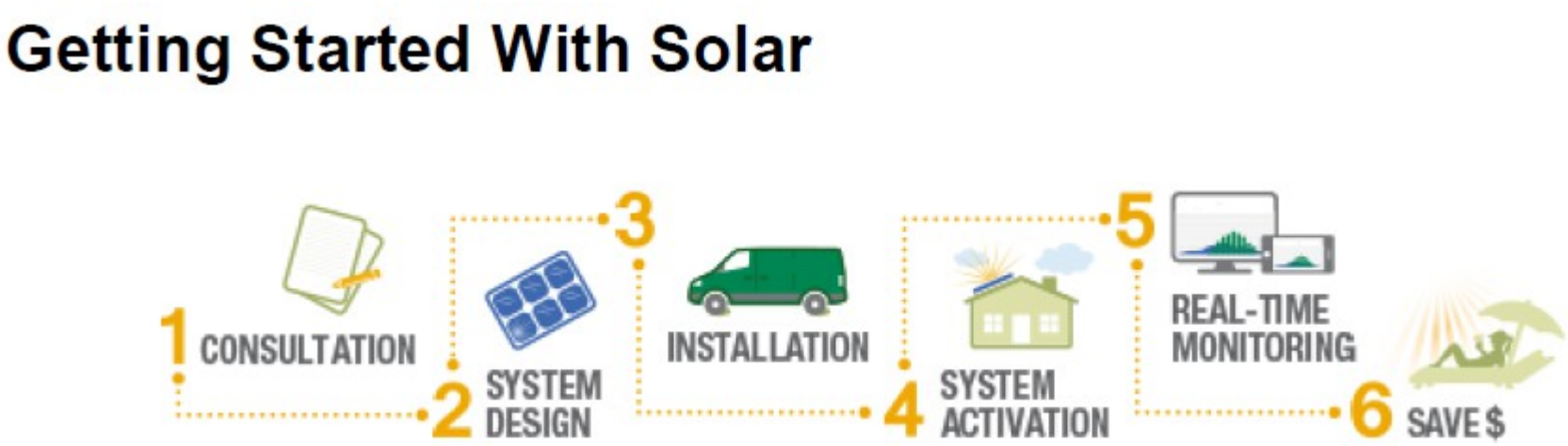
Total Peak Power = 230Wp x 10 = 2.3 kWp

Typical De-rating factor = 70%

Estimated energy output / day = 2.3 kWp x 4.5h x 0.7 = 7.25 kWh

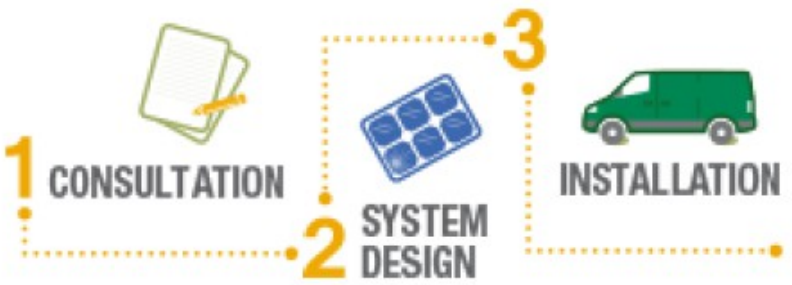
Estimated energy output / year (conservative) = 7.25 kWh x 300 days = 2.175 MWh

Solar Energy – How to Get Started ?



6 Simple Steps

Solar Energy – How to Get Started ?



1 Consultation

Find out how solar power can lower your energy costs and generate income.

2 System Design

We custom-design a solar power energy system, specifically to meet your energy needs and saving goals.

3 Installation

We put up the solar panels on your roof and make sure that everything is well set-up.

Solar Energy – How to Get Started ?

4 System Activation

You are producing clean solar energy, saving money and the environment all at the same time!

5 Real-Time Monitoring

Your system is tracked in real-time using our solar energy monitoring system to ensure that it is running at optimum level.

6 Save $

Thank You!