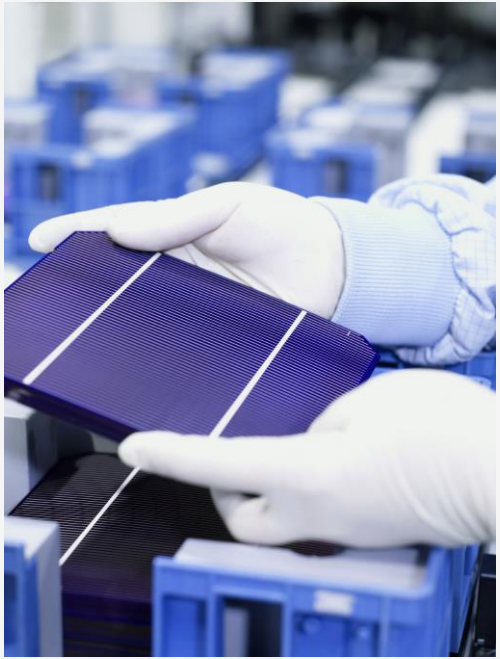
PV Systems - Applications and Design

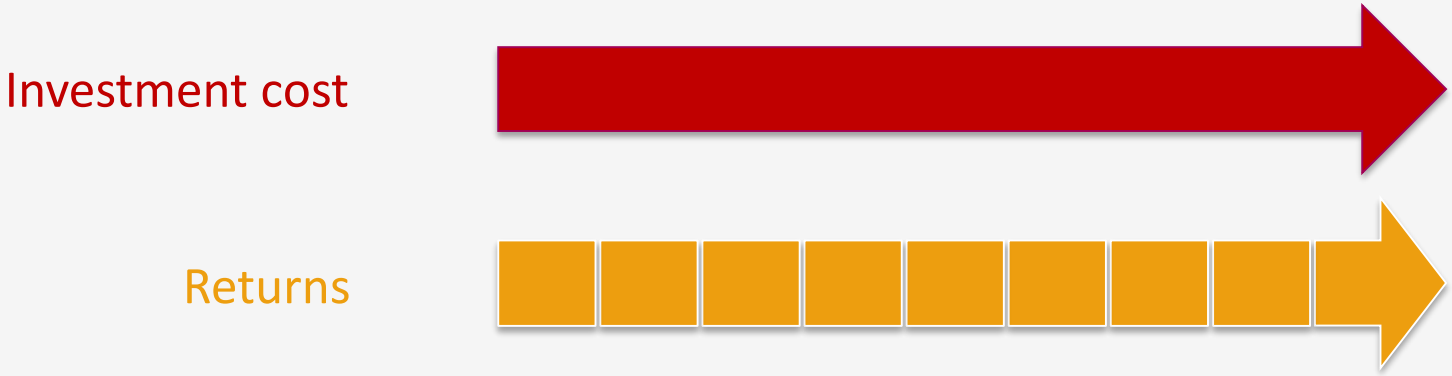
Economics of PV Systems

Week 8.3

Arno Smets, Nishant Narayan



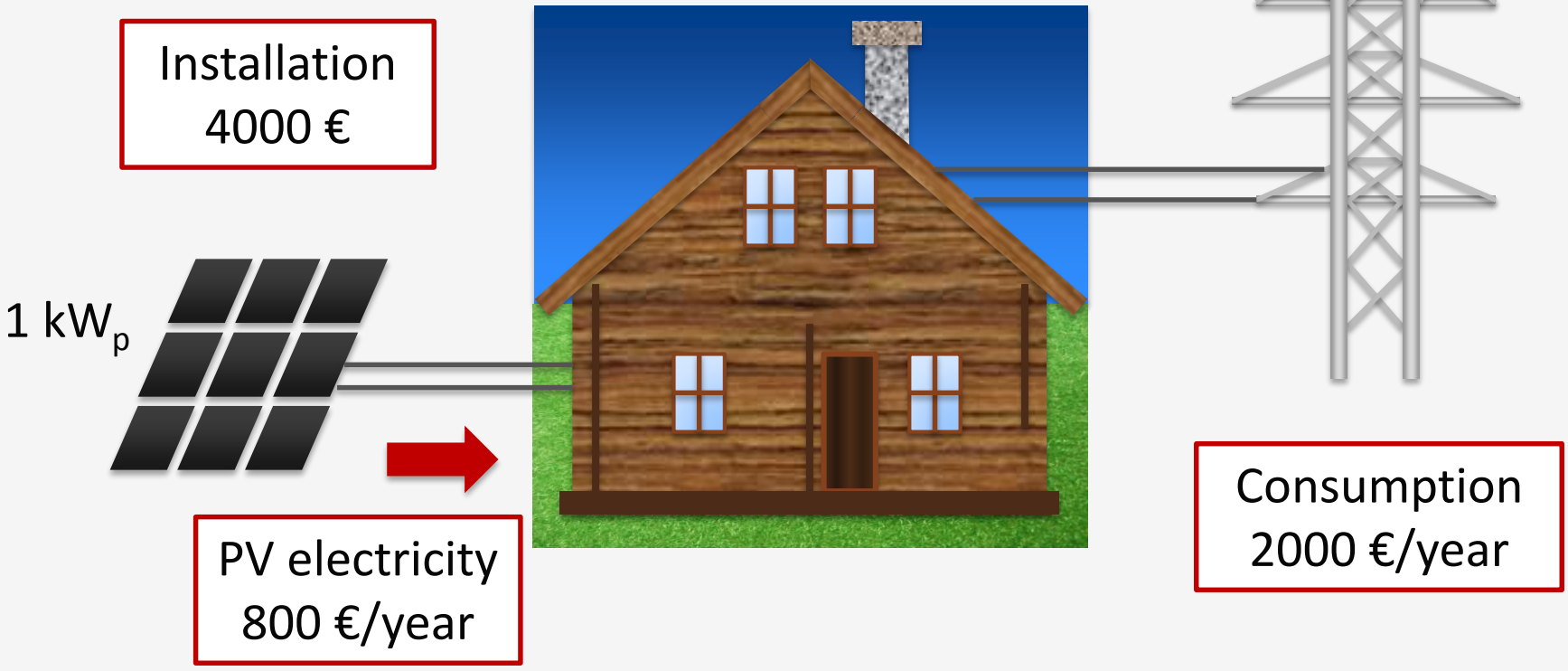
Payback period



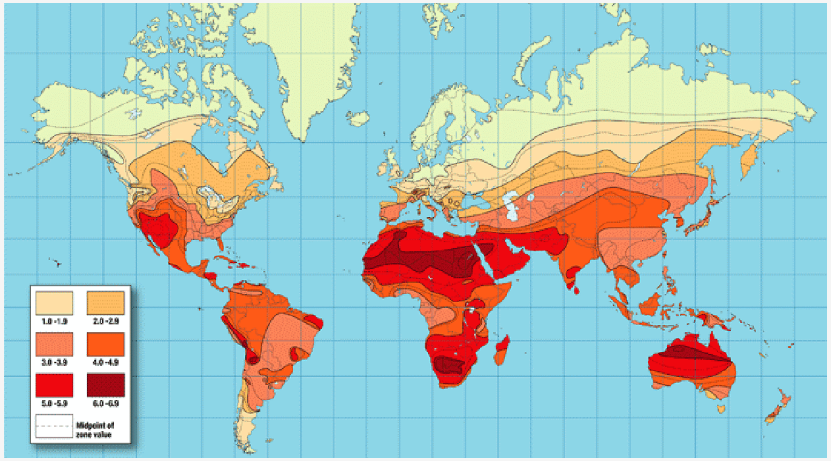
$$\text{Payback period} = \frac{\text{Investment cost}}{\text{Returns/year}}$$

Example – Payback period

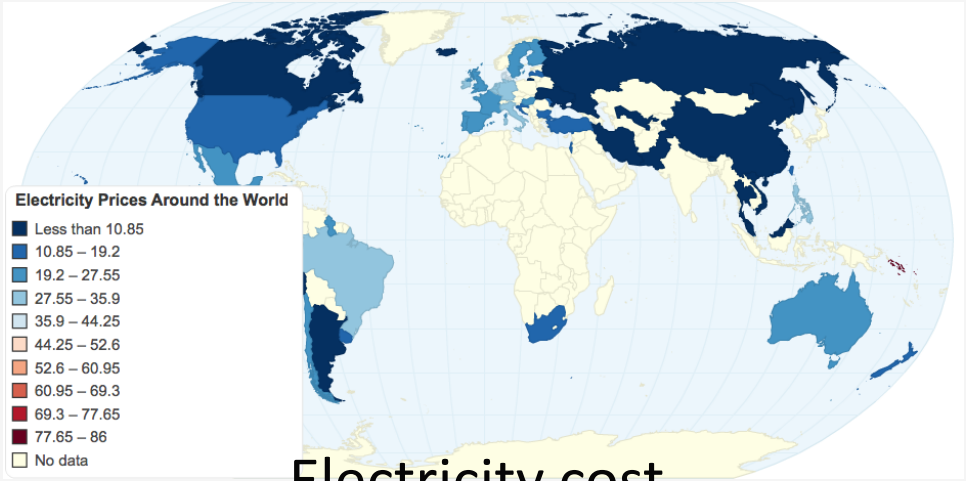
Installation
4000 €



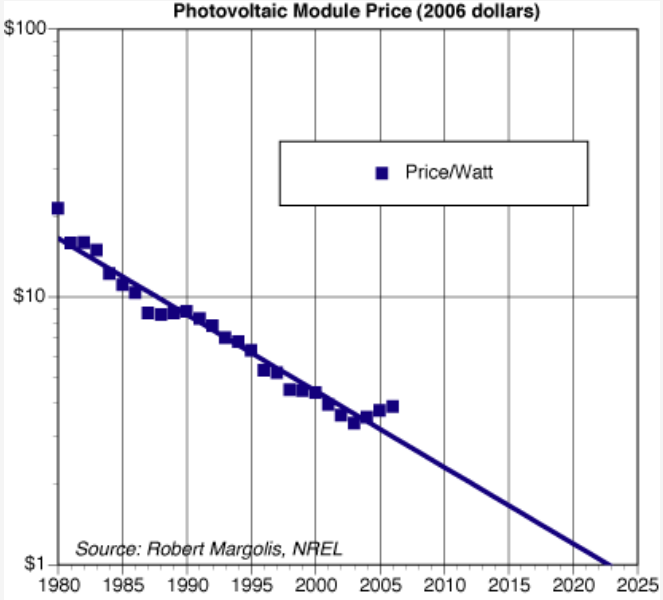
Example – Payback period



Insolation

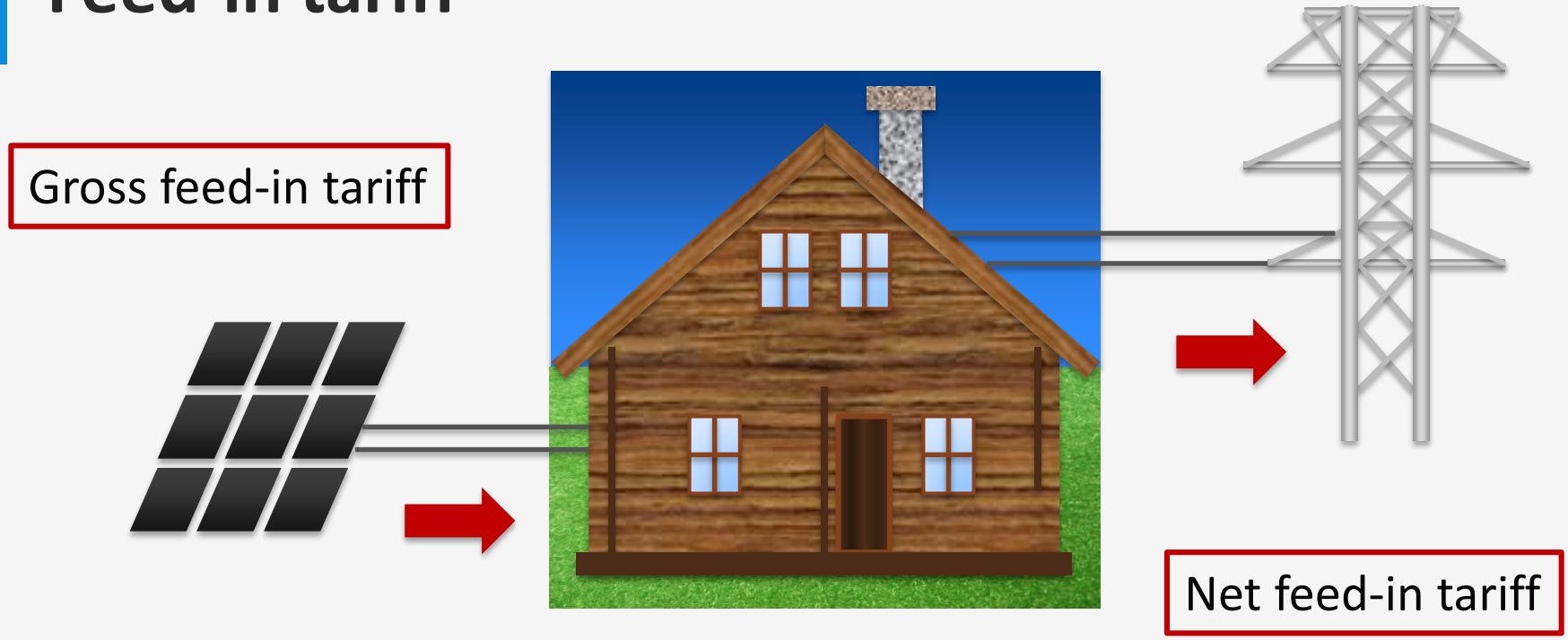


Electricity cost

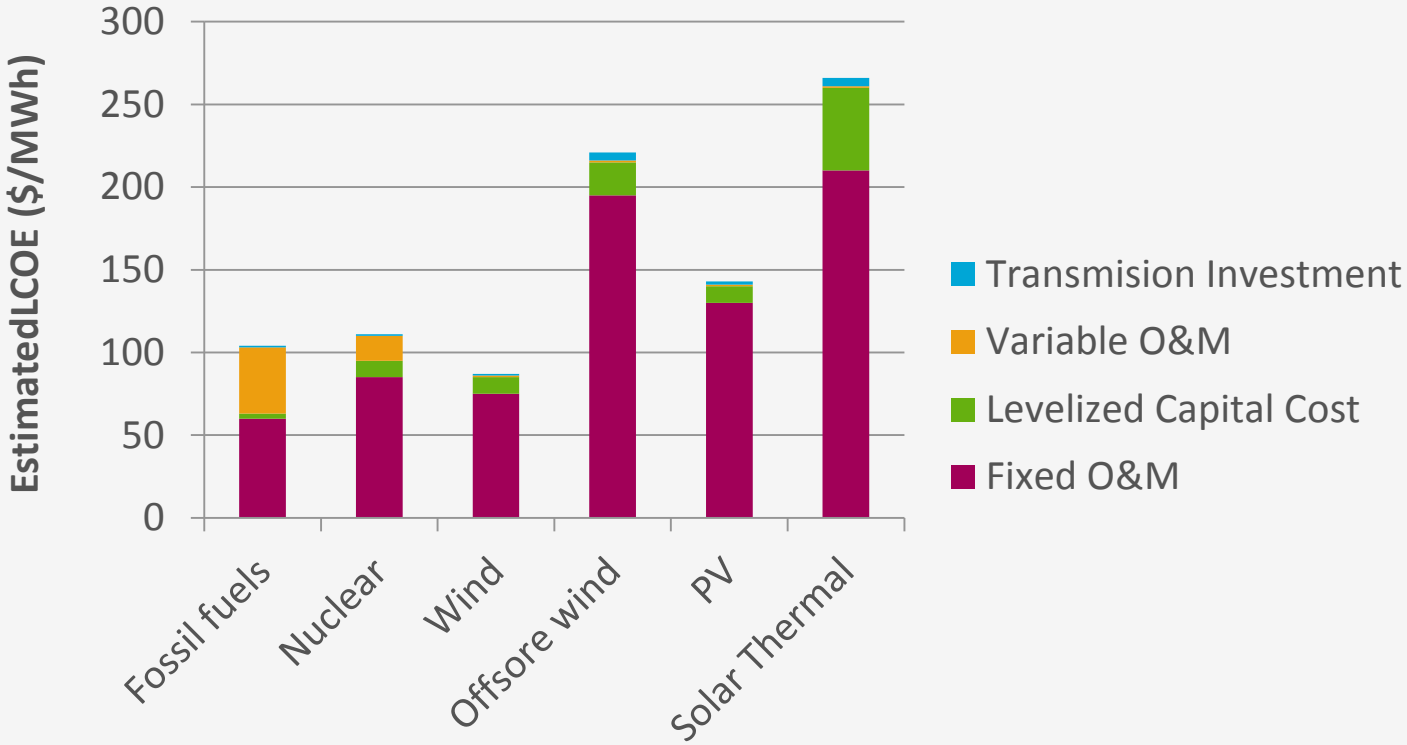


PV system cost

Feed-in tariff



Levelized cost of electricity (LCOE)



Source: Energy Information Administration

Levelized cost of electricity (LCOE)

$$LCOE = \frac{I_0 + \sum_{t=1}^{N} \frac{A_t}{(1+i)^t}}{\sum_{t=1}^{N} \frac{E_t}{(1+i)^t}}$$

A_t = Total annual cost in year t

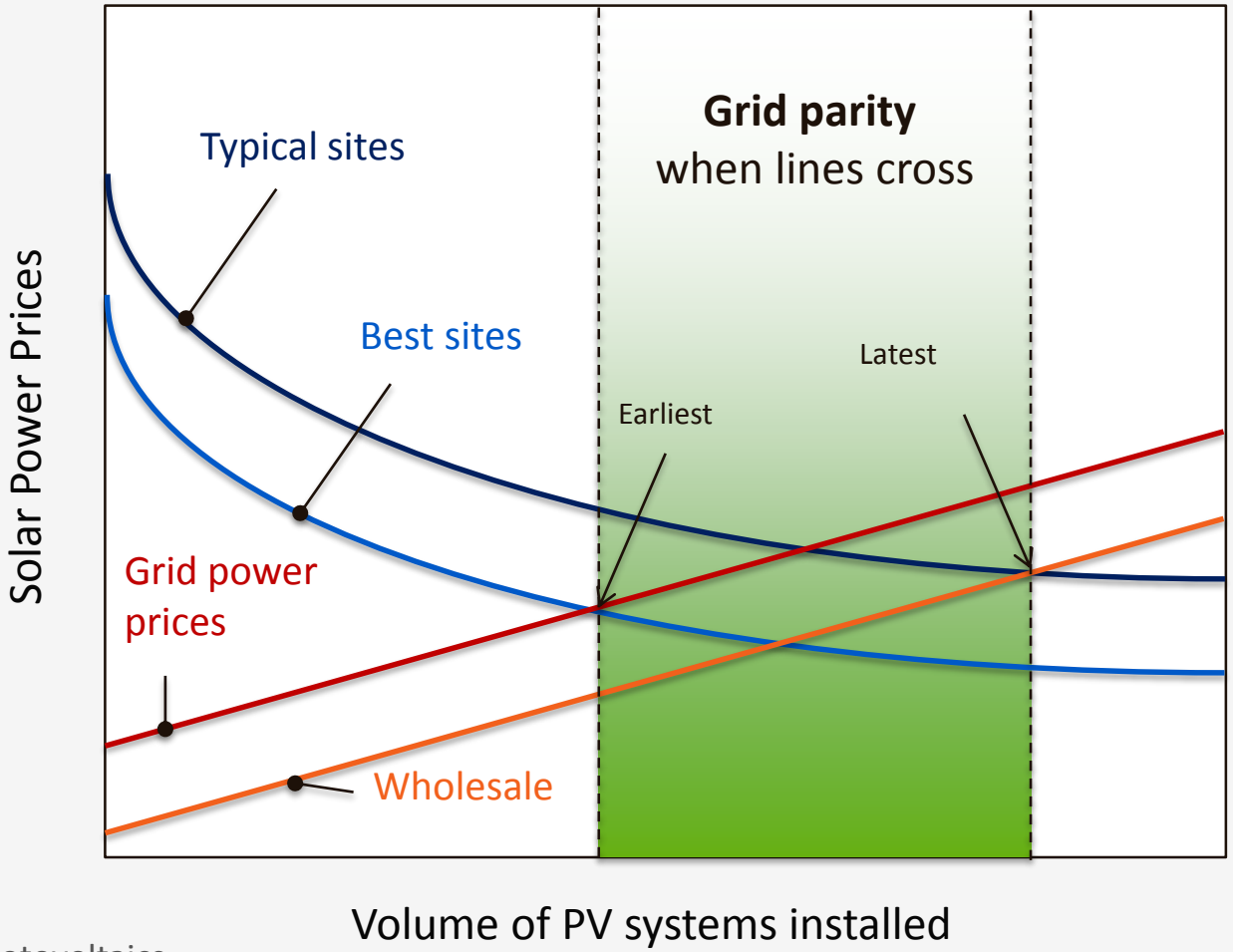
I_0 = Initial investment

E_t = Annual energy yield

r = Discount rate

Grid parity

Grid parity



Source: Practical Handbook of Photovoltaics

Thank you for your attention!