HYDROGEN EARTHSHOT SUMMIT AUGUST 31, 2021

Lessons from SunShot

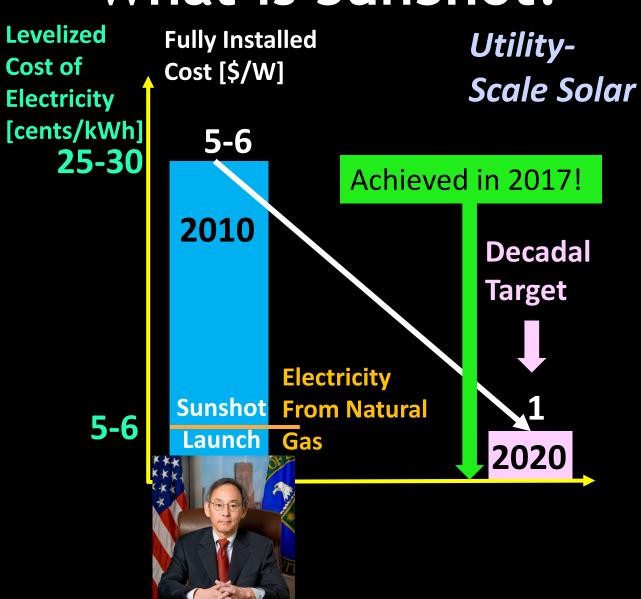
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Acting Undersecretary of Energy

What is SunShot?



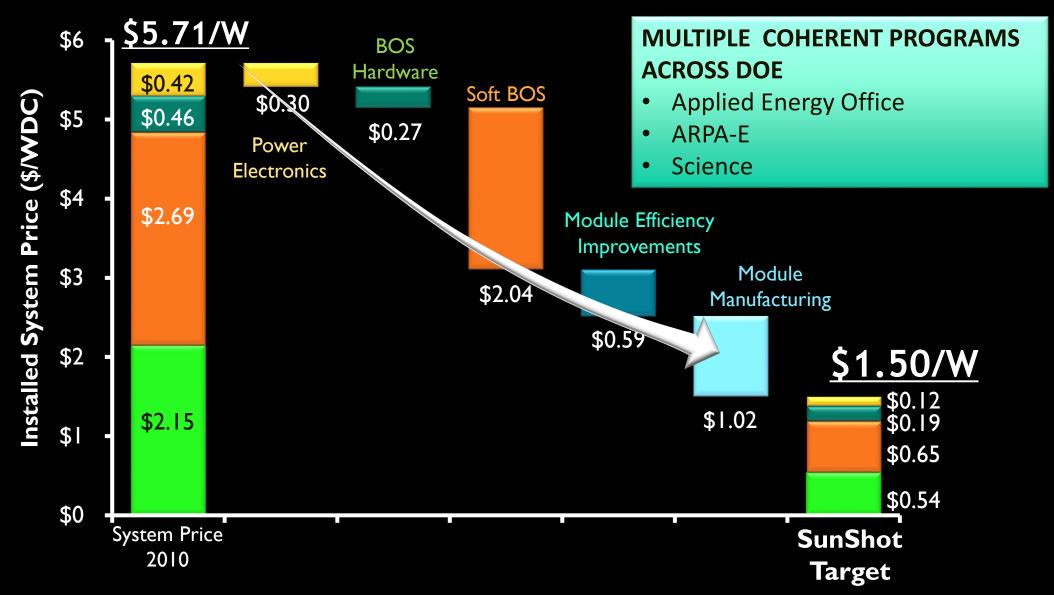


- Urgency
- Challenging stretch goal
- Technology agnostic
- Global competitiveness
- Organizing principle for innovation

The SunShot Portfolio



Example from Residential PV





Hydrogen Shot

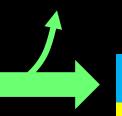
Steam

Water

Natural Gas Infrastructure Gray Hydrogen (95% of Today)

Hydrogen + CO₂ Emissions

\$1/kg-H₂ \$7.5/MMBTU CO₂ Capture (CO₂ Pipelines)



Blue Hydrogen

\$1.50-1.75/kg-H₂

Potentially \$1.25/kg-H₂



Electrolysis

Green Hydrogen

Today \$3-5/kg-H₂

Potentially \$1-2/kg-H₂



Pyrolysis



Turquoise Hydrogen

Potentially \$1/kg-H₂

Lessons from Sunshot

Internal to DOE

- 1. Organizing principle to create a **one- DOE coherent approach** (Science,
 ARPA-E, Applied Energy Offices)
- 2. Need the right federal TEAM + LEADER
- 3. Identify, focus and fund the right problems on multiple pathways & along innovation value chain

External to DOE

- 1. Inspires and catalyzes the whole ecosystem to become globally competitive
- 2. Identifies bottlenecks (regulatory, manufacturing, technology, science) and helps DOE focus on investing in the right problems

Energy Earthshots: Renewed Sense of Urgency & Purpose



We choose to do these things not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win...

September 12, 1962 Rice University