

**CITY OF EL PASO, TEXAS  
AGENDA ITEM  
DEPARTMENT HEAD'S SUMMARY FORM**

**AGENDA DATE:** 6/7/2021  
**PUBLIC HEARING DATE:** NA

**CONTACT PERSON(S) NAME AND PHONE NUMBER:** Nicole Ferrini, 915.212.1659

**DISTRICT(S) AFFECTED:** All

**STRATEGIC GOAL:** Goal 8 - Nurture and Promote a Healthy, Sustainable Community

**SUBGOAL:** 8.4 Reduce operational energy consumption

**SUBJECT:**

**APPROVE** a resolution / ordinance / lease to do what? **OR AUTHORIZE** the City Manager to do what? Be descriptive of what we want Council to approve. Include \$ amount if applicable.  
Presentation of the Regional Renewable Energy Advisory Council's (RREAC) Strategic Plan.

**BACKGROUND / DISCUSSION:**

Discussion of the what, why, where, when, and how to enable Council to have reasonably complete description of the contemplated action. This should include attachment of bid tabulation, or ordinance or resolution if appropriate. What are the benefits to the City of this action? What are the citizen concerns?

The RREAC and City staff have worked on developing the Strategic Plan for the Board. This plan is in alignment with the City's own Strategic Plan and outlines the goals for the four pillars identified by the group: Education, outreach and advocacy; Municipal energy; Industry development; and Renewable energy infrastructure.

**PRIOR COUNCIL ACTION:**

Has the Council previously considered this item or a closely related one?  
No

**AMOUNT AND SOURCE OF FUNDING:**

How will this item be funded? Has the item been budgeted? If so, identify funding source by account numbers and description of account. Does it require a budget transfer?  
NA

**HAVE ALL AFFECTED DEPARTMENTS BEEN NOTIFIED?** X YES \_\_\_ NO

**PRIMARY DEPARTMENT:** Community and Human Development

**SECONDARY DEPARTMENT:** Capital Improvement

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\*\*\*\*\*REQUIRED AUTHORIZATION\*\*\*\*\*



**DEPARTMENT HEAD:** Abraham Gutierrez for Nicole Ferrini

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(If Department Head Summary Form is initiated by Purchasing, client department should sign also)



# Solarize the City of El Paso

## El Paso as a Solar Economic Powerhouse

Regional Renewable Energy Advisory Council (RREAC)  
June 9, 2020

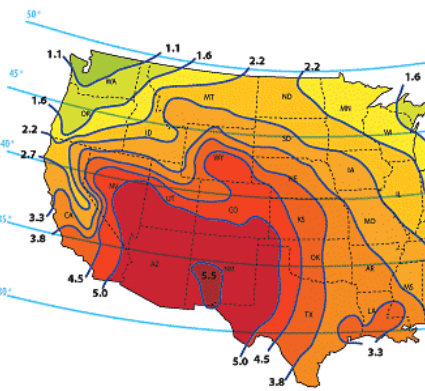
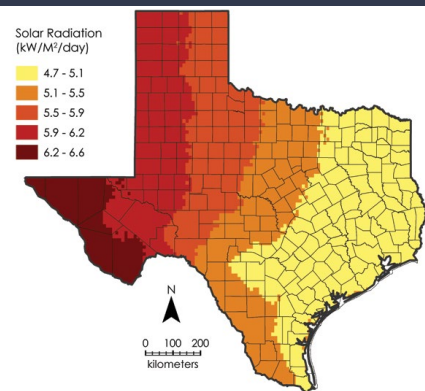
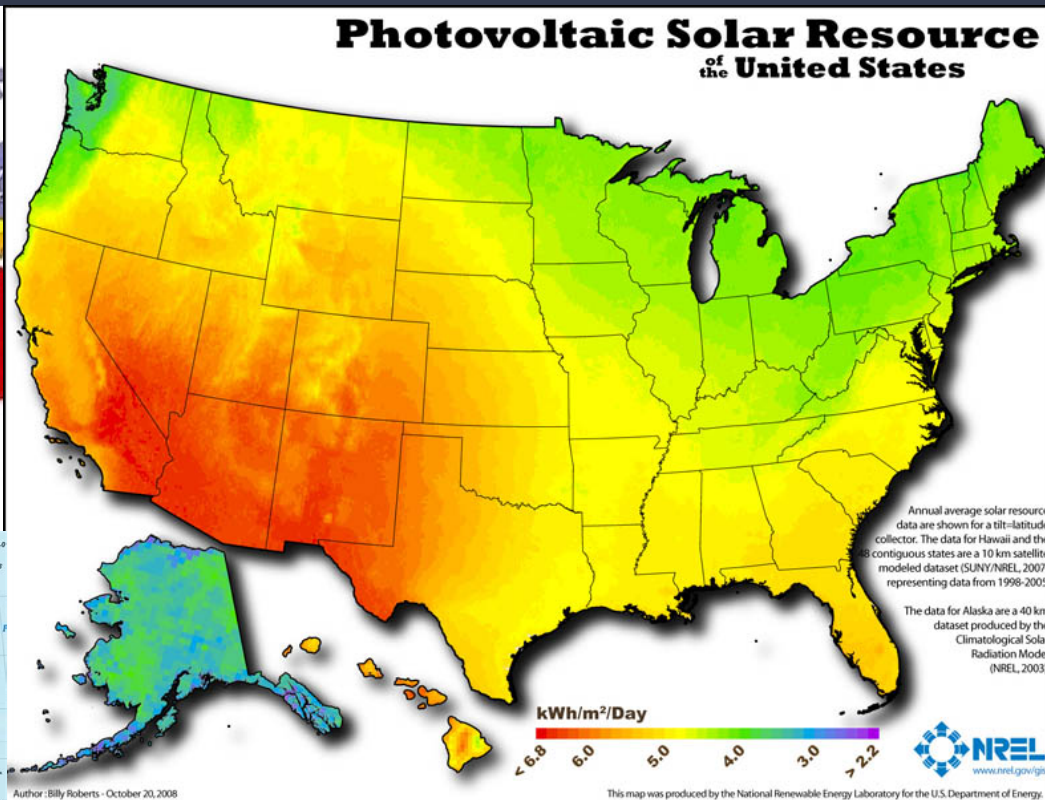
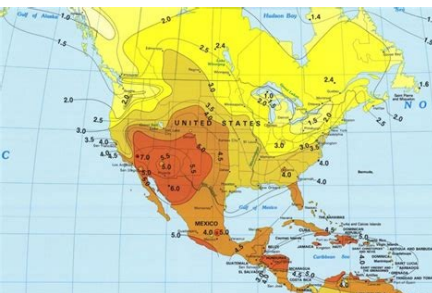
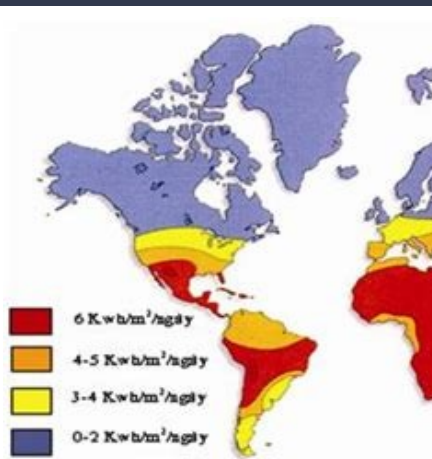
# Agenda:

- Solar Potential and Economics
- Why Solar for the City of El Paso?
- Tax Credits – Solar Investments
- Why are we talking about this now?
- What are Demand Charges?
- What does the City get in return?
- What do the Citizens get in return?
- Our Recommendation?
- What Are We Asking for?
- How does a PPA Work?
- What are PPAs Pros and Cons?
- Utility Scale Solar



# El Paso is #1 in Solar Potential Among Major US Cities

(> 100,000 population)



# Solar Tech is Transforming Electricity Economics



Sources: Bloomberg New Energy Finance, National Renewable Laboratories, Freeing Energy

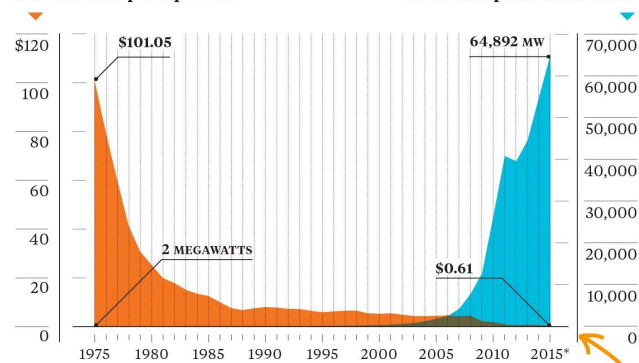
## Solar on Fire

As prices have dropped, installations have skyrocketed.

THE  
FREEING  
PROJECT

Price of a solar panel per watt

Global solar panel installations



\*Estimate. Sources: Bloomberg, Earth Policy Institute, [www.earth-policy.org](http://www.earth-policy.org)

*After tariff removal,  
2021 PV prices will be  
around \$0.20/W —  
and then keep falling  
— 400:1 cheaper!*

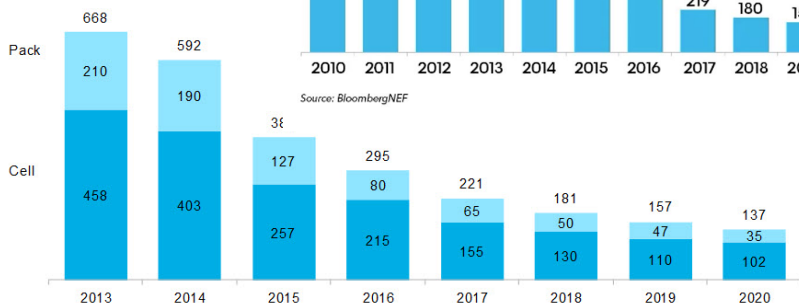


# Battery Tech is Transforming Electricity Economics

Bloomberg  
New Energy  
Finance tracks  
battery  
learning curve:

**Figure 1: Volume-weighted**

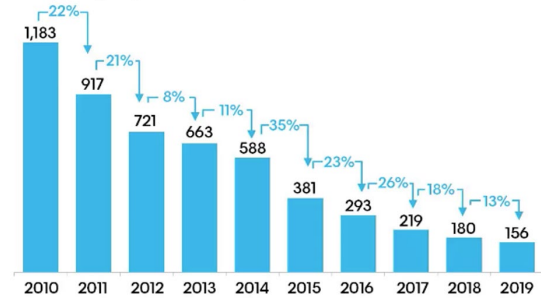
real 2020 \$/kWh



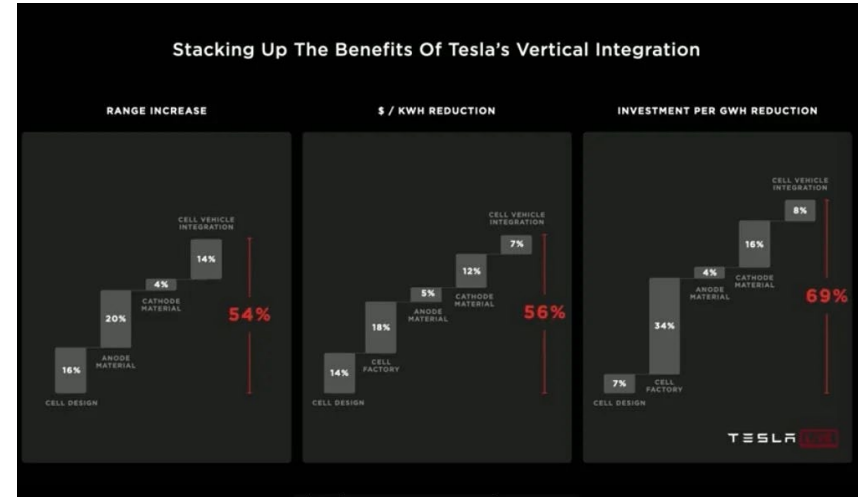
Source: BloombergNEF

Lithium-ion battery price survey results: Volume-weighted average

Battery pack price (real 2019 \$/kWh)



Source: BloombergNEF

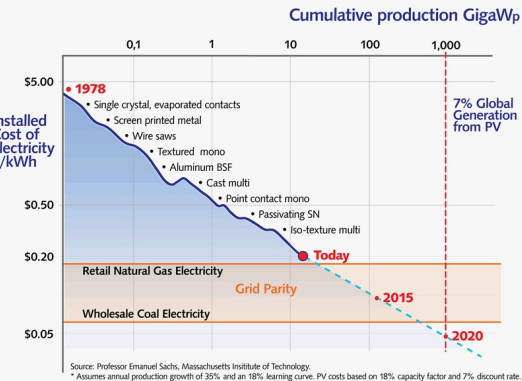
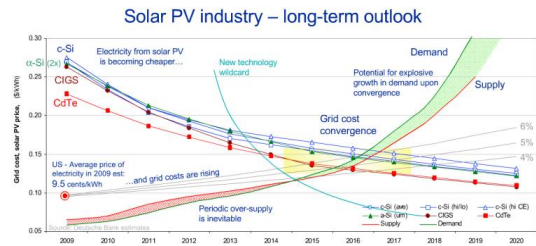


Tesla 2020 battery breakthroughs show clear path to sub- \$50/kWh in 2023- 2024 time frame.

Storage CAPEX per kWh: >\$ 1000 @ 2010, ~\$ 100 @2020, innovation bringing \$50 soon = 20:1 reduction

# Solar Electricity Pricing Now at Better than Grid Parity

Exponential drops in prices of Photovoltaic & Battery technologies — combined with El Paso's superior solar resources — open up expanding opportunities for the City of El Paso to kick off Pilot Projects... toward a 15 year revival & turbocharging of El Paso's economy.



Cost per kWh

Cost of Electricity from PV

Zone of  
Grid Parity

Conventional Electricity Rates

Time Marches On -----> Now ---> Soon -----> Cleaner Future





# Why Solar for the City of El Paso?

- **Need:** The City of El Paso has a large portfolio of real estate and electric bills.
- **Cost Avoidance:** The City of El Paso is charged for their Kilowatt Hour (kWh) energy usage each month with a fixed kWh price but you also incur demand charges, which can be a significant portion of your electric bill each month.

9,612 jobs created enough to power

408,234 homes with over

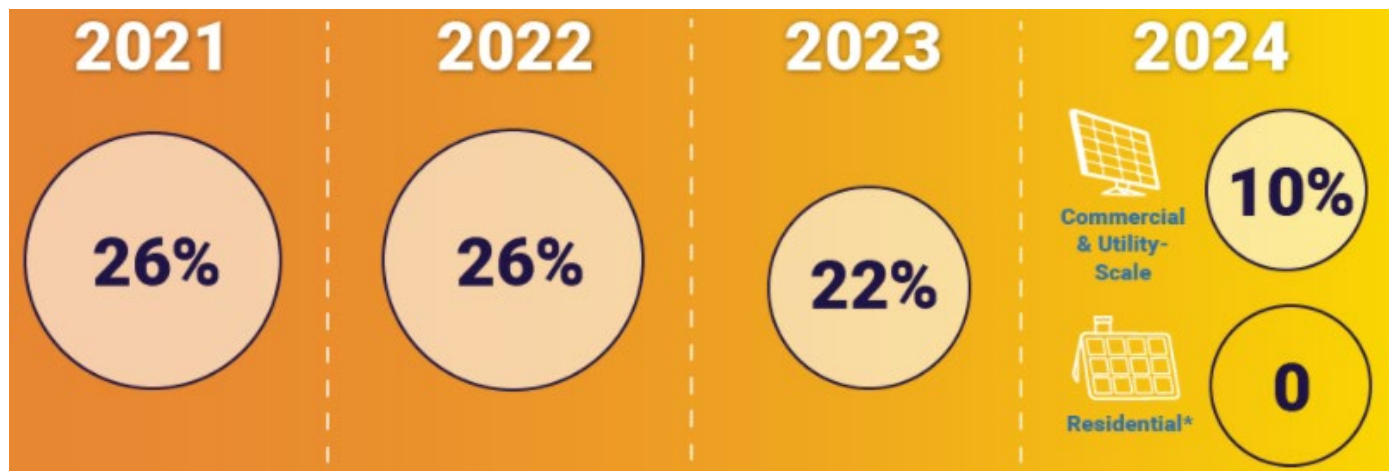
\$5.1 Million

total solar investment

# Tax Credits | Solar Investments

- ❖ U.S. Congress in late 2020 passed legislation that extended ITC (Investment Tax Credit) for solar projects
  - *26 percent* credit through calendar year of 2022
  - *22 percent* credit through calendar year of 2023
  - *10 percent* credit through calendar year of 2024 - Onward

SOURCE: (2) (4) (5)



SOURCE: (6)

# Why Are We Talking About This Now?

- **Budget Cuts** : City expects a spending fluctuation in fiscal year 2021.
- **Furloughed Staff:** Over 400 City employees have been furloughed for up to one year.
- **Get back on track:** Going solar in El Paso will significantly reduce operation costs.

# What are Demand Charges?

- **Demand Charges** = Fees applied to the electric bills of commercial and industrial customers based upon the ***highest amount of power drawn*** during any (typically 15 minute) interval during the billing period.

# What does the City gets in return?

- Lower bills and more money for other city projects.
- Solar and battery storage systems for commercial customers, like the City, can be purchased and installed with **NO MONEY DOWN**.



# What do the citizens get in return?

- Lower City expenses means more funding for new or existing City projects that support the citizens.
- The City could create a fund from the energy savings to support other clean energy projects across the city.
- More jobs. The USA has 242K+ solar energy workers. The solar workforce has grown by 159% since 2010 adding 150K jobs. Create and retain jobs in El Paso as much as allowed by the procurement process.

# Our Recommendation:

1. A solar behind the meter **Power Purchase Agreement** (PPA)
2. Create a metric in which we can analyze the cost effectiveness of PPA's and how to best expand into other programs.

# What are we asking for?

The RREAC asks El Paso City Council to direct city staff to:

- Identify city owned property that would be ideal for an RFP.
  - a. An ideal site would be based on a usage projection, demand profile, and site capacity
  - b. Include diverse sites, in all 8 Districts in El Paso.
- Look for State, Federal and private grants that offset costs of installation, infrastructure such as batteries, maintenance to city owned property, and training programs for city electricians to upkeep panels/equipment.
  - a. An ideal funding situation would be to offset as much cost as possible so that the city can receive the best return on investment.
  - b. Financial clause for re-investment into future projects

# How does a PPA work?

1. A Solar Power Purchase Agreement (PPA) is a **financial agreement** where a developer arranges for the design, permitting, financing and installation of a solar energy system on a customer's property at little to **no cost**.
2. The developer sells the power generated to the host customer (the City) at a fixed rate that is typically **lower** than the local utility's retail rate. This lower electricity price serves to offset the customer's purchase of electricity from the grid while the developer receives the income from these sales of electricity as well as any tax credits and other incentives generated from the system.
3. PPAs typically range from 10 to 25 years and the **developer remains responsible for the operation and maintenance** of the system for the duration of the agreement.
4. At the end of the PPA contract term, a customer may be able to **extend** the PPA, have the developer **remove** the system or choose to **buy** the solar energy system from the developer.

# ■ Solar PPAs



## PPA Provider

- Owns, finances and installs the solar PV
- Operates and maintains the system



## Solar PV system

- Installed at no initial costs
- Can be transferred upon expiry



## Your organisation

- Buys solar energy from PPA provider cheaper than grid
- Buys less energy from retailer



## Electricity Retailer

- Electricity retail agreement
- Continues to supply electricity from grid
- May purchase excess solar generation



Excess electricity



# What are PPAs Pros and Cons?

## Pros

- No upfront capital costs
- Reduced energy costs
- Limited risk
- Better leverage of available tax credits
- Decrease emissions
- Reliability on budgeting process

## Cons/Challenges

- Selection of provider
- Stay below State law limits
- Time limit
- Rooftop solar is not an option for some city- owned buildings
- It locks in cost even while technology improves further



# Utility Scale Solar

- Utility scale solar takes advantage of bulk pricing for product and labor and requires partnership with El Paso Electric.
- Not every City owned facility will have enough usable roof space for solar panels and this allows the city to go 100% solar.
- RREAC will prepare a future presentation for City Council analyzing EP Electric's Utility Scale Solar "Dedicated Solar Plus" Program and provide more accurate recommendation.
- RREAC recommends City Council to abstain from either supporting or not supporting the EP Electric Utility Scale "Dedicated Solar Plus" Program until we analyze it and present to City Council our findings.

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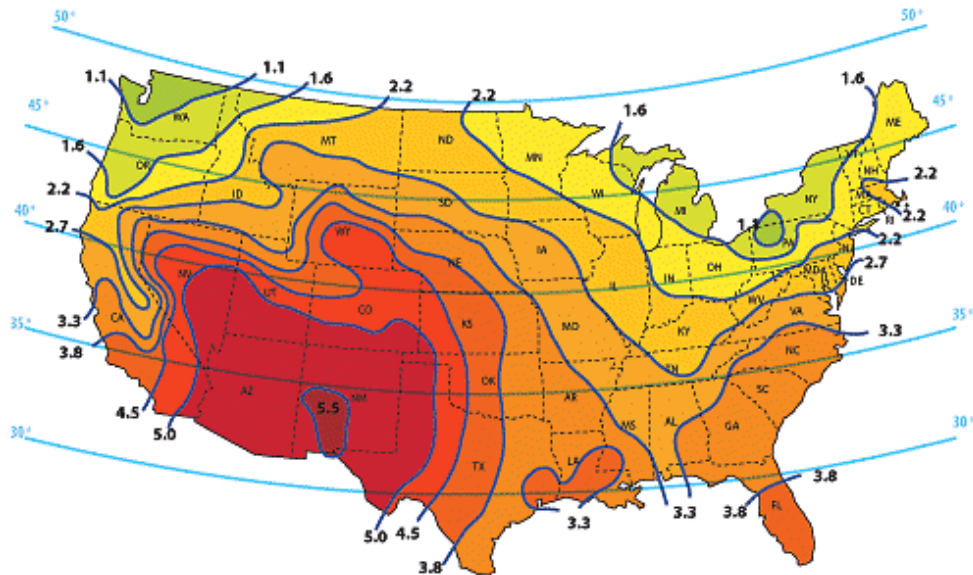
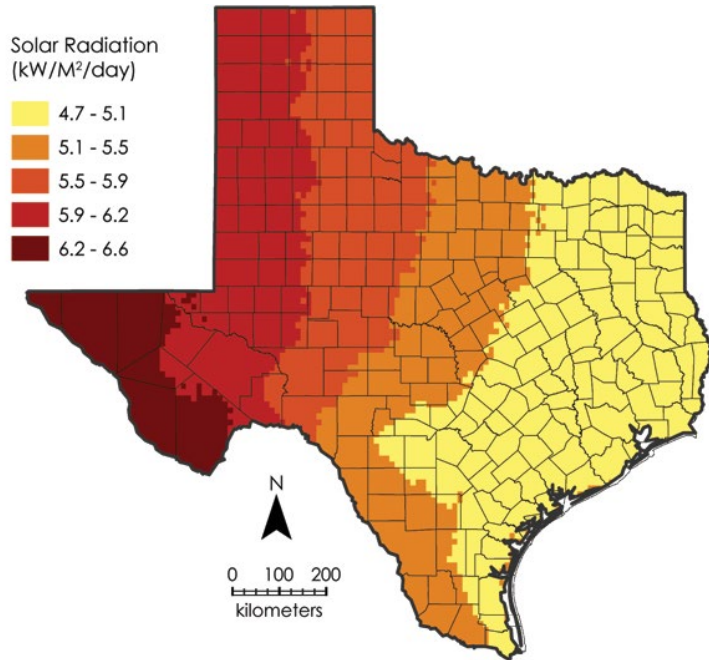
**Thank You**

# Sources

- (1) Solar Energy Industries Association: <https://www.seia.org/state-solar-policy/texas-solar>
- (2) U.S. Dept. of Energy, “Guide to the Federal Investment Tax Credit for Commercial Solar Photovoltaics”, Jan. 2020, <https://www.energy.gov/sites/prod/files/2020/01/f70/Guide%20to%20the%20Federal%20Investment%20Tax%20Credit%20for%20Commercial%20Solar%20PV.pdf>
- (3) U.S. Internal Revenue Service, “About Form 3468, Investment Credit”, <https://www.irs.gov/forms-pubs/about-form-3468>
- (4) “Federal stimulus includes wind, solar tax credit extensions, adds first US offshore wind tax credit”, Dec. 22, 2020, <https://www.utilitydive.com/news/federal-stimulus-includes-wind-solar-tax-credit-extensions-adds-first-us/592572/>
- (5) “Congress Passes Spending Bill With Solar, Wind Tax Credit Extensions and Energy R&D Package”, Dec. 22, 2020, <https://www.greentechmedia.com/articles/read/solar-and-wind-tax-credit-extensions-energy-rd-package-in-spending-bill-before-congress>
- (6) “Solar Investment Tax Credit (ITC)”, <https://www.seia.org/initiatives/solar-investment-tax-credit-itc>
- (7) “Solar ITC 101”, <https://www.seia.org/research-resources/solar-itc-101>

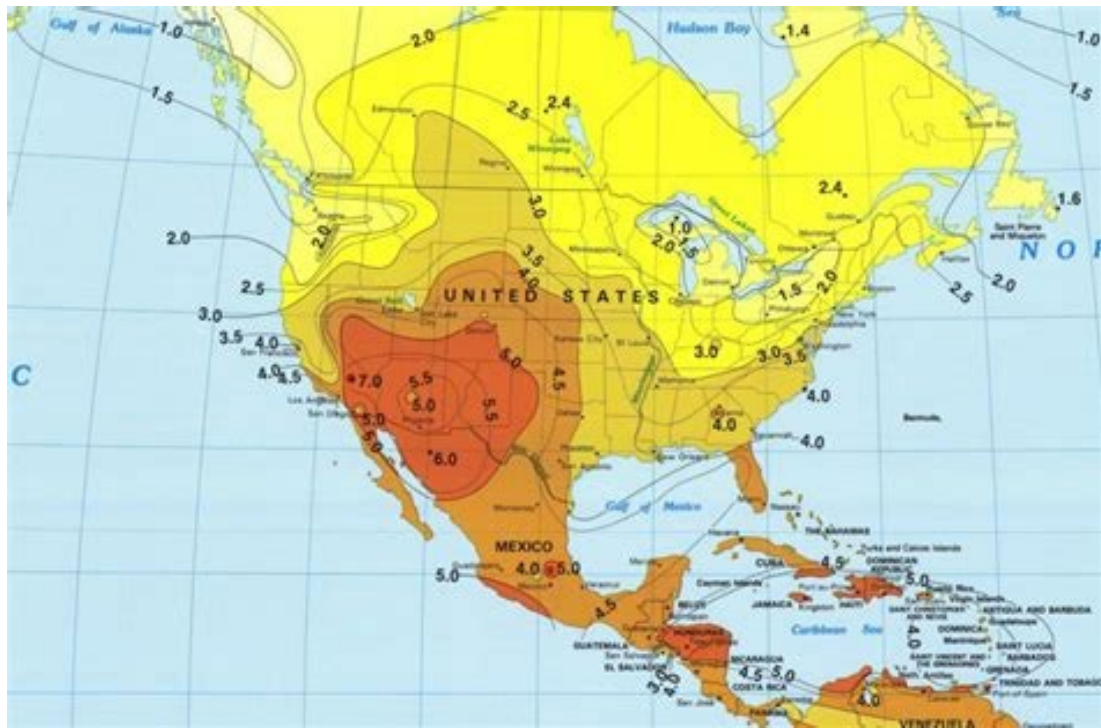
# Appendix

## NREL, Solar Radiation Maps



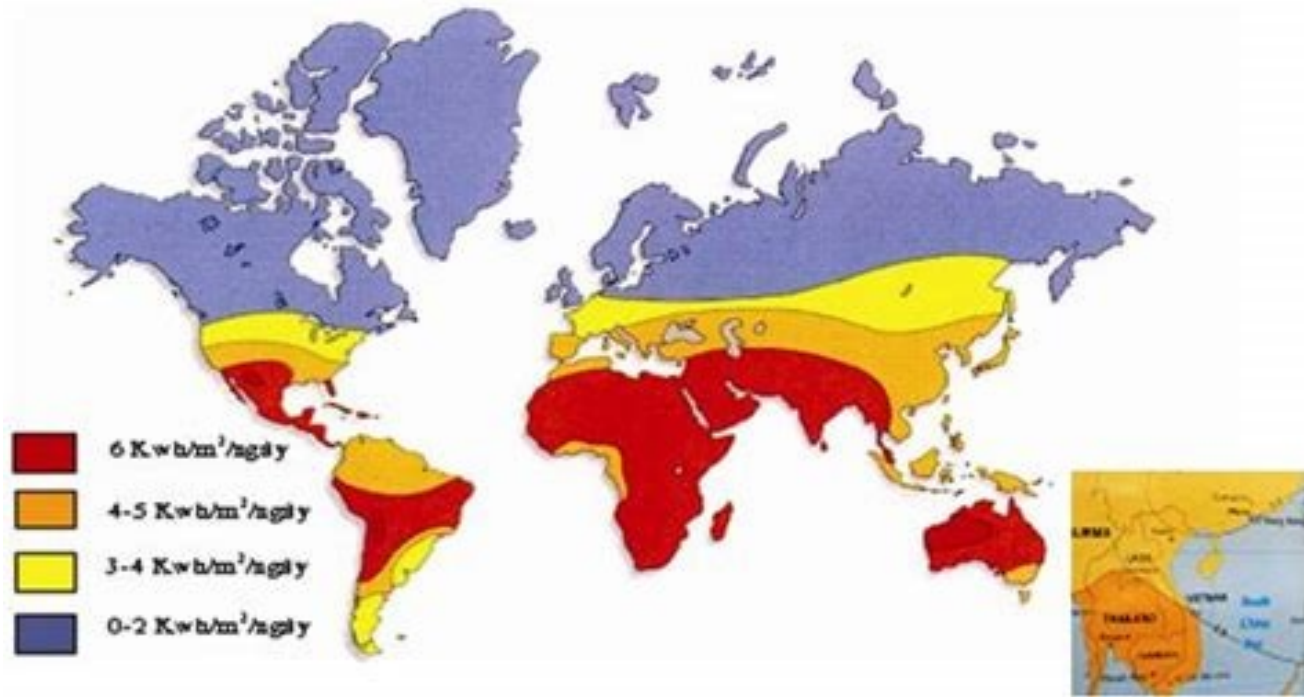
# Appendix

NREL, Solar Radiation Maps



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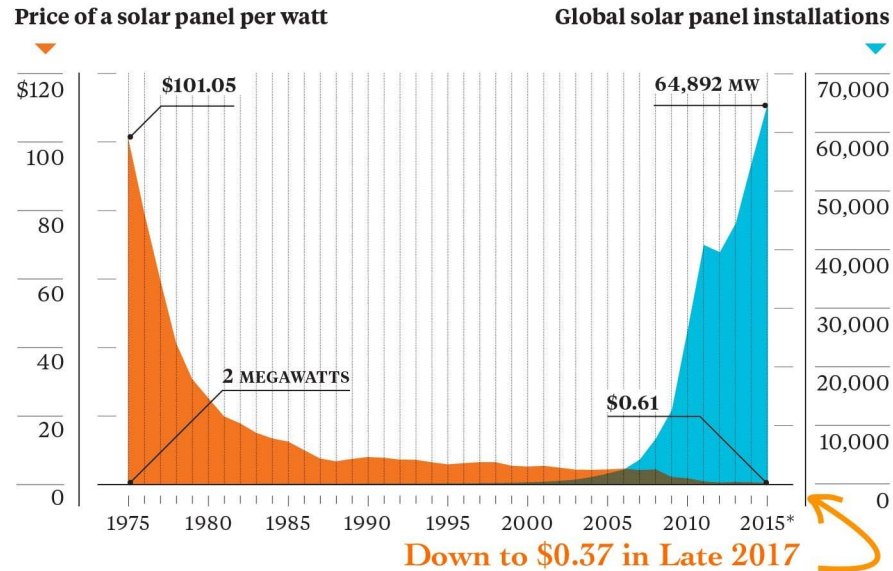


# Appendix

Bloomberg, Earth Policy Institute. Price of Solar Panels per watt and Global solar panel installations

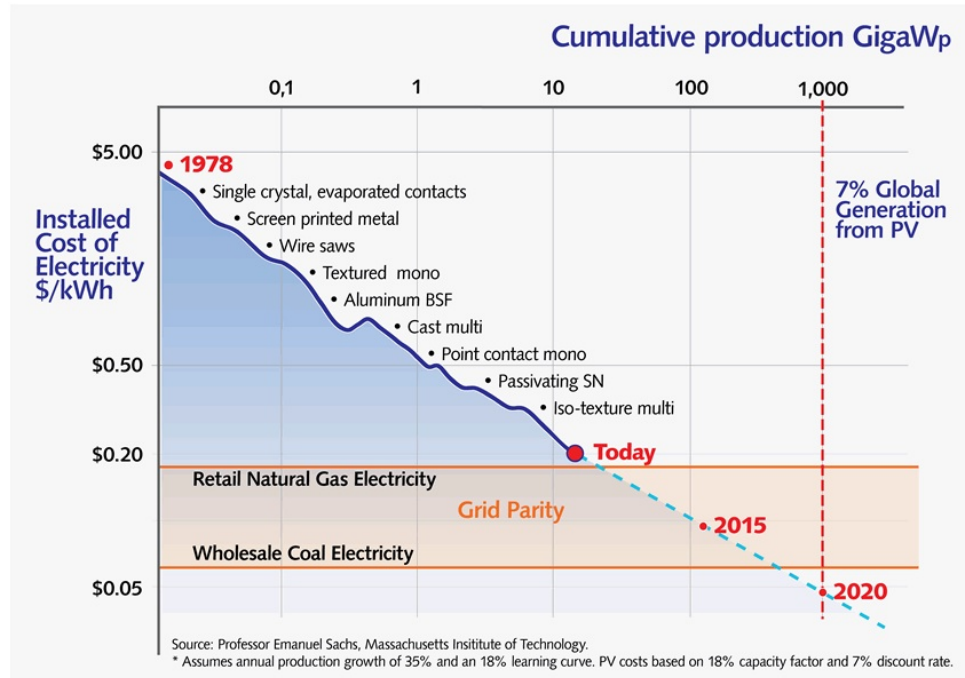
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# Appendix

Emmanuel Sachs, Massachusetts Institute of Technology. Grid Parity Graphs.



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## Solar PV industry – long-term outlook

