Welcome to the First IRP Public Town Hall

February 22, 2023

By Pasadena Water and Power, Power Supply

Welcome from your PWP Team

Pasadena Water and Power

- Customer Relations
  - > Kellee O'Rourke
  - > Jen Guess
  - > Justin Pansacola
- Power Supply
  - > John Hormozi
  - > Kelly Nguyen
  - > Robert Castro
  - > Jason Tarasi
  - > Christina Schieber
  - > Mark Webster

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Meeting Flow

Pasadena Water and Power

- PWP will be presenting
  - > Electricity 101
  - > The IRP
  - > Pasadena's Climate Emergency Resolution
- Please submit questions in the Q & A Feature during the presentation or afterwards
- There will be a chance for spoken questions after the last presentation
  - > Please raise your hand on the zoom call and we will call on you to ask your question
  - > Each speaker will be limited to 1 minute

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Video

Pasadena Water and Power



Integrated Resource Plan
Public Townhall
Main Presentation

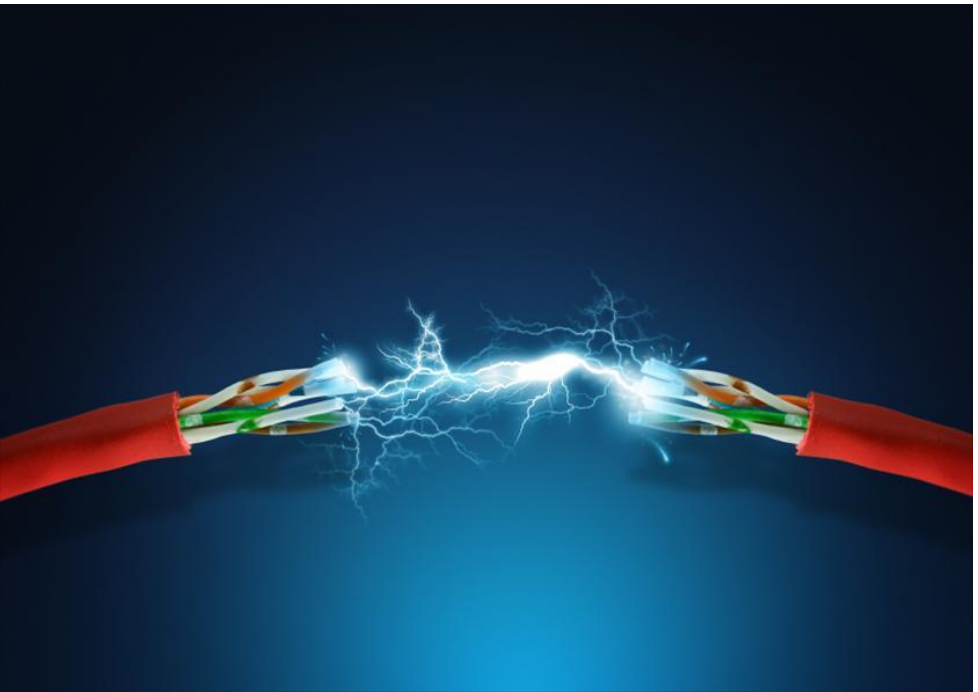
February 22, 2023

By Pasadena Water and Power, Power Supply

What is Electricity

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- The Flow of Electrons inside of a conductive material
- Used to create mechanical work
- Utilities sell the electricity and the service of providing electricity



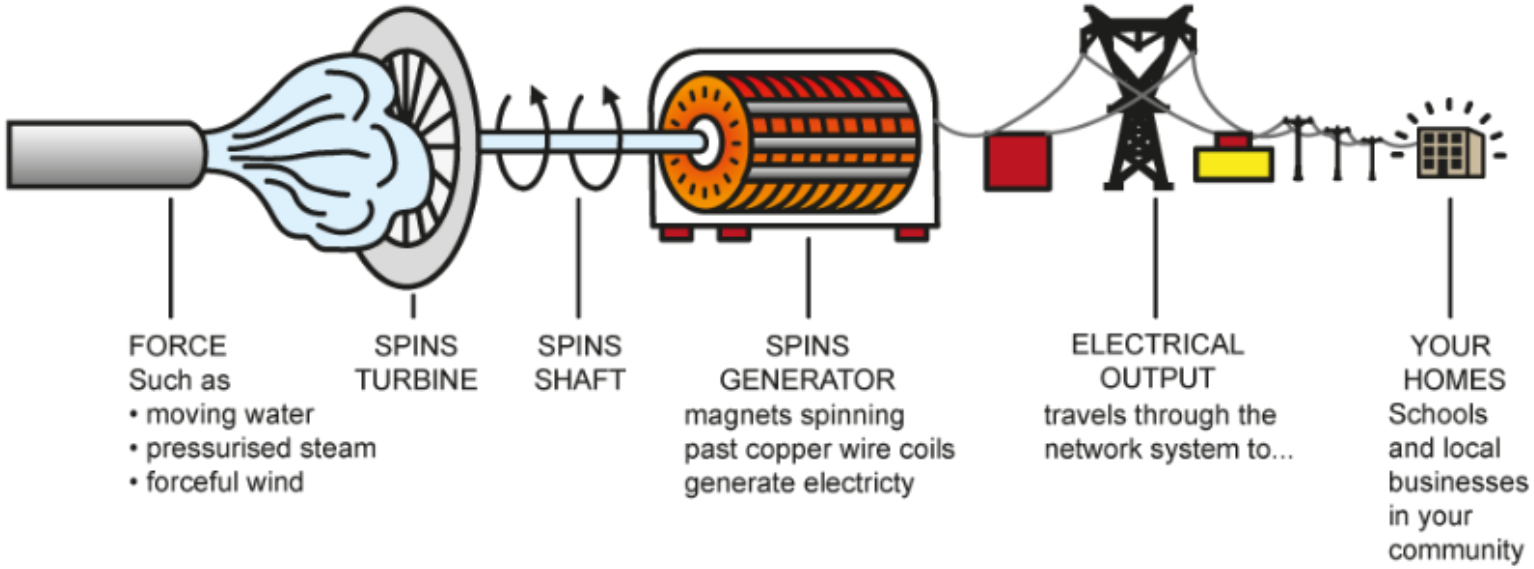


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How a Generator Makes Electricity

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- Most generators use this kind of set-up
  - > Produce heat to turn water to steam creating pressure
  - > The pressure turns the turbine spinning the magnets between the copper wires creating electricity

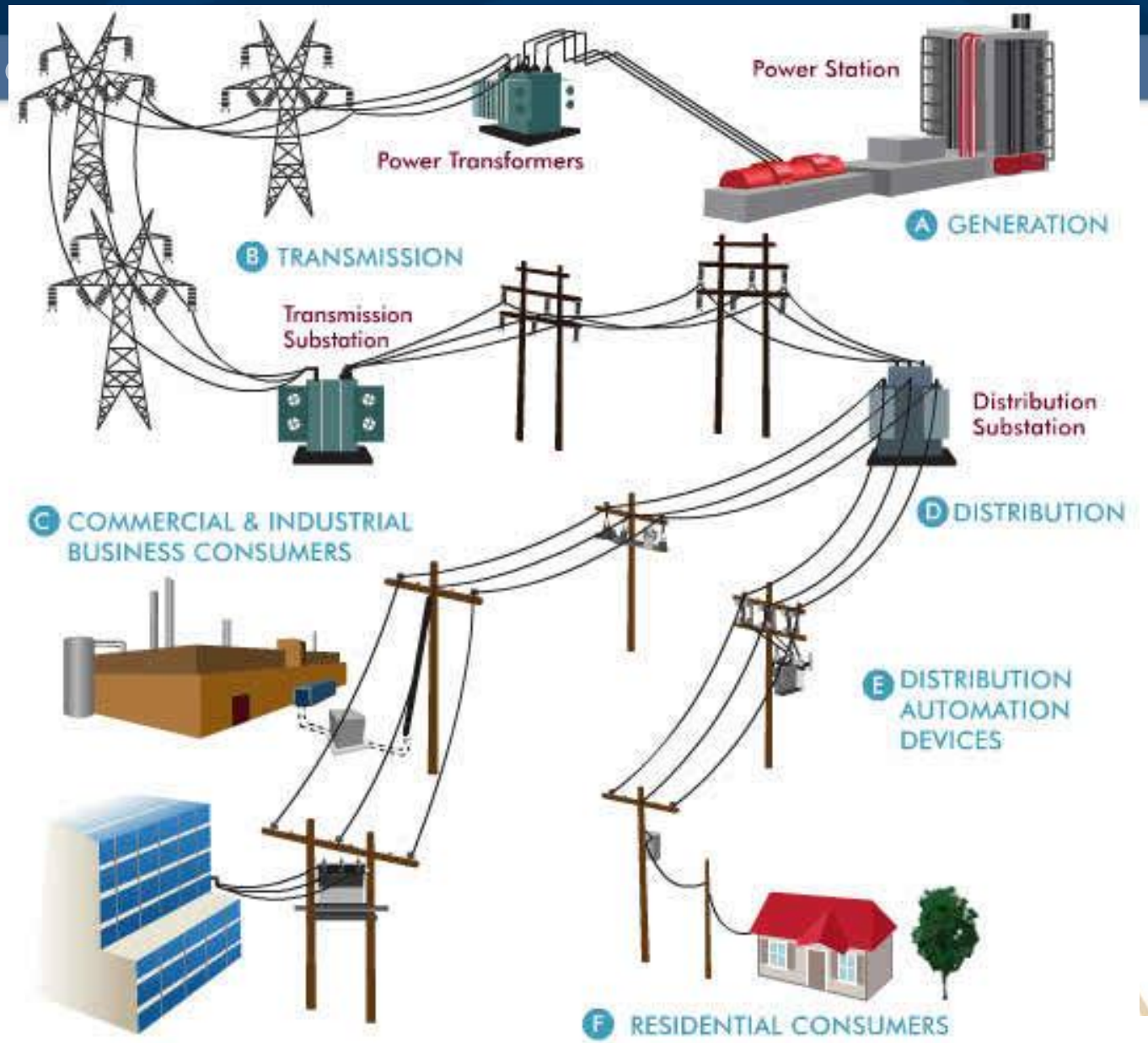


  - > Some generators don't use this set-up: solar panels, batteries, some marine energy

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Utility Loop

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Question & Answer Break

- Please submit questions in the Q & A Feature
  - > PWP Staff will read out some of the written questions to be answered verbally

What is the IRP?

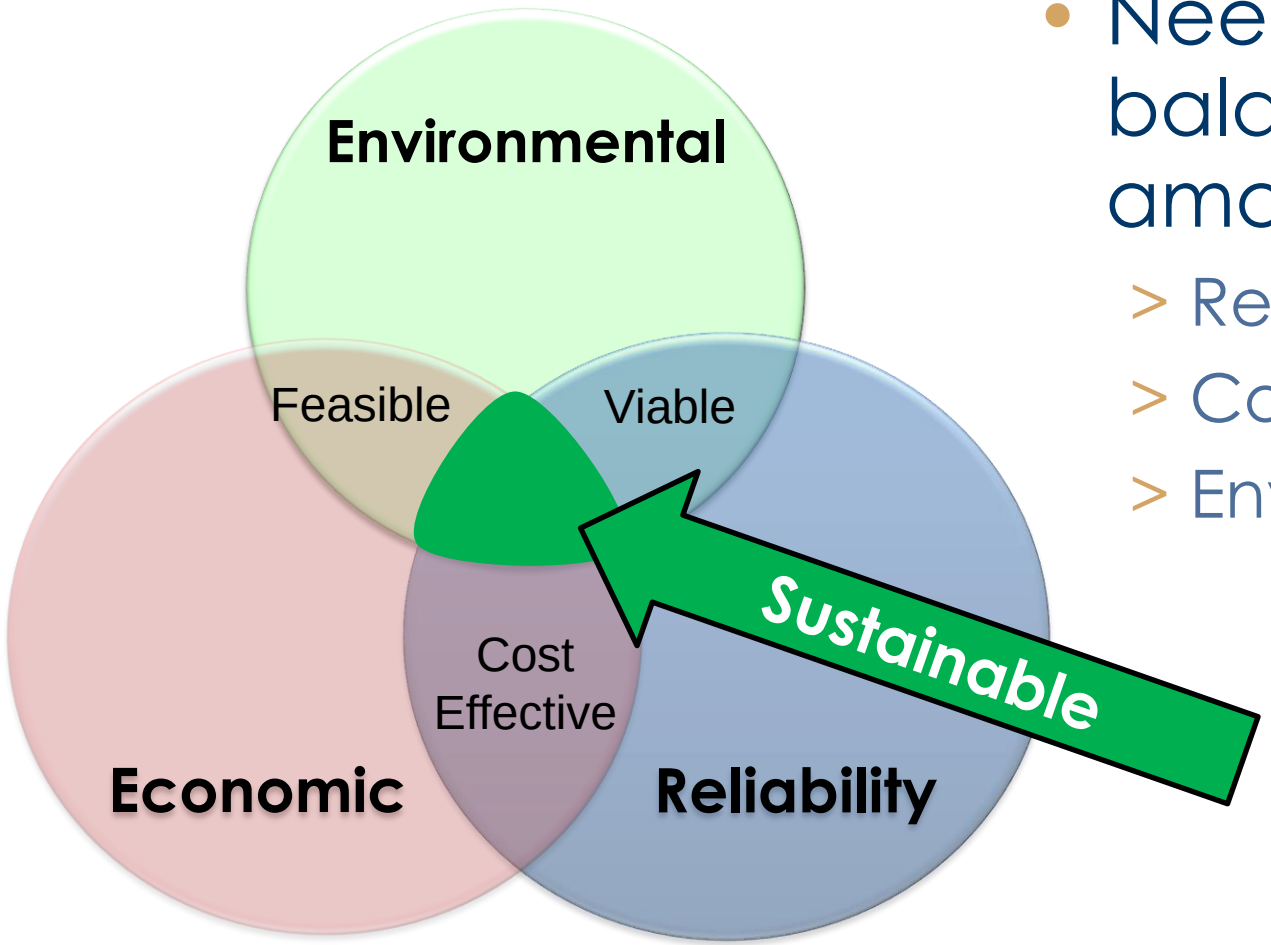
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- IRP stands for Integrated Resource Plan
- Plans for the future of the utility in as many ways as possible using scenarios
  - > CA requires an update to the IRP every 5 years
  - > Plans must go out for at least 20 years into the future
  - > The requirements and format for the IRP change whenever the government decides they needs updating



IRP Objectives

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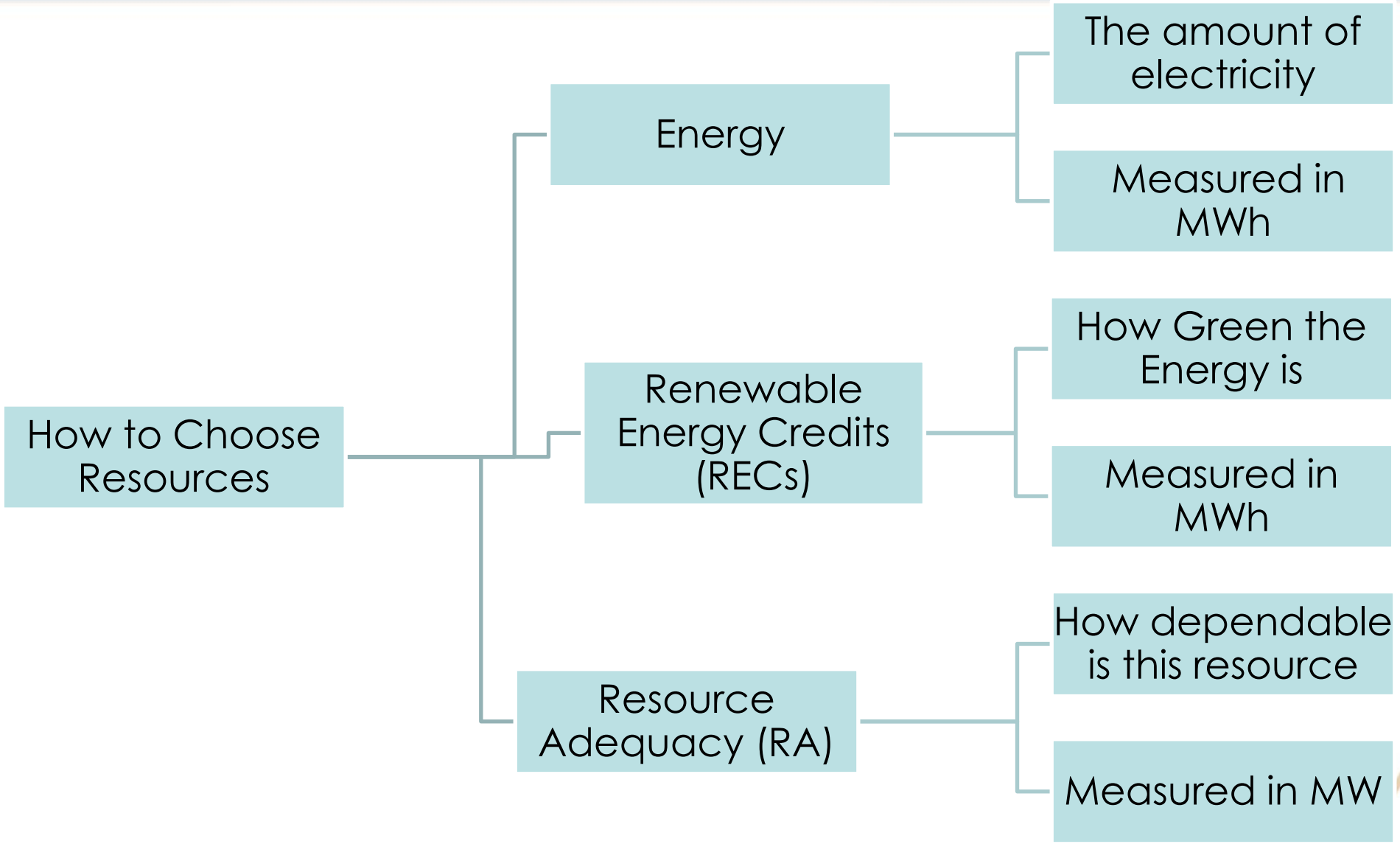


- Need to find a balance among:
  - > Reliability
  - > Cost
  - > Environment

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How to Choose Resources for the IRP?

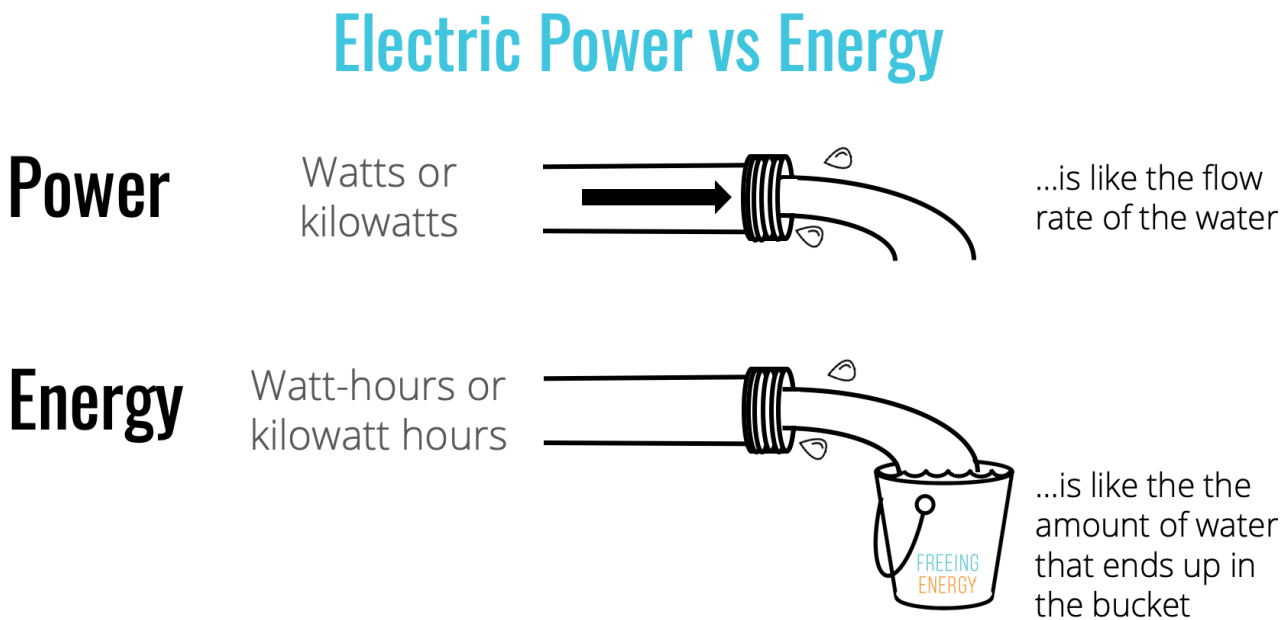
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Energy and Power

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- Power = Capability
  - > Maximum amount of electricity a generator can produce in an instant
  - > Capability to meet energy need
  - > Units – Megawatts (MW), Kilowatts (KW)
- Energy = Usage
  - > Measure of power over a time interval (hours)
  - > Units - Megawatt-hours (MWh), Kilowatt-hours (kWh)

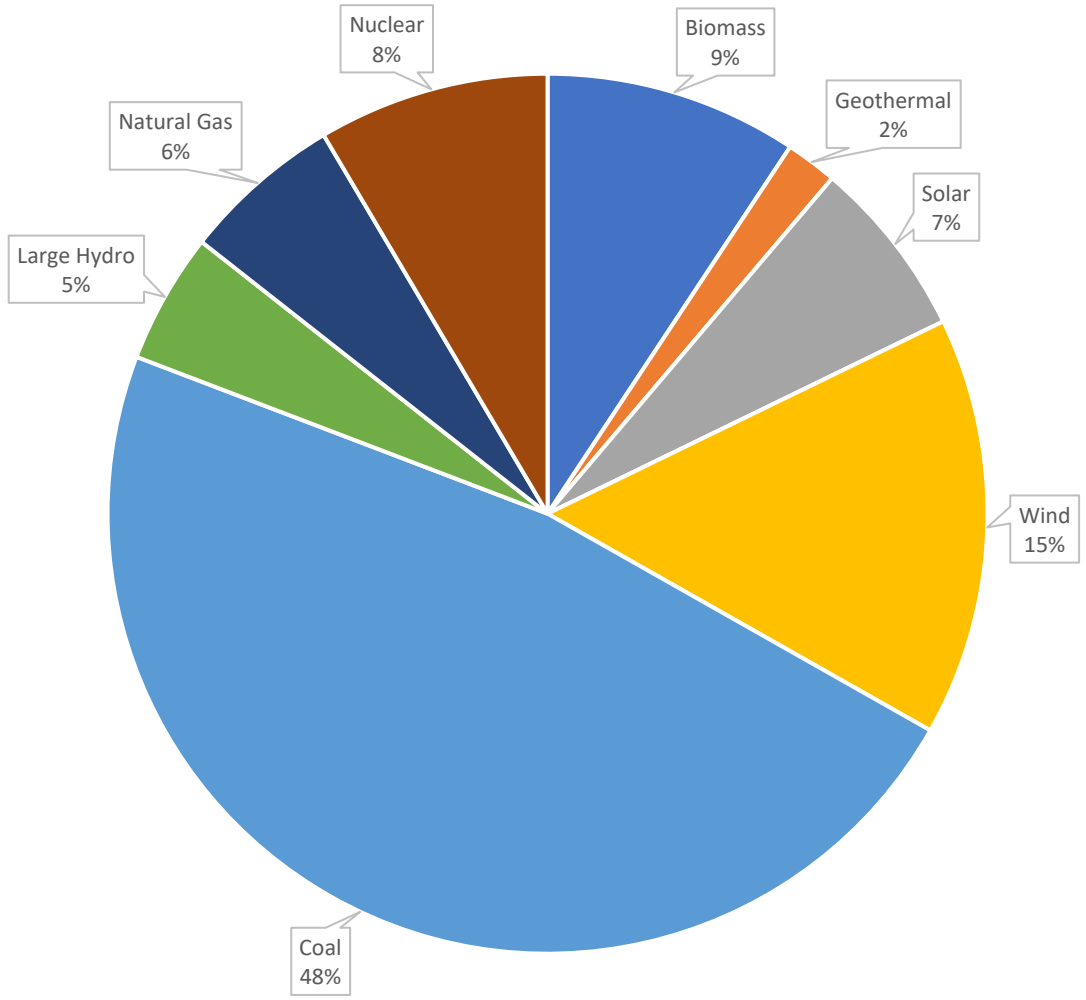


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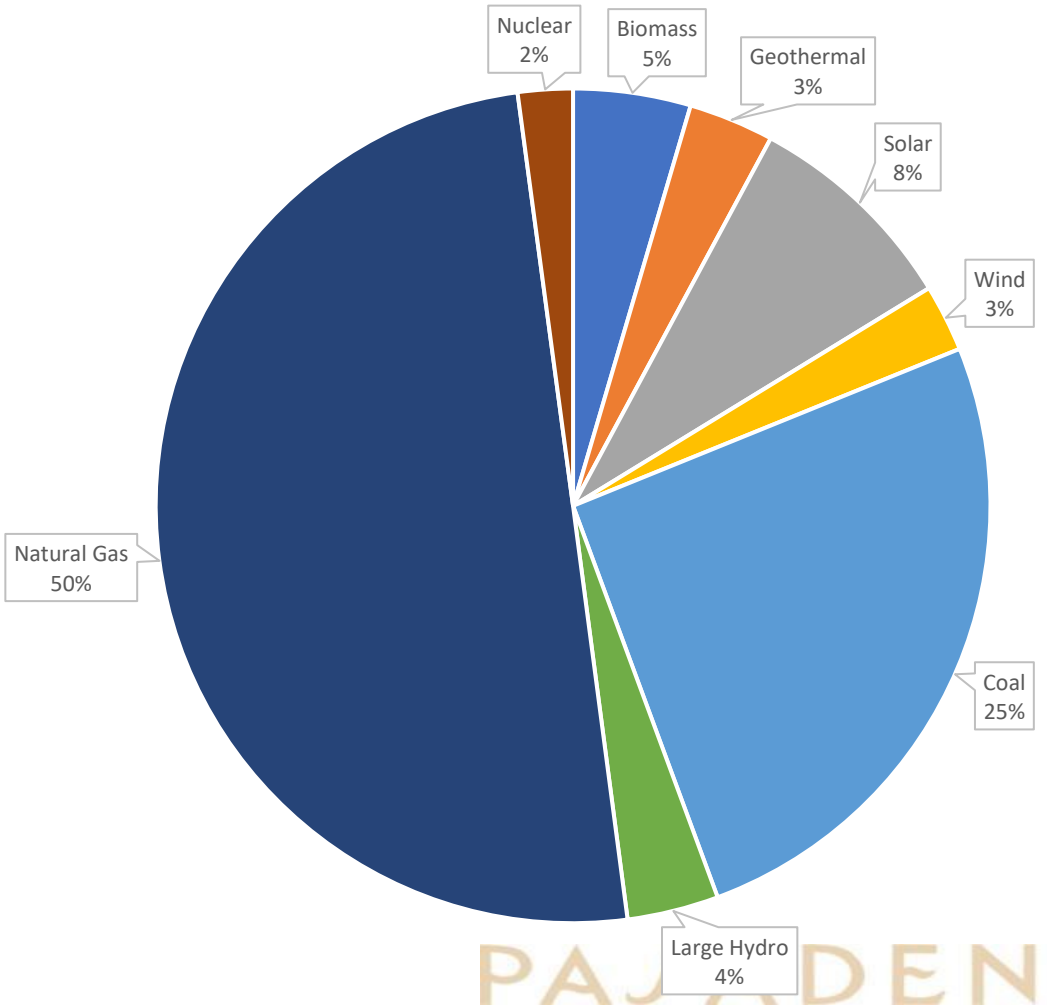
PWP's Power Content Breakdown

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2021- Energy Produced by each Resource Type (PCL)



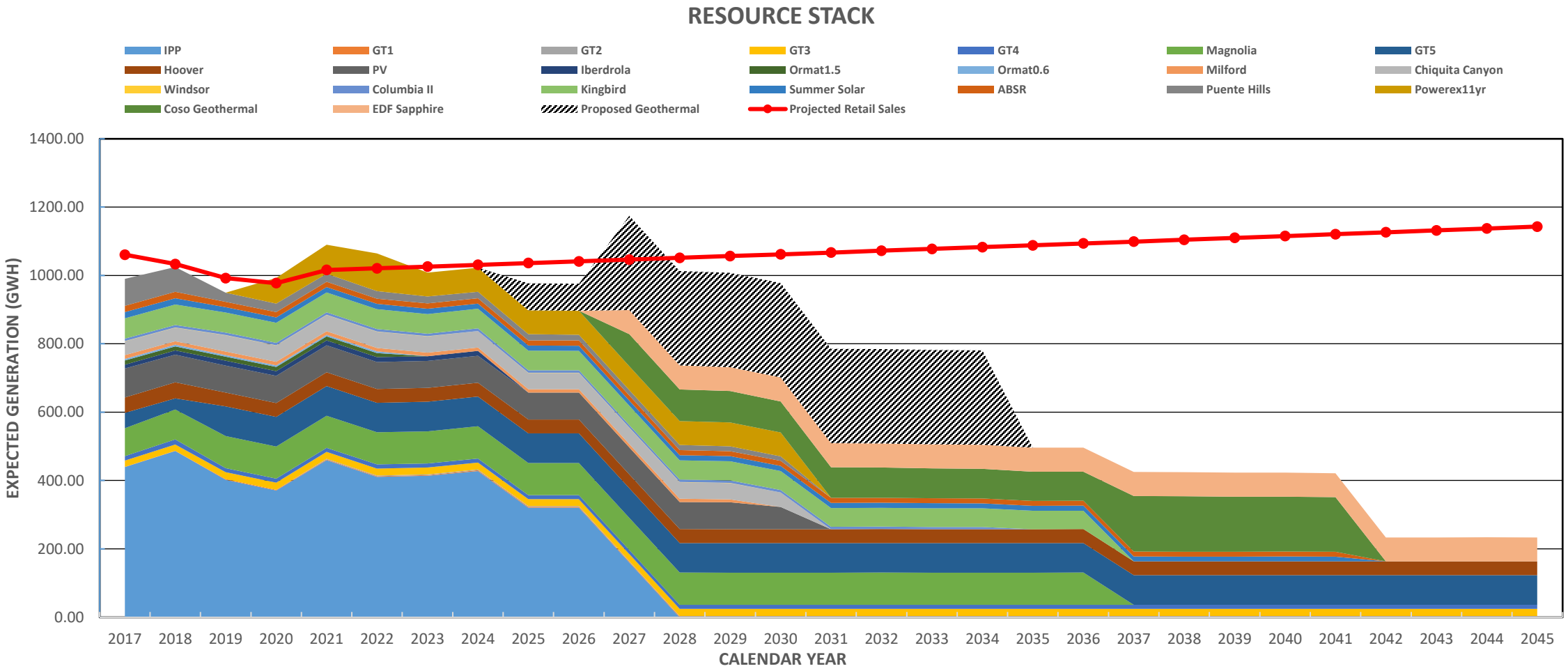
2021 – Capacity of each Resource Type



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Current Energy Portfolio

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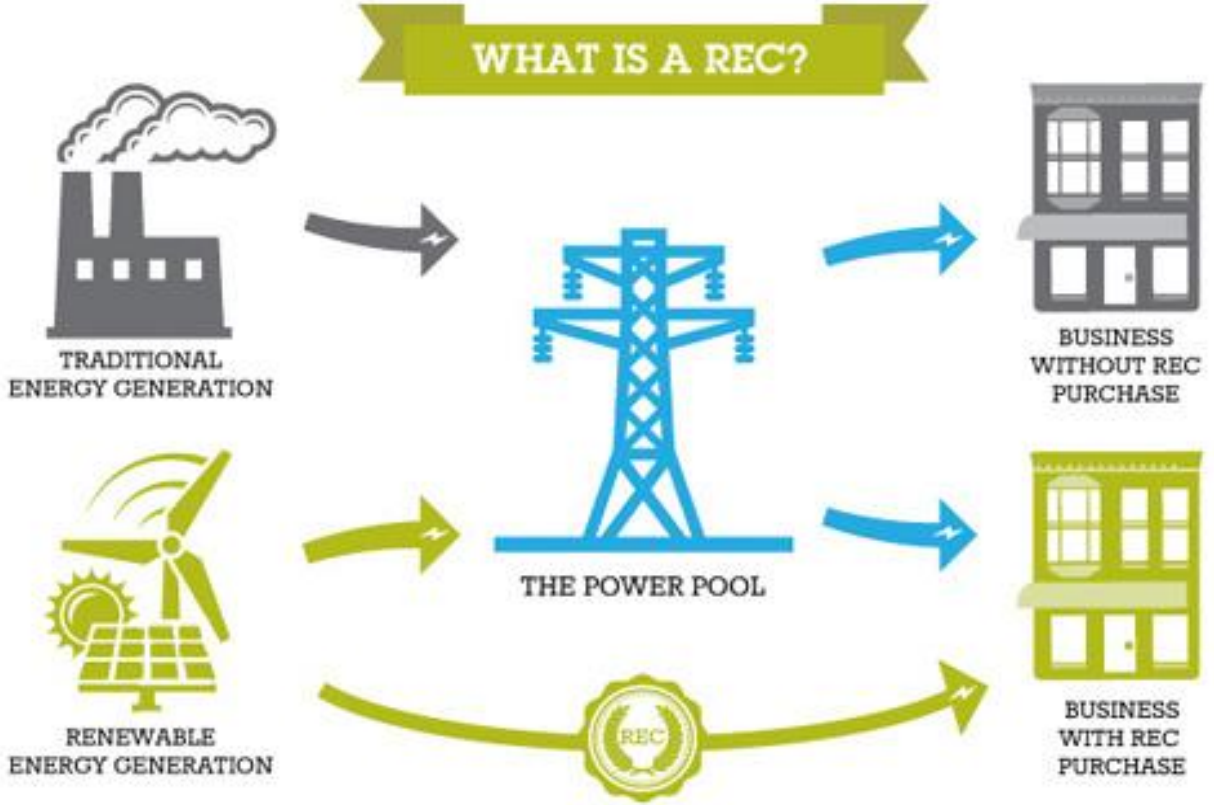


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What are RECs?

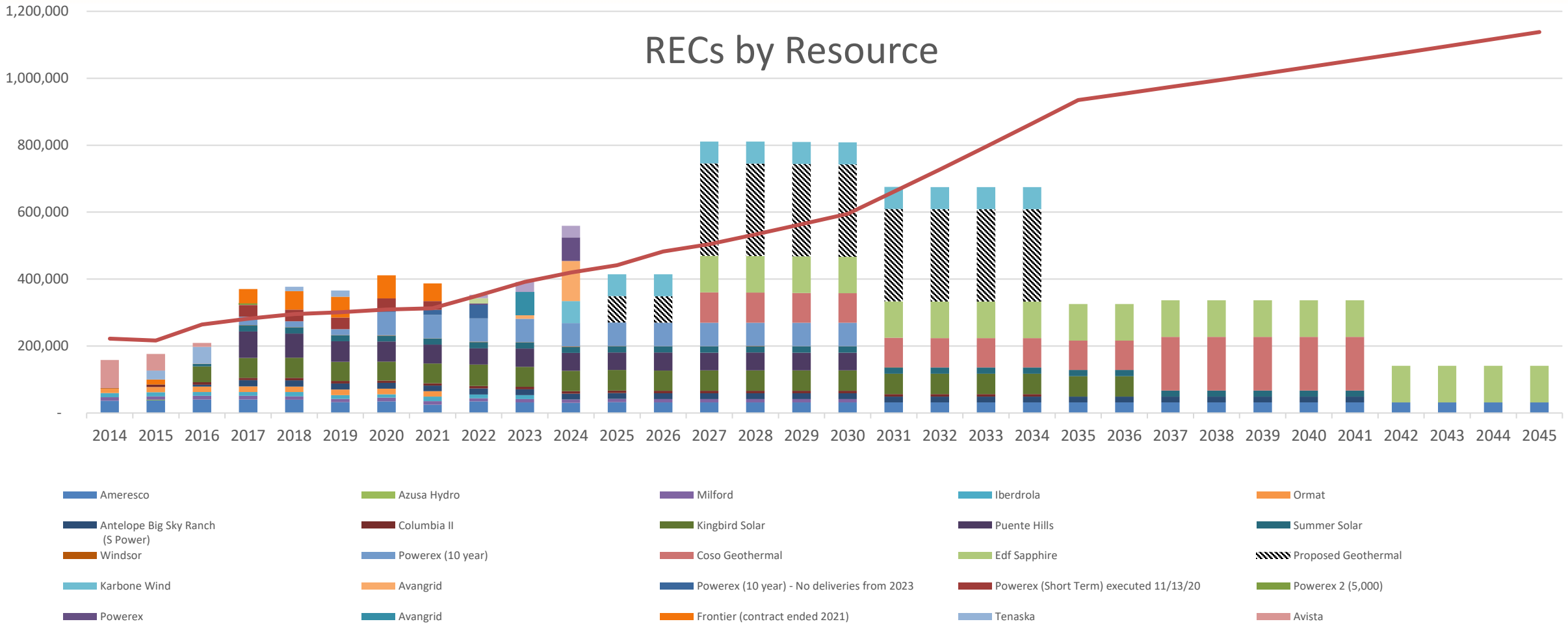
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- Renewable Energy Credits
- We create these from renewable energy resources
  - > 1 MWh of Solar energy = 1 REC
  - > 1 MWh of Coal energy = 0 REC
- These are sellable, fungible credits
  - > Government requires a certain percentage of these each year



Current RPS/RECs Portfolio

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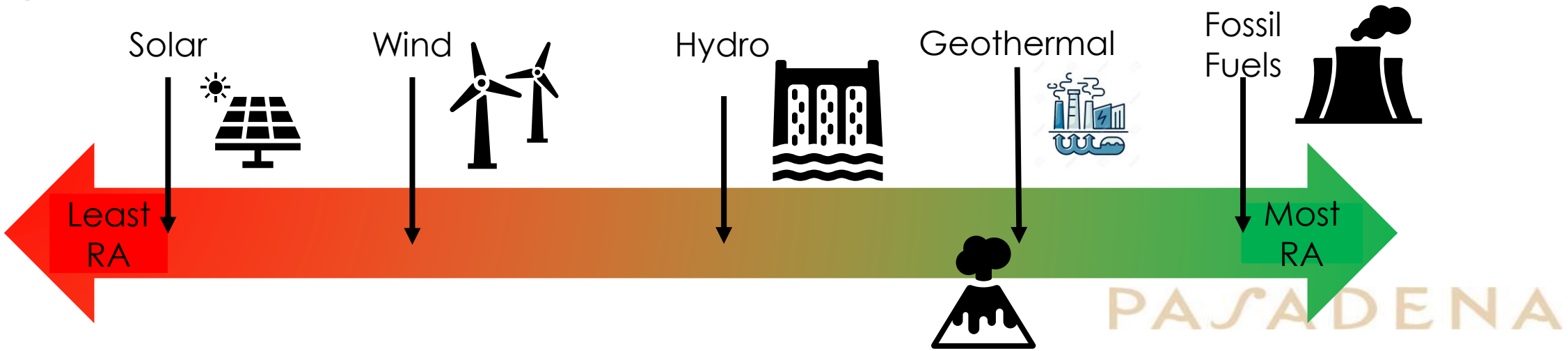


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What is Resource Adequacy (RA)?

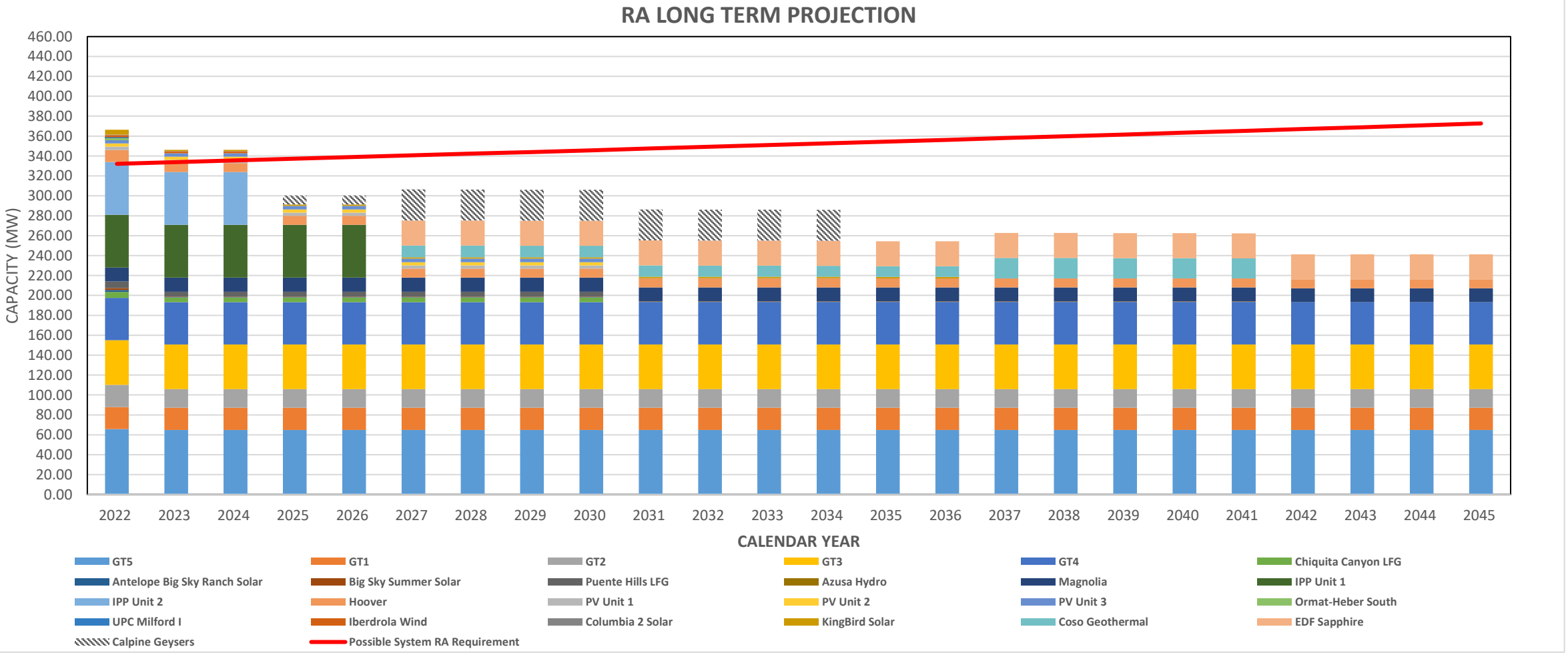
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- Resource Adequacy is how much we can depend on this resource to produce energy when we need it to.
  - > Functions like insurance
  - > Do you have what you need in a worst-case situation
- CA Government requires us to maintain a certain level of RA



Current RA Portfolio

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Question & Answer Break

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Climate Emergency Resolution

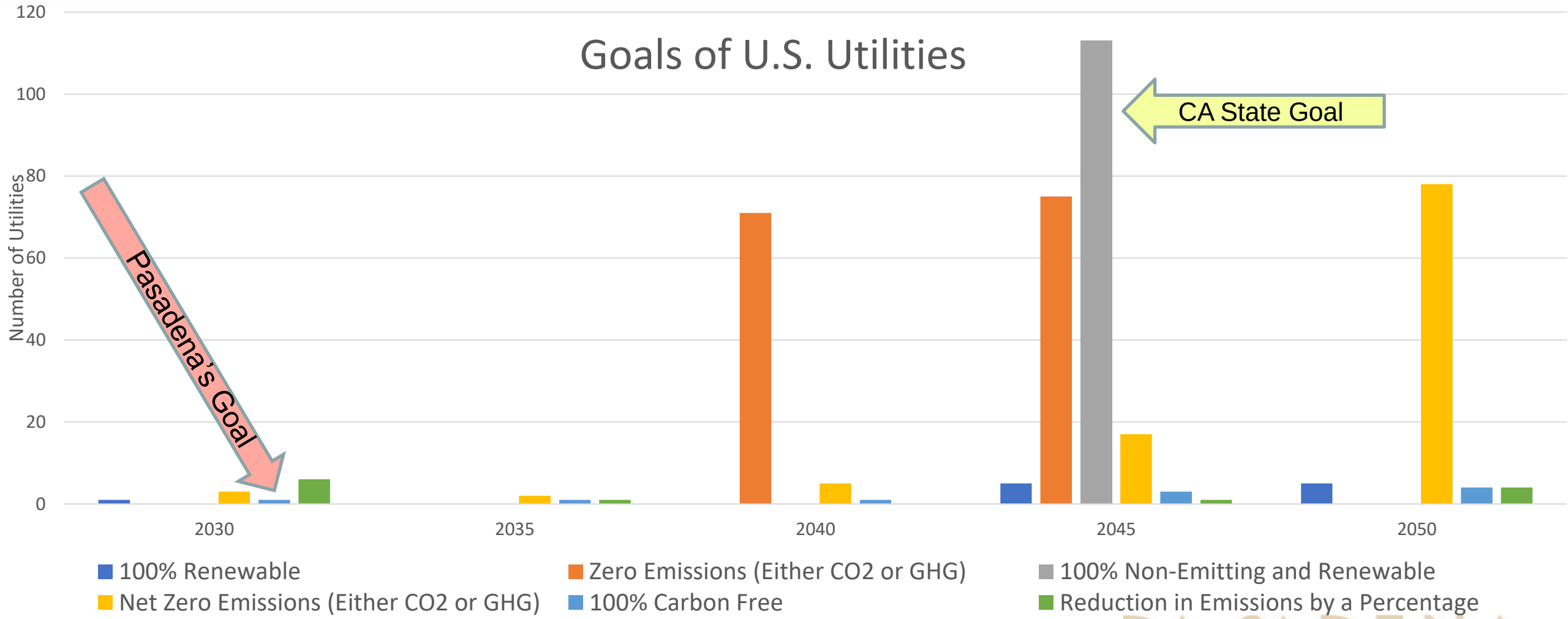
- Council passed the resolution on January 30, 2023
- Two main points of the Resolution:
  - > Pasadena declares that there is a Climate Emergency
  - > Pasadena sets a policy goal to reach 100% Carbon Free Energy by the end of 2030
- The Resolution also directs PWP to use the IRP process to plan with this in mind
  - > While optimizing for affordability, rate equity, stability, and reliability

What does this Mean for the IRP

- PWP will commit multiple scenarios to this goal
  - > PWP needs to have some other options in case those scenarios don't work out
- All our scenarios will include efforts to mitigate the Climate Emergency

What are other Utilities doing?

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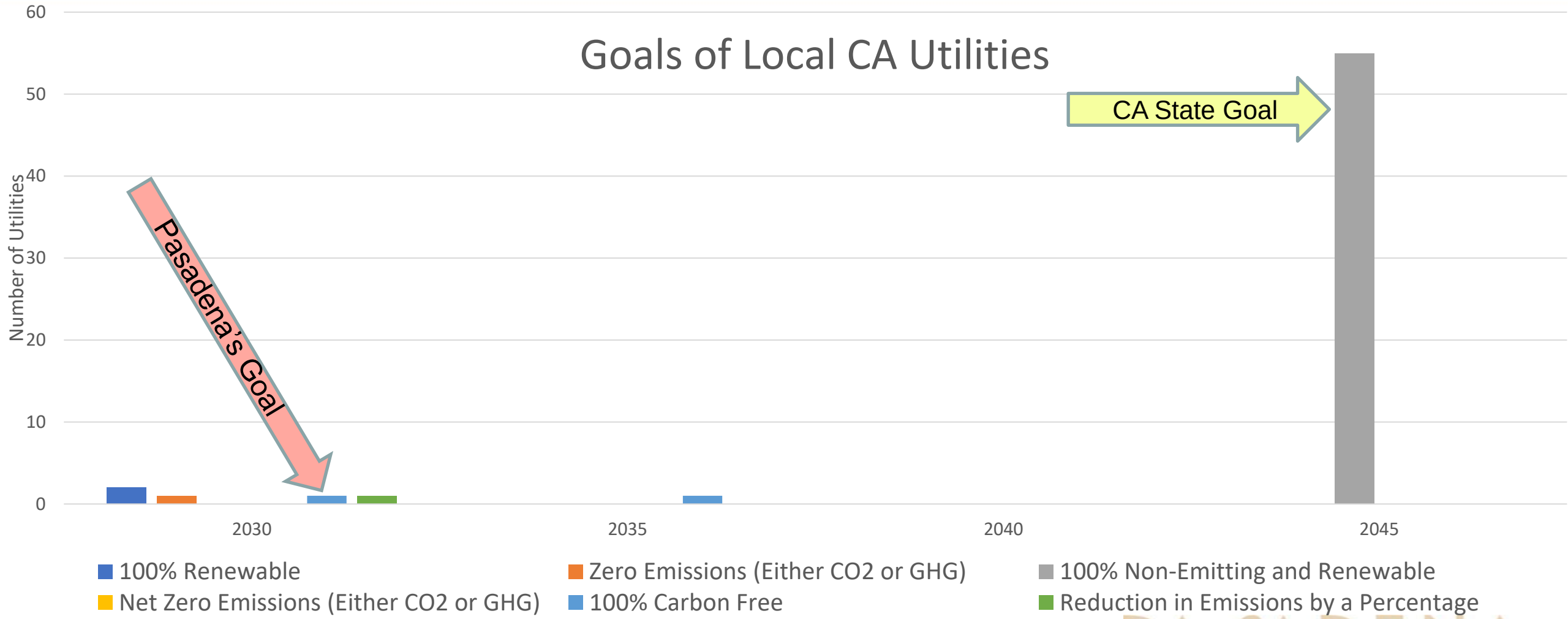


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Data obtained from Smart Electric Power Alliance (SEPA)

What are other CA Utilities doing?

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Data obtained from Smart Electric Power Alliance (SEPA)

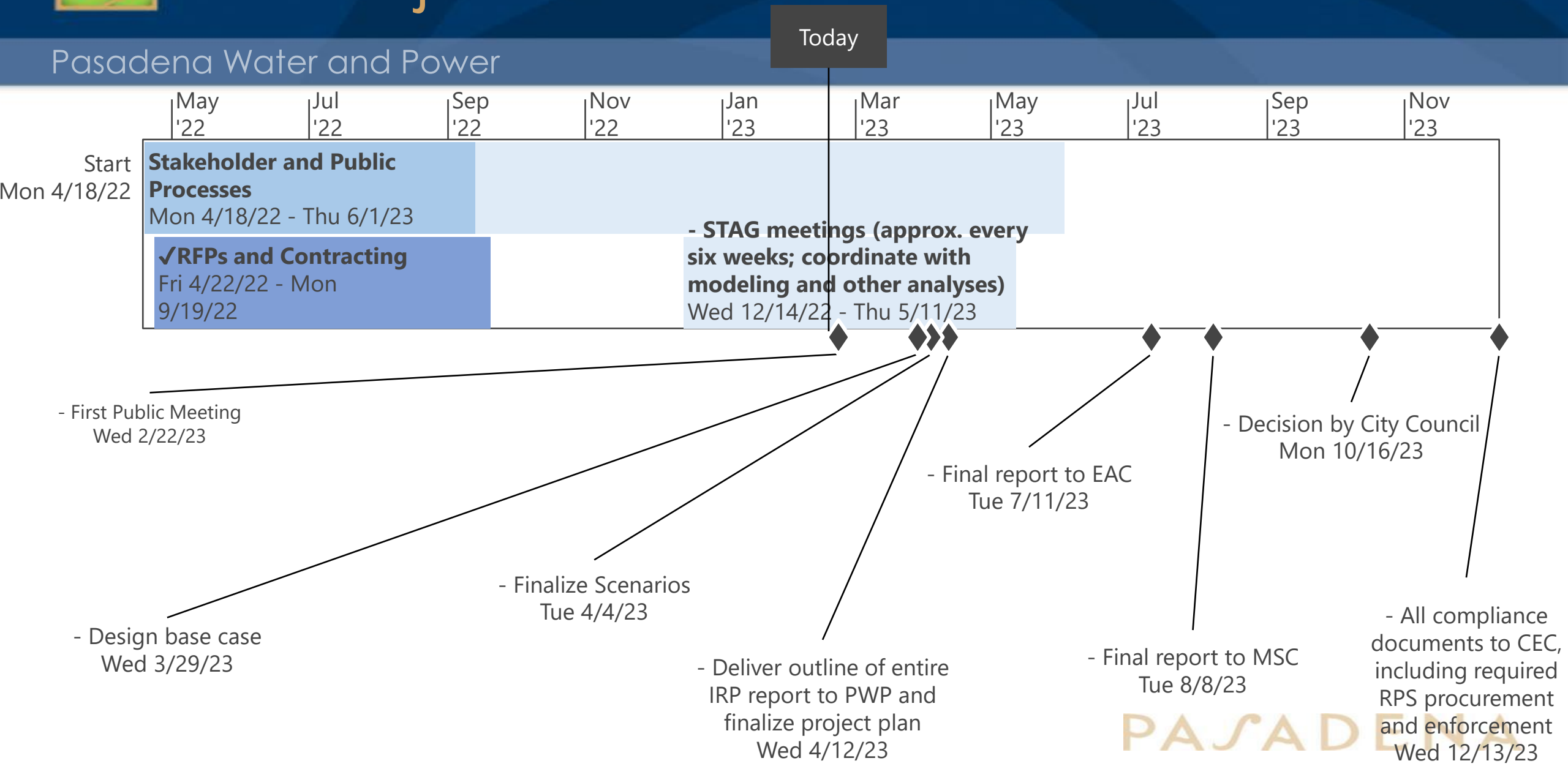
What Power Sources is PWP considering?

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Resources PWP is Considering	Resources that PWP will not consider
Solar – Utility Scale, Rooftop, Community	Nuclear - Small Modular Reactor, No New Nuclear
Wind – On-shore, Off-shore	New Fossil Fueled Generation
Geothermal	
Energy Storage – Batteries (Utility Scale and Customer Side)	
Large Nuclear- Extending a contract we already have	
Hydropower – Large and Small	
Hydrogen Fuel Cells	
Hybrid Systems of above resources + Batteries	

IRP Project Schedule

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Current Progress on the IRP

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- PWP has defined some scenarios
- Almost done collecting data for consultant
- PWP has started writing some sections of the IRP report

What is happening next

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We are updating the Municipal Services Committee on March 13, 2023

Question & Answer Break

- Please submit questions in the Q & A Feature
  - > PWP will try to answer as many in writing as possible
  - > If any questions are left unanswered PWP will write an answer sheet and post on our website after the meeting
- There will also be a chance for spoken questions during this time
  - > Please raise your hand on the zoom call and we will call on you to ask your question
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Future Public Town Halls

Pasadena Water and Power

- Next Public Town Hall is scheduled for April 27, 2023
- Will be on Zoom again

Send Feedback to PWP

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- Send any feedback you have to
- WPD_IRP@cityofpasadena.net