



# Colorado's Energy Transition



John Parks  
Electricity Markets and  
Transmission Policy Analyst

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## Colorado Energy Office - Mission

**Reduce greenhouse gas emissions and consumer energy costs by advancing clean energy, energy efficiency and zero emission vehicles to benefit all Coloradans.**



# Big picture changes in CO energy policy landscape

2019: 19 energy related bills

- Colorado Climate Action Plan
- Colorado Transmission Coordination Act

2021: 30 energy-related bills

- Organized Wholesale Markets by 2030
- PUC Encourage RE
- Microgrids for Rural Resiliency
- Grid Resiliency Roadmap



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# Colorado's Greenhouse Gas Mitigation Targets\*

2005 Baseline

## All sectors: Total Reduction

Baseline 140 MMTCO<sub>2</sub>e

- 2025: 26%
- 2030: 50%
- 2050: 90%

## Electricity Sector Reductions

Baseline 40 MMTCO<sub>2</sub>e

- 2020: 26% - Achieved
- 2030: 80%
- 2050: 95%

\*As set by Colorado House Bill 19-1261



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# Electricity Markets & Transmission Policy Analyst

## Responsibilities:

- Stakeholder Engagement
  - Utilities
  - Electricity Markets: RTOs & ISOs
  - NGOs & industry advocates
  - Regional Collaboration
- Policy analysis:
  - Regional Electricity Markets
  - PUC Rulemaking
  - FERC NOPRs
  - Monitor federal and regional energy policy
- Recommendations on engagement

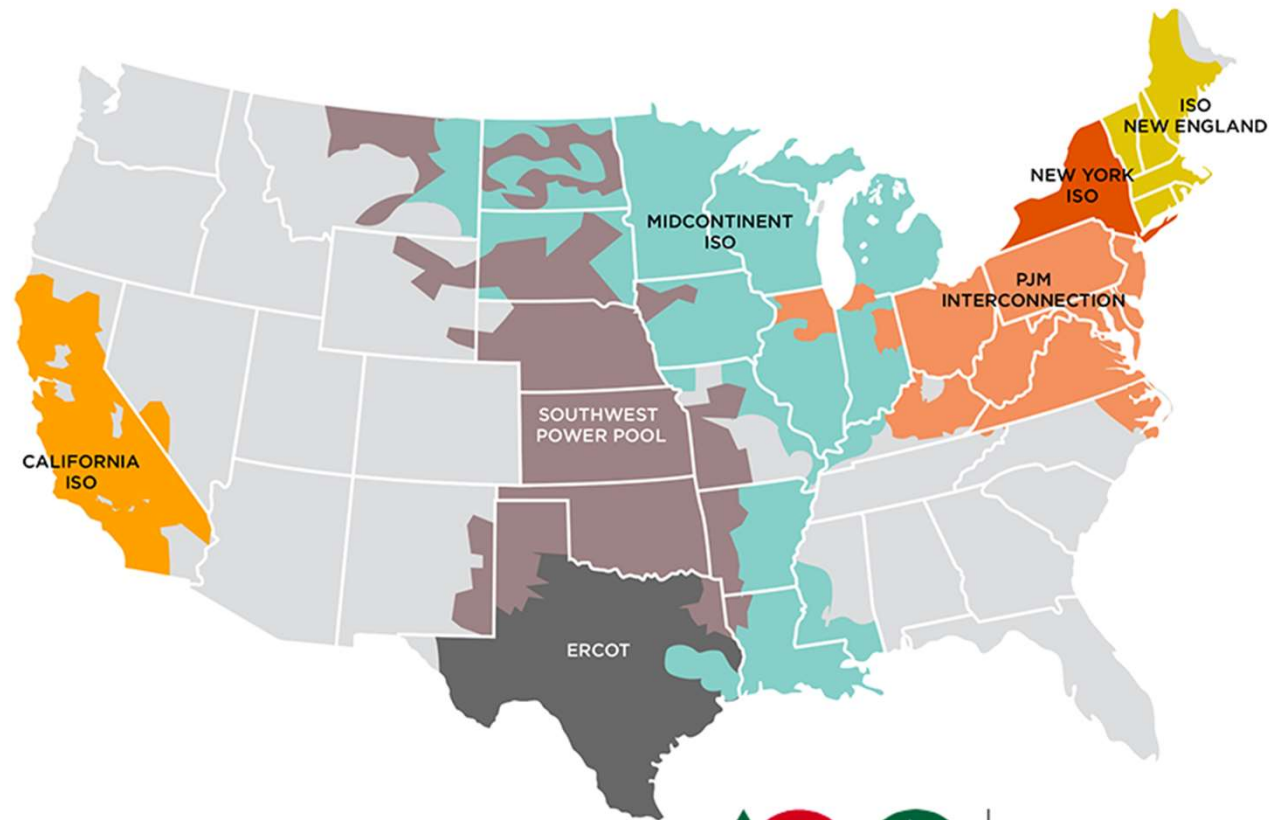
## What I bring:

- Education Background
- Coordination Experience
- MA in Political Science
  - Research into Colorado's 52 retail utilities gen. mix
  - Certificate in C Mngmt.



# Regional Electricity Markets

- Electricity Imbalance Markets
- Power Pools
- Resource Adequacy Programs
- Day Ahead Markets
- RTOs & ISOs



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# Regional Transmission Coordination

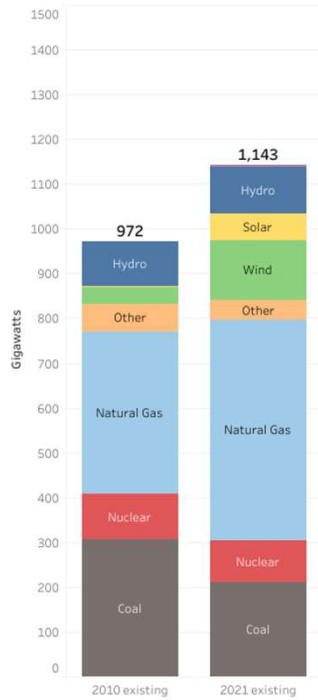
- Colorado PUC Rulemaking on Utilities joining Organized Wholesale Markets
  - Based on 10 characteristics
- SPP & CAISO Western Markets Development
- CNEE WIRED Initiative - Letter to Western Governors on Regional Transmission Coordination
- FERC NOPRs - Transmission & Interconnection



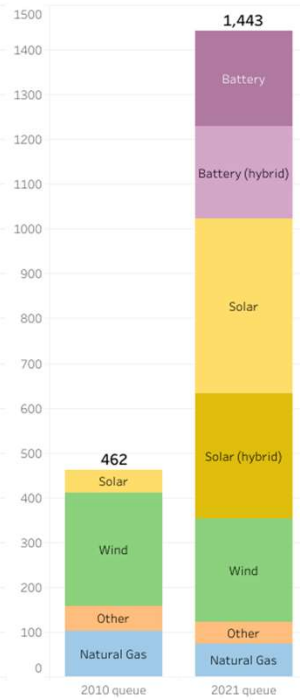
## Generation, Storage, and Hybrid Capacity in Interconnection Queues

Introduction	Regional queues	Hybrids only	Western non-ISO	Southeast non-ISO	Existing vs. queues	Trends 2007-2021
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### Existing capacity



### In queues



### Existing Capacity vs. Interconnection Queues 2010 and 2021

Our survey shows a total of 1.44 Terawatts (TW) in interconnection queues, which is greater than the existing capacity of the US power generation fleet. The queue has grown by nearly a Terawatt in the past decade, indicating both great interest in development and a congested process of interconnection.

Most of the projects in queues are proposed solar, storage, and wind power plants. At current CapEx prices, these projects represent over \$2 trillion in potential investment.

Based on past completion rates, only about a quarter of proposed projects are likely to..

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| <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Battery</li> <li><input checked="" type="checkbox"/> Battery (hybrid)</li> <li><input checked="" type="checkbox"/> Coal</li> <li><input checked="" type="checkbox"/> Hydro</li> <li><input checked="" type="checkbox"/> Natural Gas</li> <li><input checked="" type="checkbox"/> Nuclear</li> <li><input checked="" type="checkbox"/> Other</li> <li><input checked="" type="checkbox"/> Solar</li> <li><input checked="" type="checkbox"/> Solar (hybrid)</li> <li><input checked="" type="checkbox"/> Wind</li> </ul> | <p>Click color to highlight</p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #800080; border: 1px solid black;"></span> Battery</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #C080D0; border: 1px solid black;"></span> Battery (hybrid)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #000080; border: 1px solid black;"></span> Hydro</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #FFD700; border: 1px solid black;"></span> Solar</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #FFD700; border: 1px solid black;"></span> Solar (hybrid)</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #90EE90; border: 1px solid black;"></span> Wind</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #FFDAB9; border: 1px solid black;"></span> Other</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ADD8E6; border: 1px solid black;"></span> Natural Gas</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #DC143C; border: 1px solid black;"></span> Nuclear</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #654321; border: 1px solid black;"></span> Coal</li> </ul> |
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# Electricity Interconnection Queue

FERC Rulemaking - Comments due Oct 12



ELECTRICITY MARKETS & POLICY



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# Infrastructure, Innovation and Jobs Act (IIJA) – Colorado Projects

# IIJA 40101(d) - Grid Infrastructure and Resiliency

Microgrids for Community Resilience Grant Program

- \$3.5M State Funding
- \$5M Federal Formula Funding

Grid Resilience & Reliability Roadmap - 2025 deadline

Advanced Monitoring: \$1M

Rural Flexible Use: \$2M



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Department of Local Affairs



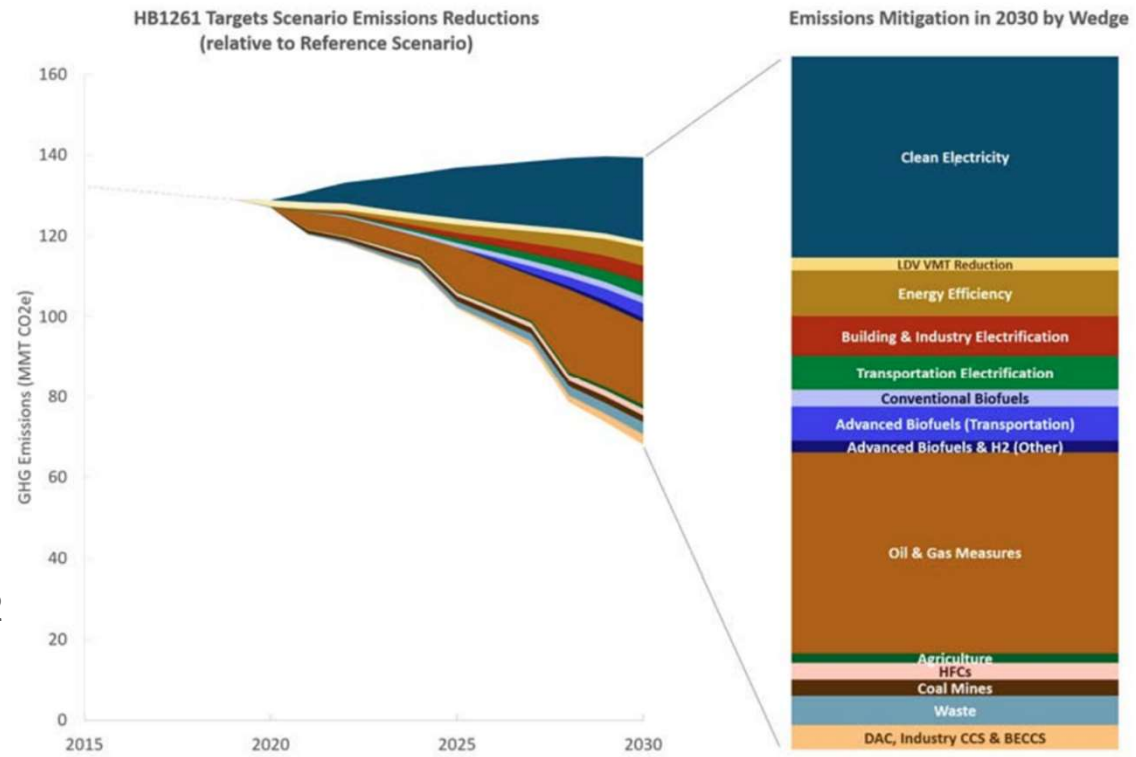
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# IIJA 40109 - State Energy Program

Energy Assurance Emergency Plan: 2021

GHG Pollution Reduction Roadmap: 2021, 2023

Greening Government Executive Order: 2022



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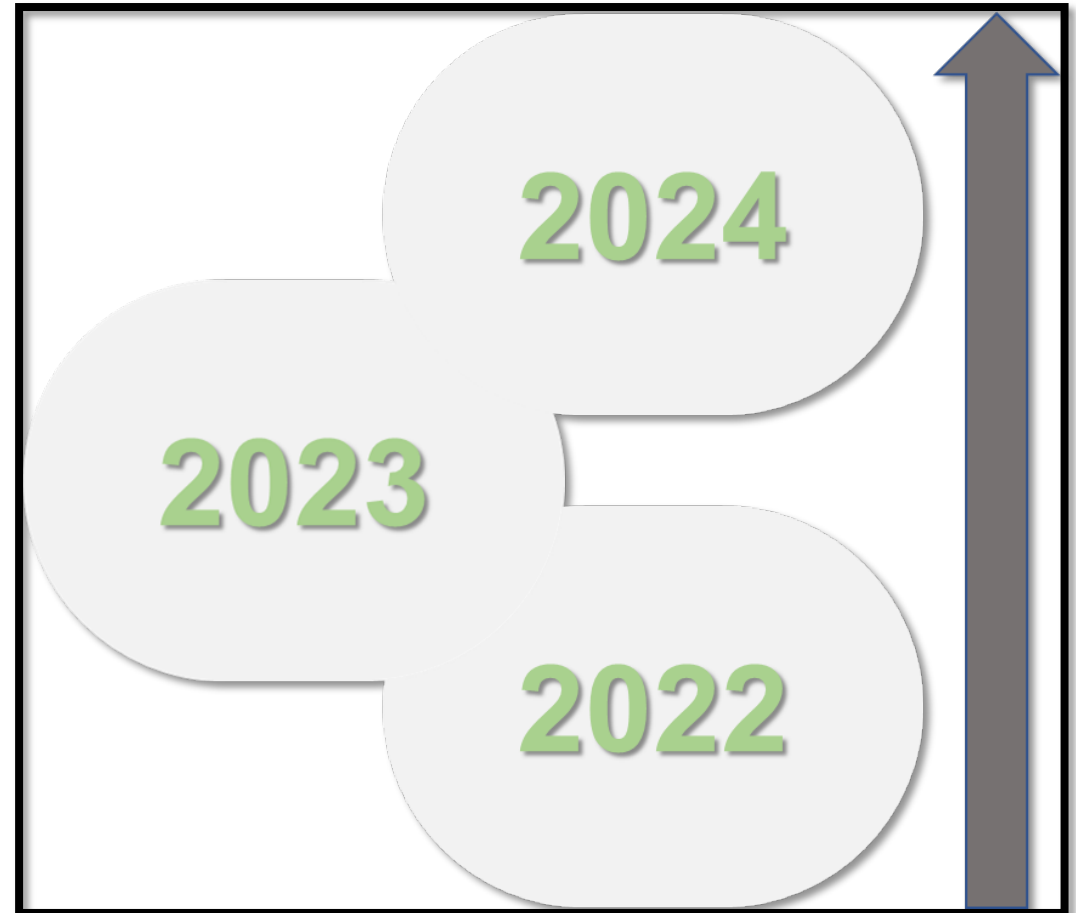
# Thank you

[john.m.parks@state.co.us](mailto:john.m.parks@state.co.us)



# Puerto Rico's Energy Security Planning

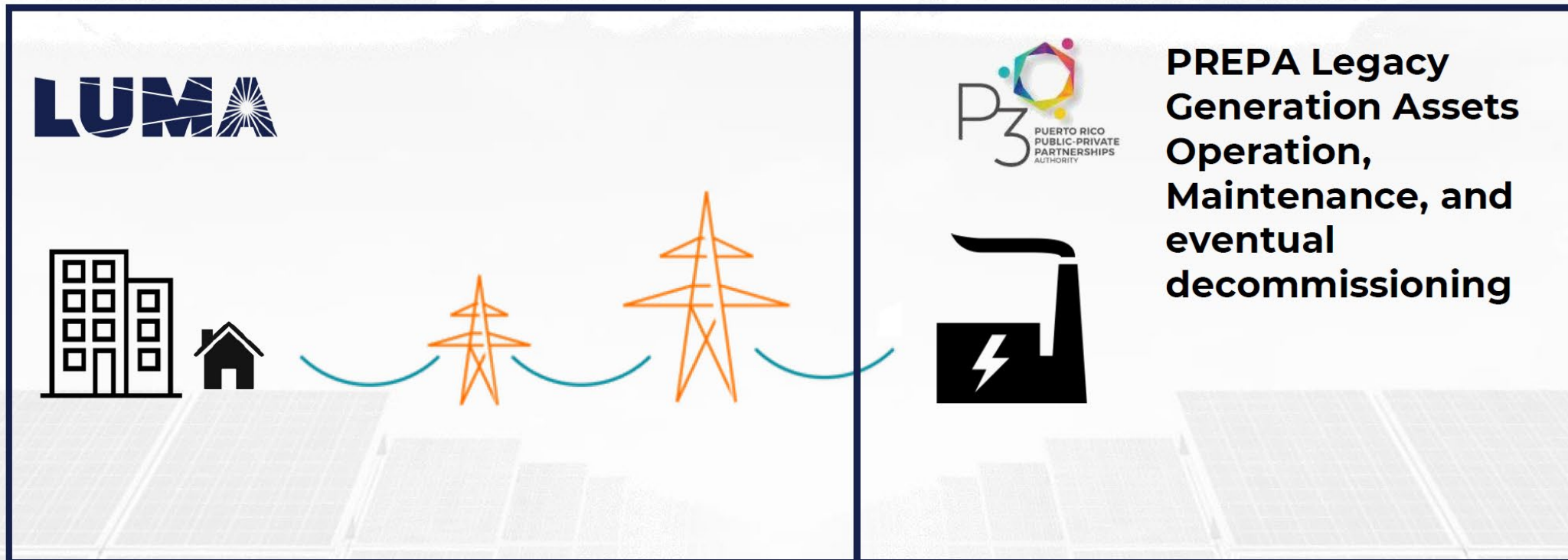
**Next steps...**





# Act 120-2018

## Puerto Rico Electric Power System Transformation



# Act 17-2019

## Puerto Rico Energy Public Policy

### System

Resilient

Reliable

Decentralized

### Renewable Energy

40% @ 2025

60% @ 2040

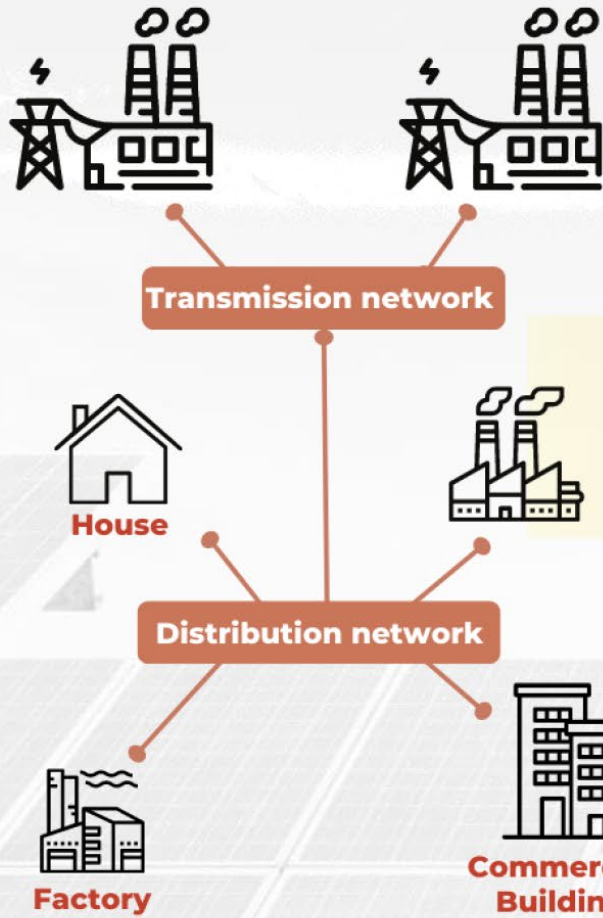
100% @ 2050

### Energy Efficiency

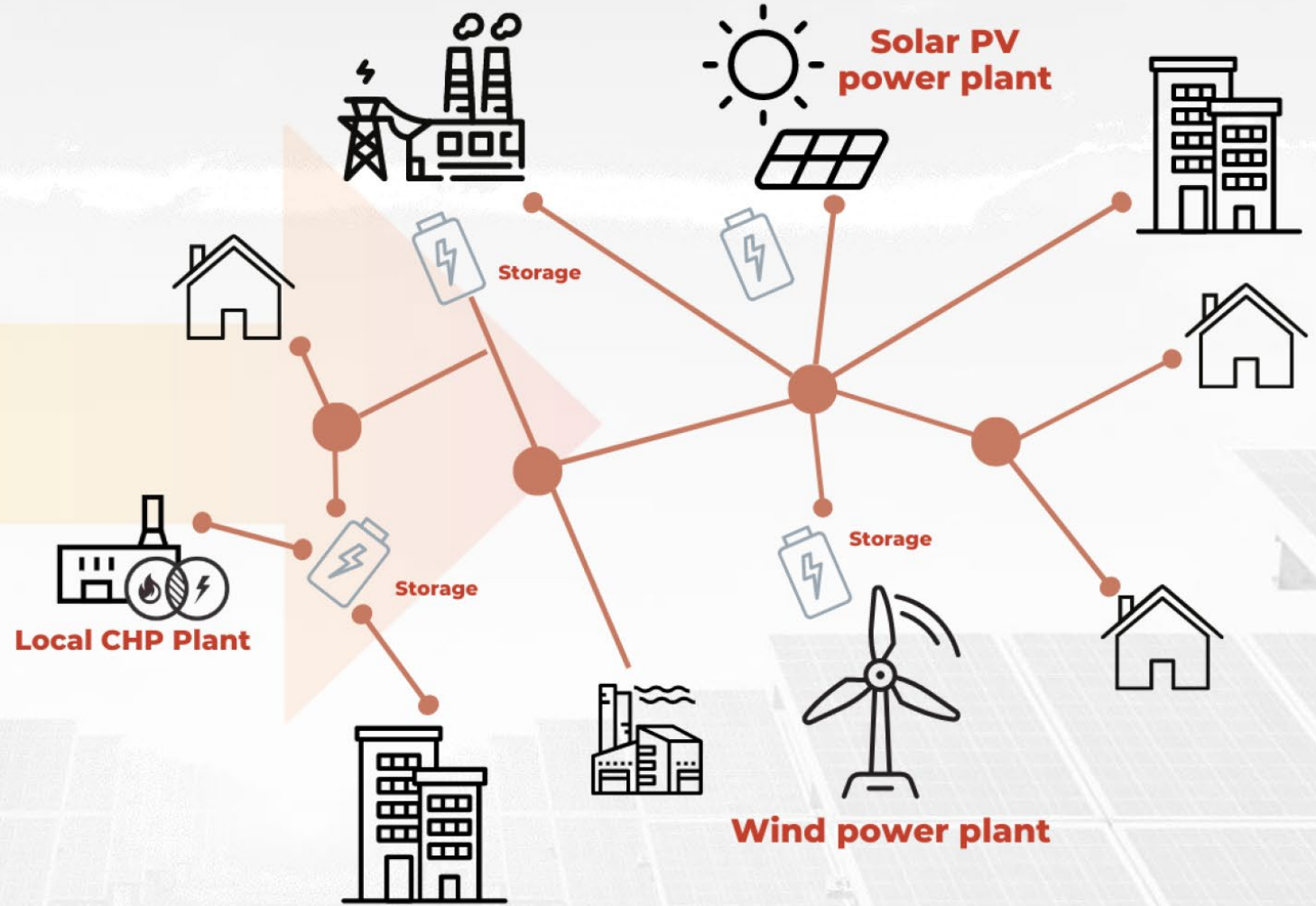
30% @ 2040



# YESTERDAY Centralized system



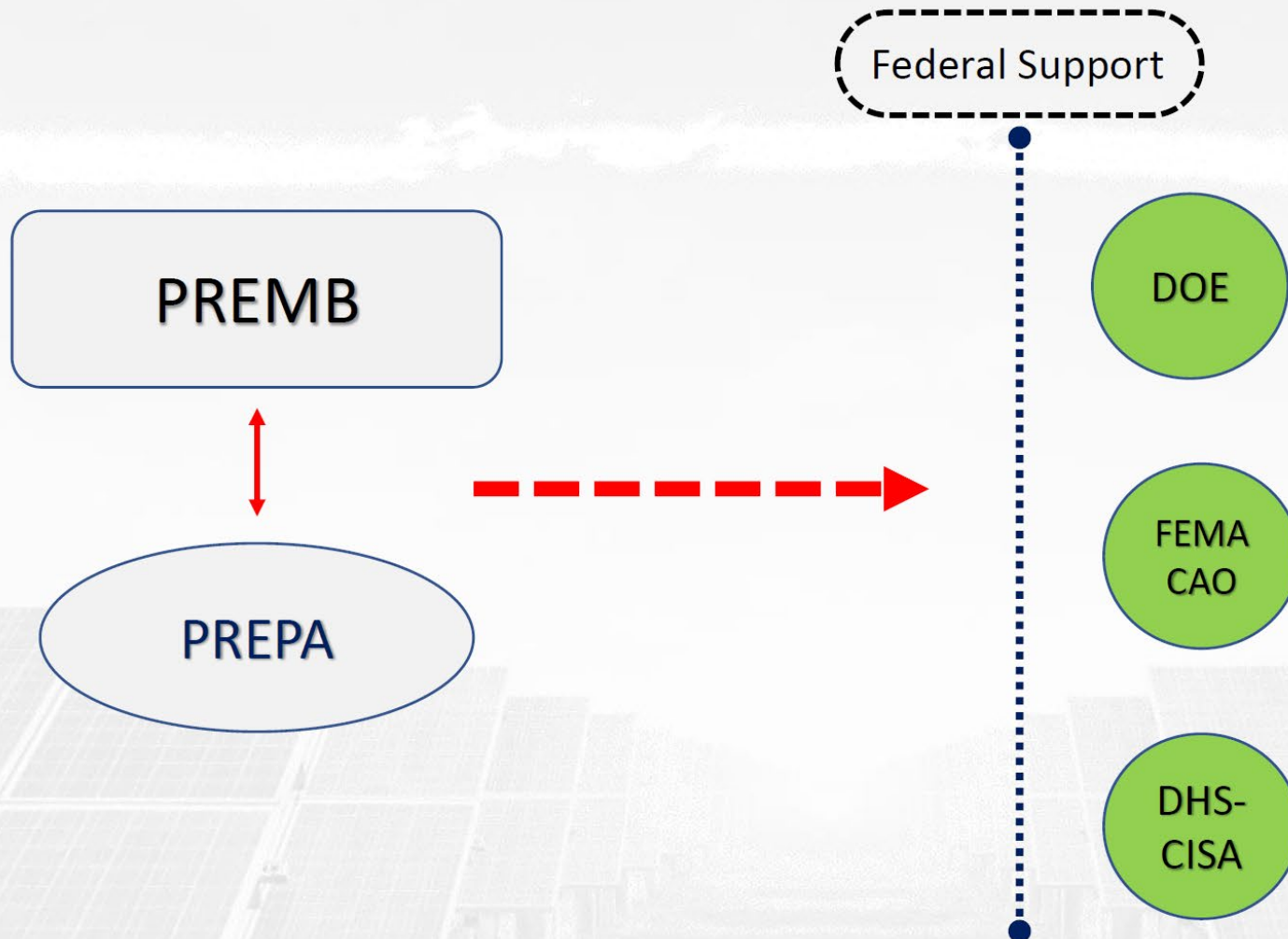
# ENERGY TRANSFORMATION Clean and distributed energy



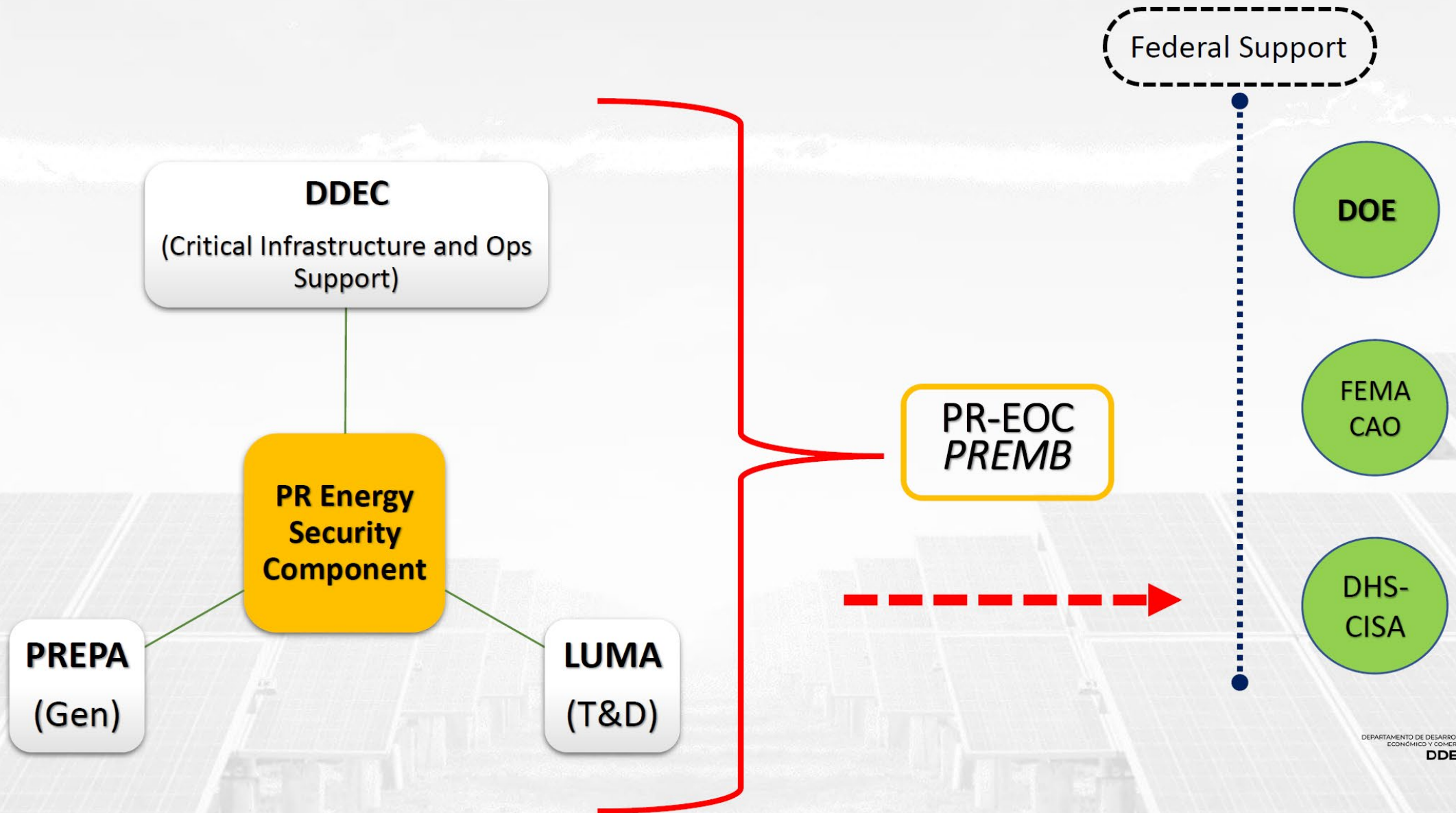
# Puerto Rico's ESF-12 Evolution



# Previous ESF-12



# Current ESF-12





# PR SESP *ROADMAP*

## Data Sharing

Increase the level of critical data sharing

1

## Grid Resilience

Provide support to the utility efforts to fulfil IRP goals towards increasing resiliency

2

## Resource Sharing Focused Collaboration

Promote a resource sharing sustainable ecosystem

3

## Demand Response Strategies

With the collaboration of PR Energy Bureau and the utility integrate the use of demand response strategies

4

# IIJA State Energy Security Planning Funding Allocations





An aerial, high-angle view of a dense city skyline, likely New York City, with numerous skyscrapers and buildings. The image is in grayscale and has a dark, muted tone. A white rectangular border is centered on the image, containing the text 'THANK YOU' in a bold, yellow, sans-serif font. The text is arranged in two lines: 'THANK' on the top line and 'YOU' on the bottom line.

**THANK  
YOU**