

Sam Talman, Business Development Manager

Energy Solutions in Puerto Rico

Opening Remarks—Ella Woger-Nieves

Overview of Puerto Rico's Energy
Landscape—Sam Talman

Understanding Options for Businesses—
Mariette Sánchez

Q&A



Run of Show



Speakers



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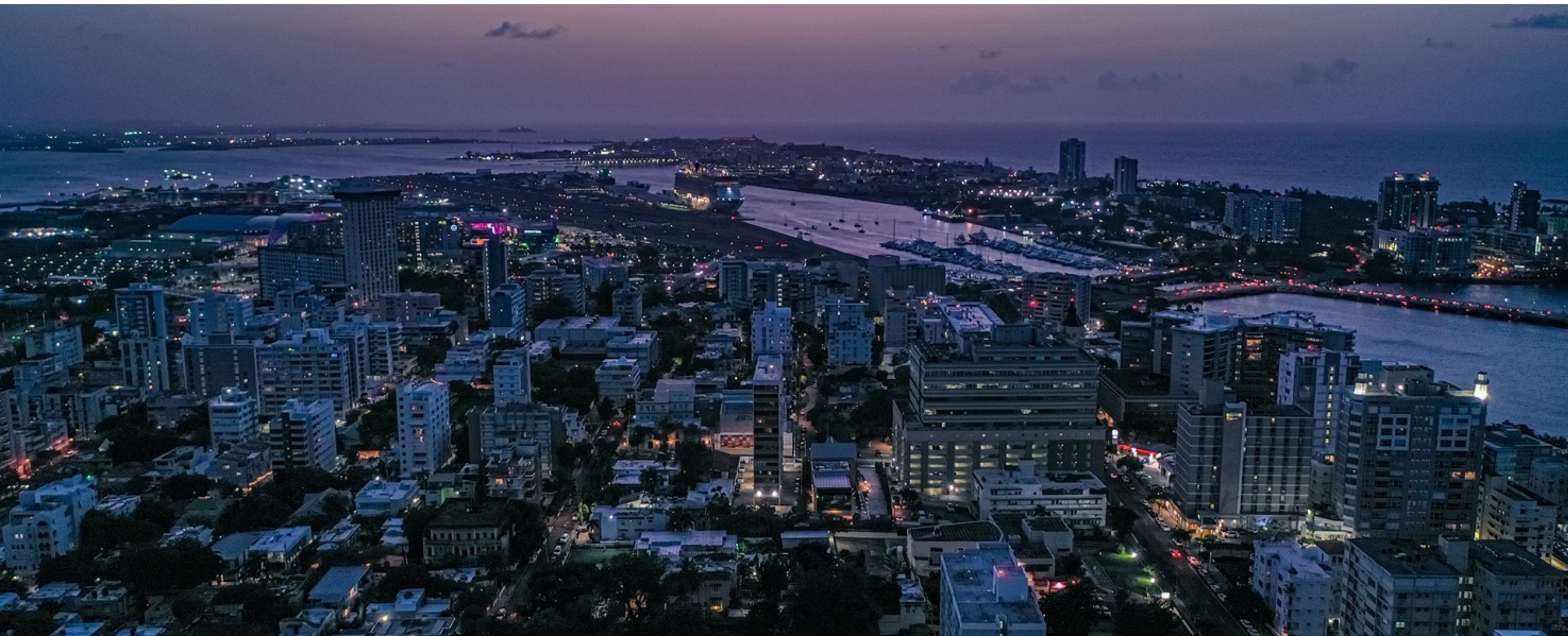


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Puerto Rico

Economic Snapshot





Puerto Rico’s Economy

- More populous than 20 states
- Largest and most diversified economy in the Caribbean
- Exports to over 135 countries around the world



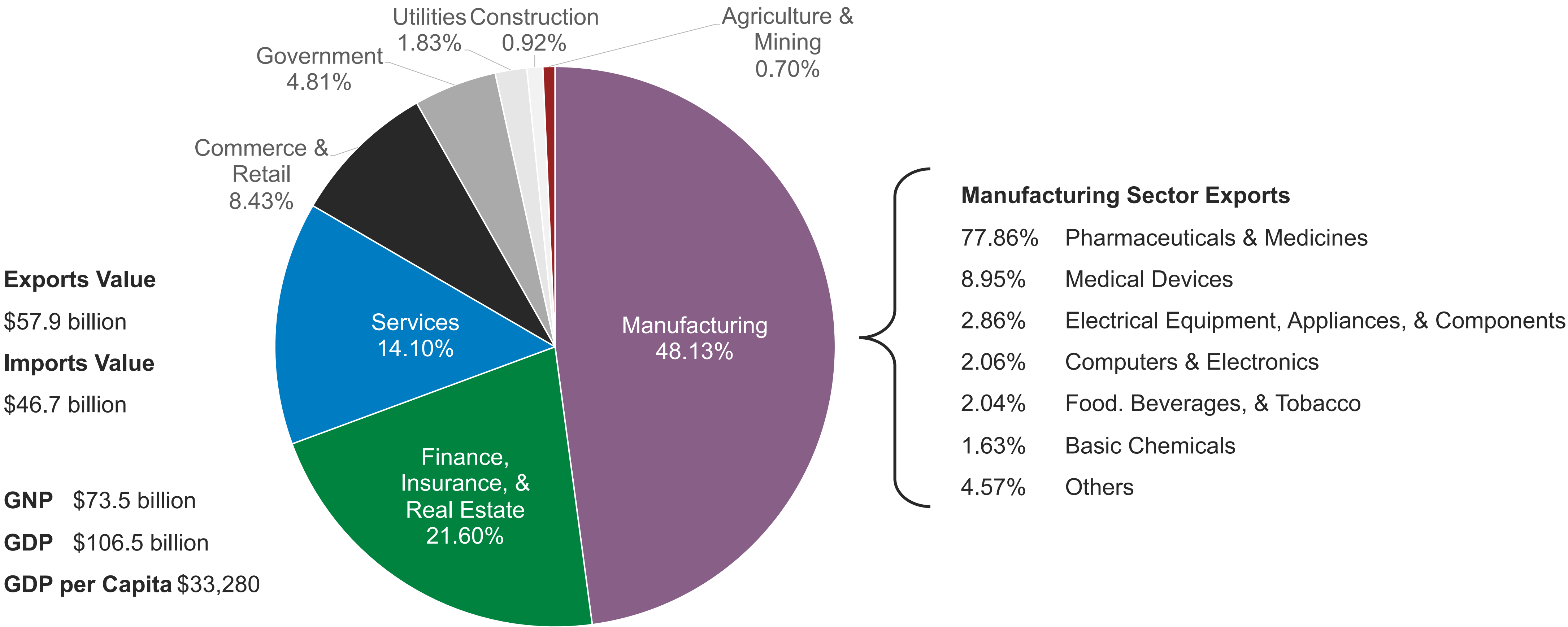
Profile	
Total Population	~3,200,000
Area	3,515 sq. miles (9,104 sq. km)

Source: U.S. Census Bureau

Economy	
Job Growth (2017 – 2022)	16.5%
Unemployment Rate (Aug 2022)	5.8%
Jobs (Aug 2022)	1,181,500
Annual Mean Wages (May 2021)	\$30,480 in PR compared with \$58,260 in U.S.

Source: U.S. Census Bureau, U.S. Bureau of Labor Statistics, Puerto Rico Department of Labor and Human Resources

Puerto Rico's Economy



Source: Puerto Rico Planning Board 2021

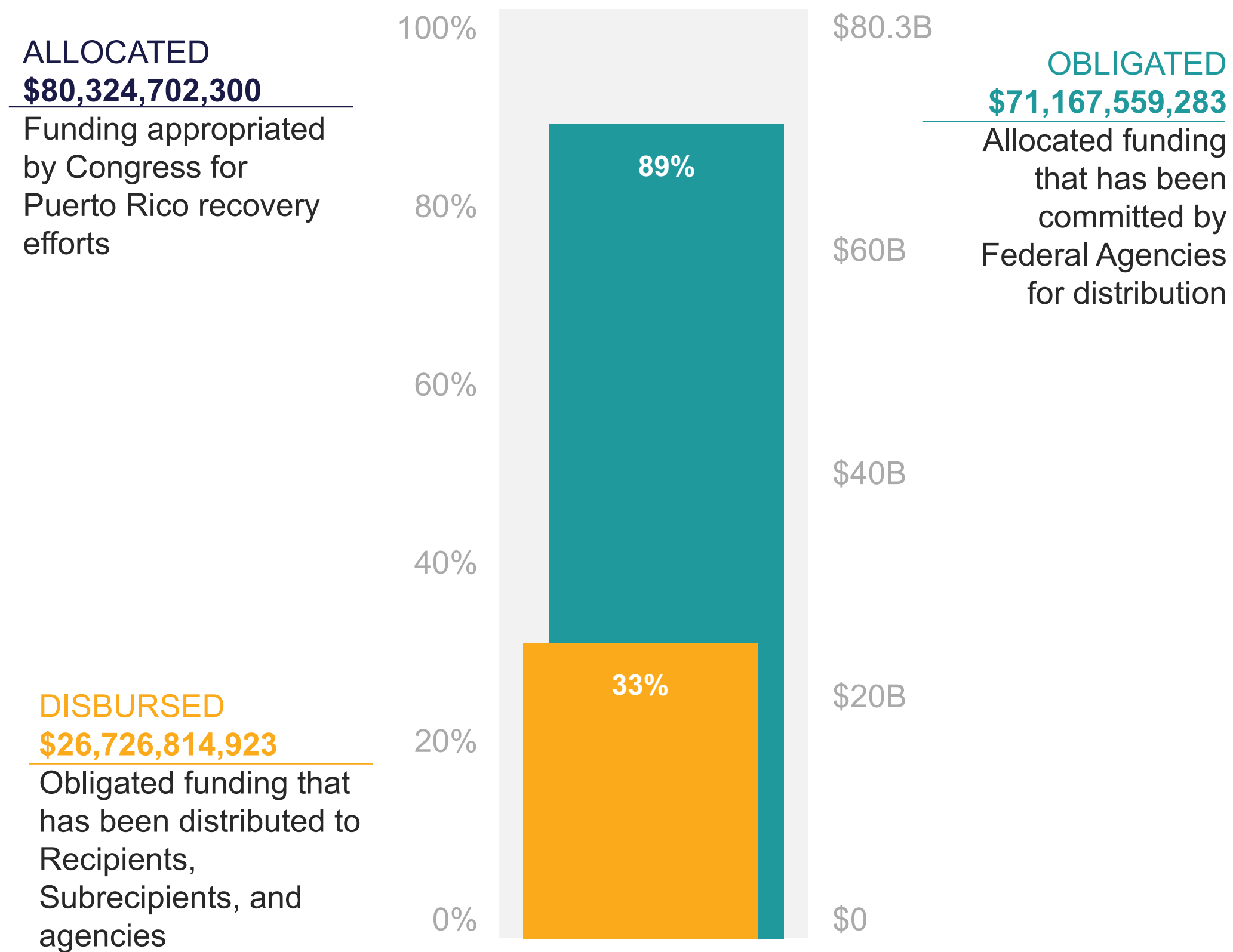
Puerto Rico

Infrastructure and Utility Scale



Puerto Rico: Recovery & Resilience

Puerto Rico's infrastructure was damaged by Hurricanes Irma and Maria in 2017, but contrary to media depictions, things were back up and running relatively quickly. Many advanced manufacturing operations were uninterrupted due to the storm.



Over \$80B of federal funds have been allocated for Puerto Rico's recovery, in addition to \$13 billion obligated by FEMA for overhauling the electrical grid and repair education centers.

Source: COR3 Transparency Portal
11/02/2022

Federal Funding is Driving Infrastructure Improvements

Progress:

- COR3 has disbursed **\$26.7 billion** for emergency and permanent works
- 2021: 92 RFAs, equivalent to \$77 million
 - Up from 2020: 5 RFAs equal to \$1.3 million
- Almost **50%** of the obligated **FEMA funds** since Maria are dedicated to **energy**, **water**, and **education** programs
- COR3 expects to launch **2,000 projects** over the course of 2022

\$60.5M renovation project at Port of San Juan to improve future energy costs

Michelle Kantrow-Vázquez • January 31, 2022

Puerto Rico, federal agencies partner for build-out of resilient energy network

Contributor • February 3, 2022

Puerto Rico get \$35.4M from US gov't for home energy assistance

Contributor • January 10, 2022

COR3 disburses \$147.5M to rebuild Puerto Rico's power grid

Contributor • August 22, 2022

COR3 makes 1st disbursement of \$7.1M for PREPA reconstruction projects

Yamilet Aponte-Claudio • October 15, 2021

Biden vows to drive 'decisive progress' to rebuild Puerto Rico's energy grid

Michelle Kantrow-Vázquez • October 4, 2022

COR3 disbursed \$271M for recovery and reconstruction work in 1Q22

Yamilet Aponte-Claudio • April 12, 2022

NimB News is my Business

FEMA approves disbursement of advances for permanent construction projects due to Hurricane Maria

Tuesday, October 25, 2022 - 2:52 pm

Previously, the money was only authorized for municipalities and various government agencies

EL NUEVO dia

Transformation is Underway

Great demand for energy and clean tech solutions to support the local movement

Act 17-2019

- Ends PREPA’s monopoly of the Puerto Rico’s energy system
- Pathway to 100% renewable power

Year	Required Renewable Energy %
2025	40%
2040	60%
2050	100%

Puerto Rico Energy Bureau

- Interconnections
- Wheeling
- Net Metering
- Government Efficiency



LUMA Energy

- Private consortium to operate and manage the T&D system
- Lineman college



Utility & Government Scale

Great demand for energy and clean tech solutions to support the local movement

6-Tranche Renewable Procurement Process

- Complying with Act 17, PREPA and the Energy Bureau are procuring 3.75 GW of renewable power and 1,875 MW of storage
- Tranche 1 closed with contracts for nearly 1000 MW of solar generation and over 500 MW in storage projects
- Tranche 2 underway now with an independent coordinator

Inflation Reduction Act

- \$270 billion in incentives for green energy production and energy equipment manufacturing
- Rural clean energy access programs
- Still defining the rules. Comment!

PR100, TOP, CDBG

- Active evaluation of the 100% renewable goal and roadmap development
- Maximizing federal databases to create solutions to local challenges
- Finalizing action plans that would further incentivize distributed generation projects

For December preliminary results of the PR100

The federal energy secretary assured that the findings of the study that seeks to promote the migration of the island to renewable energies will soon be known



Puerto Rico

Incentives for Energy



General Tax Benefits

In 2019, the local tax rates were harmonized to apply across nearly all industry sectors

4%

Income Tax Rate

0%

Distribution of Dividends Rate

75%

Property Tax Exemption

75%

Construction Taxes Exemption

50%

Municipal License Exemption*

* Percentage can be lower if negotiated with the municipality

50%

Exemption on other Municipal Taxes



Green Energy

Eligible activities for Green Energy businesses include, but are not limited to:

- Production or sale of green energy on a commercial scale
- Properties dedicated to the production of green energy
- Alternate and sustainable renewable energy producers
- Assembly of equipment for green energy generation, including equipment installation at green energy user facilities

Highlights

- Exemption of 100% from State Excise and Sales and Use Tax*
- Businesses that are totally disconnected from the Puerto Rico Electric Power Authority's electrical system will not be obliged to sell the energy produced to it to obtain or maintain a Decree under this Code, regardless of any other legal provision to the contrary

* Some restrictions apply



Manufacturing



**Export of Goods
& Services**



**Research
& Development**

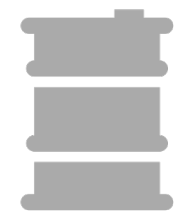
Puerto Rico

Local Energy & Cleantech Opportunity



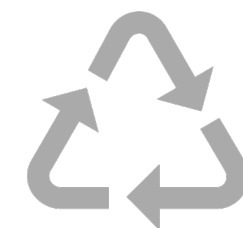
Commercial & Industrial Applications

- Private sector is the driving force behind the adoption of clean, reliable, and competitive cleantech
- Growing applications for IoT and monitoring equipment and software.



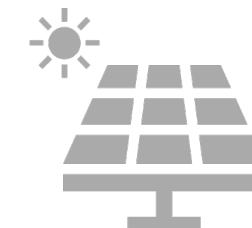
Fuels

- LPG and LNG for CHP
- RNLG, Biodiesel, biofuel
- Hydrogen
- Microgrids and distributed generation



Circular

- Municipal Solid Waste-based projects
- Tires and Plastics recycling
- Waste-to-X Project with Newlab



Green

- Solar
- Wind
- Hydroelectricity
- Storage



Ag

- Agrovoltaics
- Industrial hemp and sustainable building materials
- Vertical farming, hydro- and aquaponics

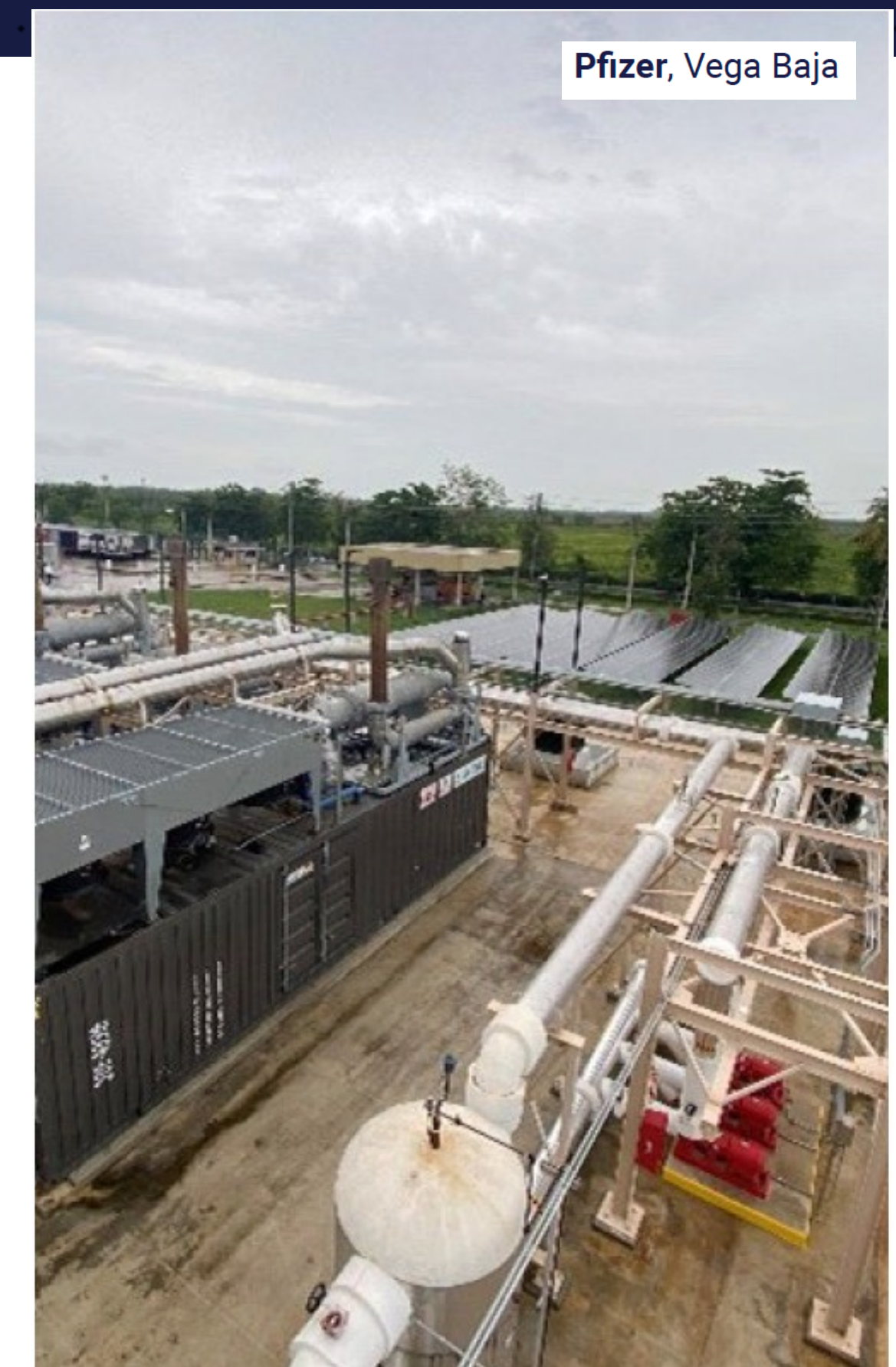
CHP-Based Microgrids

- Highly efficient baseload electrical and thermal power
- Easy to integrate with renewables for cost, resiliency, and emission goals



Cogeneration is a common solution in Puerto Rico because it offers businesses with many amenities:

- Stabilized energy costs at a significant discount
- Higher quality voltage, a necessity for manufacturers
- Energy efficiency rates of above 80%
- Cleaner fuel options, like LNG, LPG, and RLNG significantly reduce emissions
- Redundant fuel providers in Puerto Rico for continuous operations
- Flexible financing options and PPA providers
- A baseload option that supports distributed renewable deployment
- Tax incentives available from the Puerto Rican government
- On-site resiliency and peace of mind



Thanks to the Support from our Energy Ecosystem





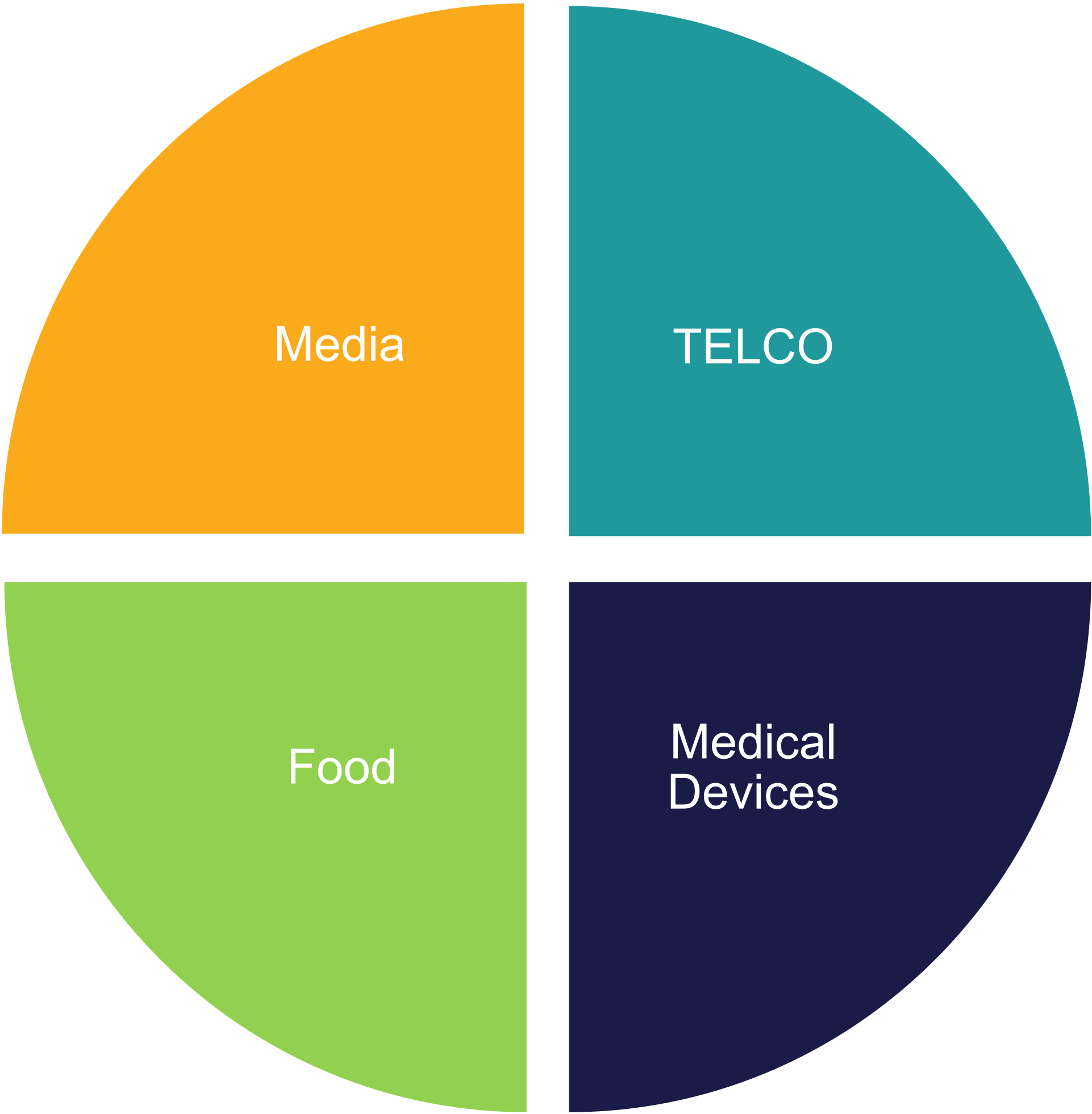
Ing. Mariette Sánchez, PE

Strategic Operations Consultant & President of MDM Consulting Group LLC

Mariette's was former Production Director of GFR MEDIA with 24 years of experience as Industrial Engineer. She has a Bachelor Degree in Industrial Engineering from UPRM and a Master's degree from Georgia Tech in Industrial and Systems Engineering. She started her carrier as quality engineer for the multinational Kyocera America Inc. Had her first consultant experience with a New York based consulting firm, TEFEN USA, providing operations consulting services to pharmaceuticals. She returned to Puerto Rico to form part of Grupo Ferré Rangel executives and to be part of GFR Energy Committee. After Hurricane Maria hit the island, the CHP analysis for the media company took more relevance than ever. It was not just about cost reduction but resiliency. She led a team of engineers towards the bidding, contract, installation and commissioning of GFRM CHP system. Passionate about education she has taught Industrial Engineering classes at Polytechnic University and currently teach Principles of Engineering at Colegio Mater Salvatoris High School. She is an active member of Council of Industrial and Systems Engineering from IISE and serves as advisor for the Industrial Engineering Department at University of Puerto Rico, Ponce. She is founder of Comunidad Cirinea's Ministry at the Catholic Church. She is member of Invest PR Energy Committee. Recently has being selected to receive "Colegiado Distinguido III 2021".



Clients Seek...



Carbon Footprint Reduction

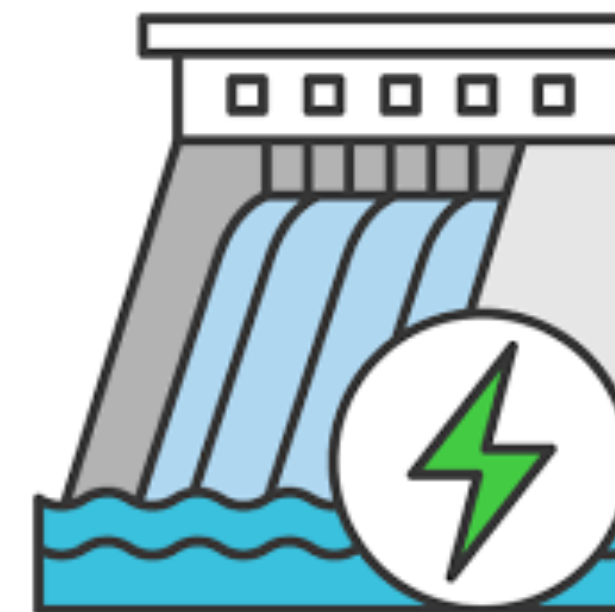
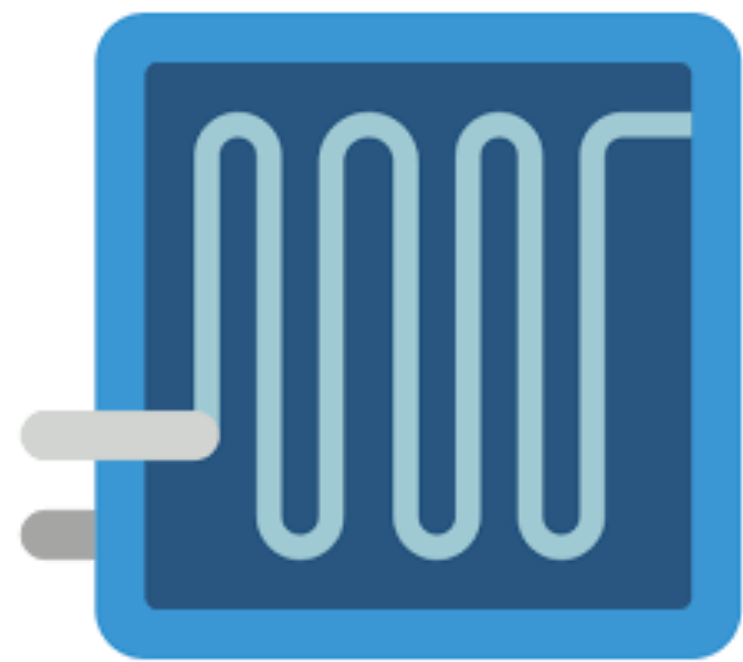
Cost Reduction

Resiliency

Improve Quality



Energy Solutions available



Case Study

Goals

Reduce Energy Cost

- Improve overall utility cost efficiency by reducing the primary utility cost

Cleaner Energy Source

- 30% less CO₂ emissions than Bunker Oil
- 50% less CO₂ than Coal

Resiliency

- Triple Redundancy
- CHP + Emergency Generators

Improve Power Quality

- Less voltage fluctuations

Conditions

Energy Cost

- 30 cents per kwhr *



The CHP Project– The efficiency worth the investment



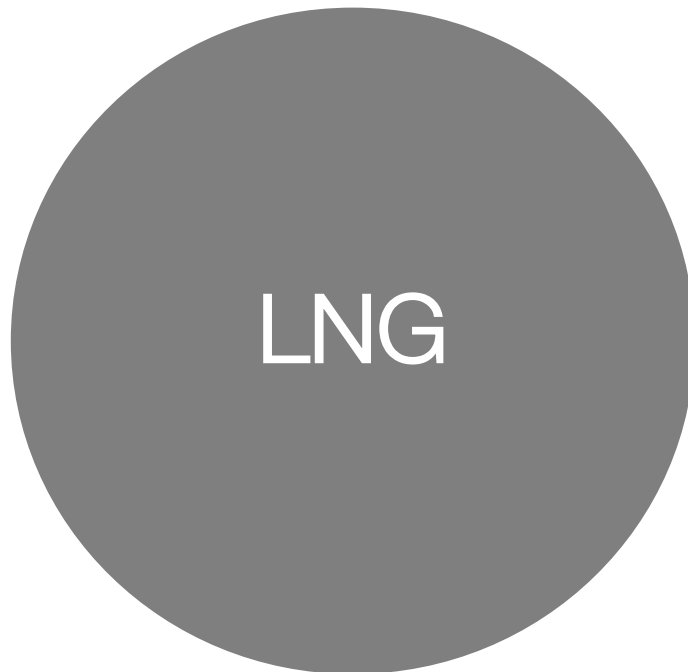
- Current load fluctuates between 1.3M and 3.6M
- Energy Consumption Projection



- Flexibility
- Noise Cancellation



- Expertise and Performance Guarantee



- Cleaner source of energy
- Cost
- Engine Efficiency



The Results



Reduce Energy Cost

- 30% Reduction in Total Energy Bill

Cleaner Energy Source

- 30% less CO₂ emissions than Bunker Oil
- 50% less CO₂ than Coal

Resiliency

- Triple Redundancy
- CHP + Emergency Generators
- 84% of Building Electricity comes from CHP

Improve Power Quality

- Less voltage fluctuations = Less electronic equipment loss



Questions?