

42nd Annual AAAE
Airport Law Workshop
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Session #20

You Need Power. How to Get It.



KAPLAN KIRSCH

Speakers



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A 20-minute field guide

- 01** — **How power reaches the airport** The physical chain and the regulatory handoffs
- 02** — **Why load is changing** Electrification, growth, tenant demand and new aviation
- 03** — **Why “just call the utility” is not a plan** Capacity, lead times, cost allocation and contracts
- 04** — **What good preparation looks like** Resilience, options and a practical legal checklist

PIT: A case study in driving innovation and sustainability

At The End of a Long Power Chain

1

Generation

Power is produced from a mix of resources

2

Transmission

Bulk power moves across high-voltage networks

3

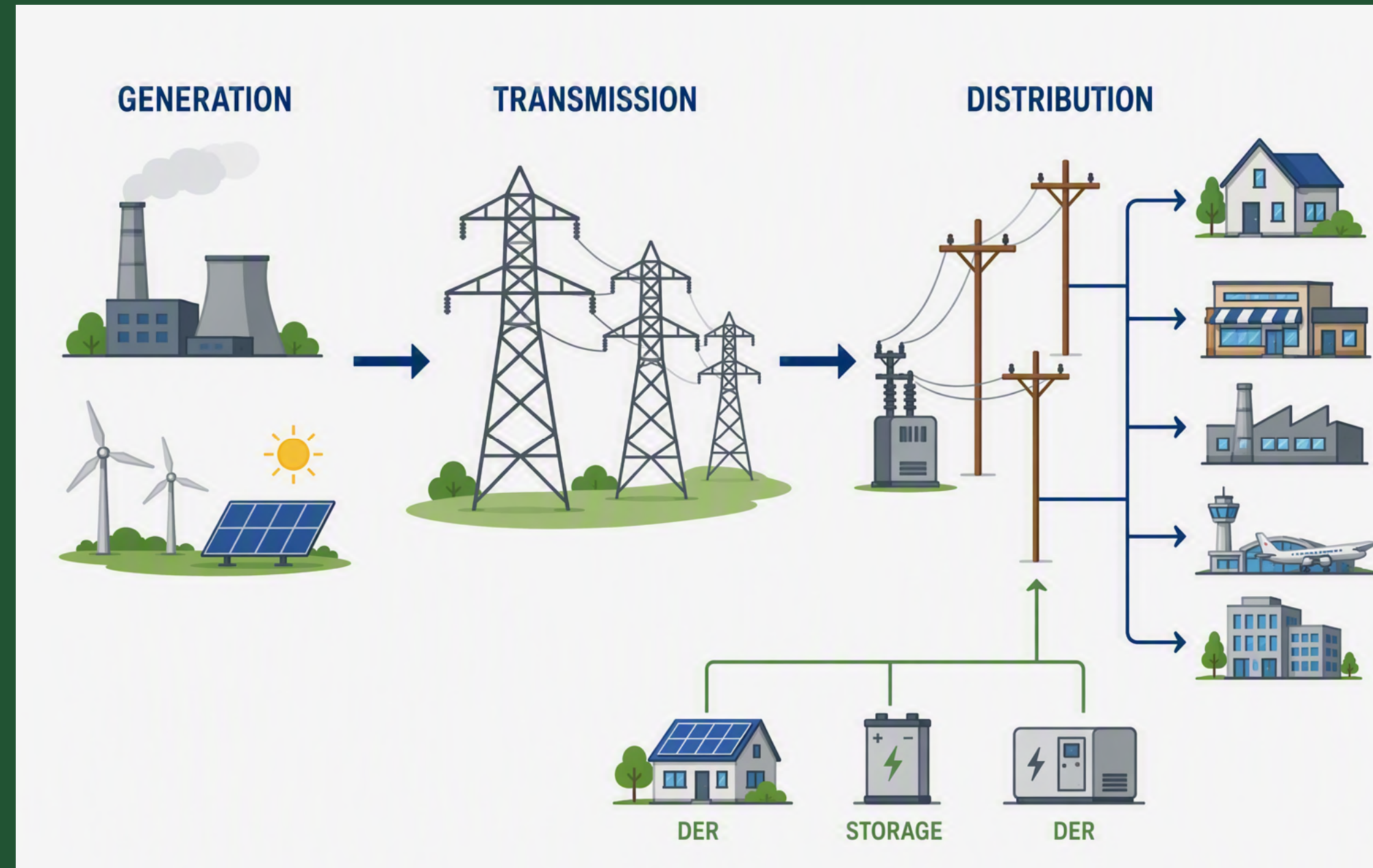
Distribution

The local utility delivers power to airport meters

4

Behind the meter

Airport and tenant systems use, store or produce power



Infrastructure is sized for peak, not the average

Energy: kWh / MWh

How much electricity is consumed over time. This drives the volume portion of the bill.

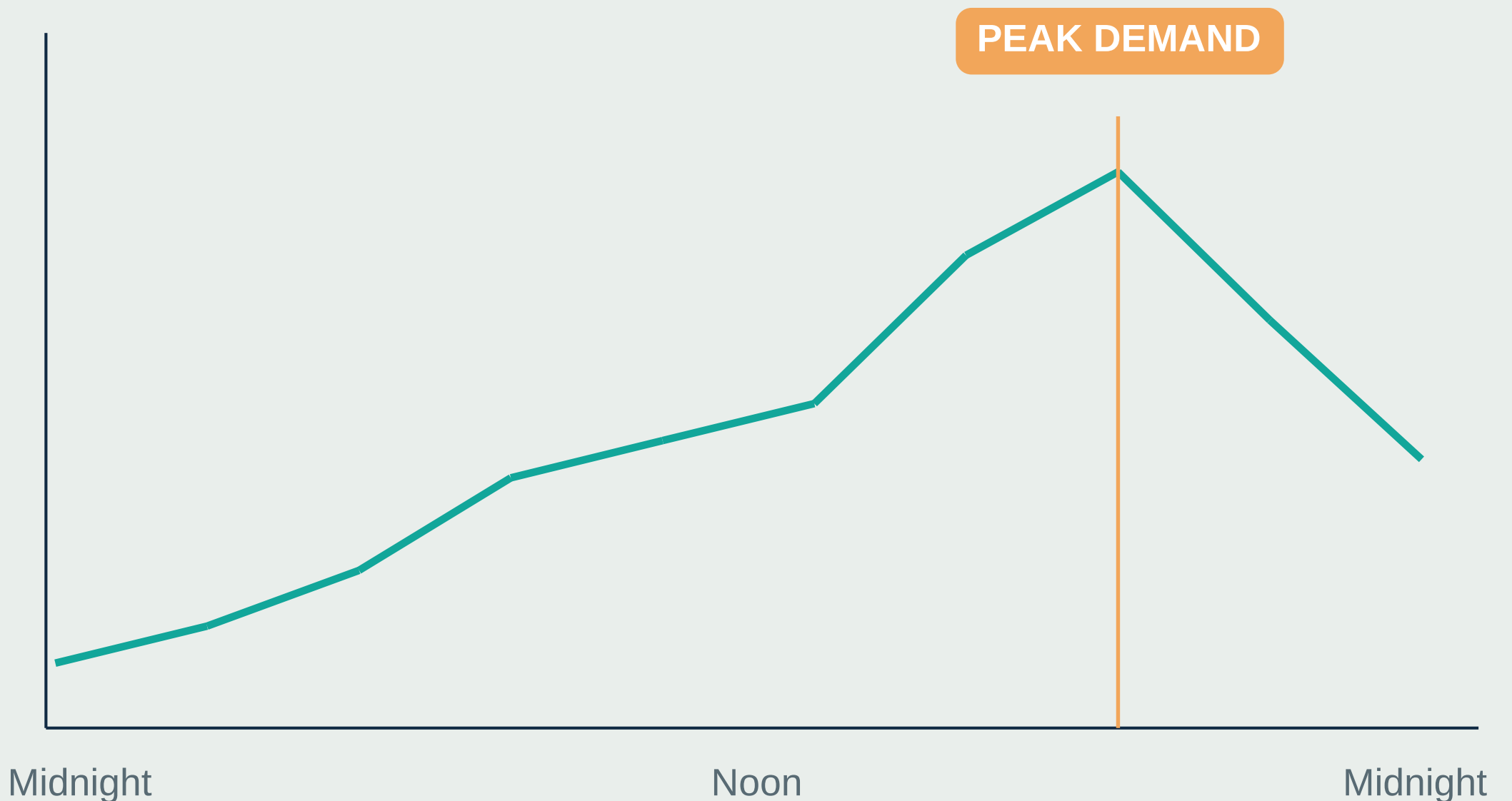
Demand: kW / MW

How much power is required at a moment. This drives wires, transformers, substations and often demand charges.

Reliability

How continuously the airport needs service, and how quickly critical loads must recover.

Illustrative airport day



A charger that runs briefly can add little annual energy but still create a major new peak.

Airport Electricity Demand is Moving Outward, Upward, and Faster



Airside

Electric ground support equipment, gate power and charging

Landside

Rental cars, buses, employee fleets and public charging

Buildings

Terminal expansion, cooling and building electrification

Next wave

Electric aircraft, AAM and hydrogen production or handling

Planning signal: airport demand could quintuple over the next 20 years.

The Airport is Asking for New Capacity in a Tightening System



Demand growth is back

U.S. net generation reached a record in 2025 and EIA expects continued growth in 2026 and 2027.

Infrastructure has long lead times

New feeders, substations, transmission and generation require studies, approvals, procurement and construction.

The queue is shared

Airports compete with data centers, manufacturing, housing and other large loads for capacity and equipment.

Costs follow causation rules

Utility tariffs and commission rules often govern who pays for extensions, upgrades and special facilities.



For Airports, Electrical Resilience is an Operating Requirement



1

Reduce

Efficient systems and managed charging

2

Backup

Generators, storage, and redundant feeds

3

Island

Microgrid capability for prioritized loads

4

Recover

Controls, black-start plans, and tested procedures

Airports are evolving from passive customers to active energy managers

CUSTOMER

Buy utility service

- Service upgrades
- Tariff review
- Demand charges
- Redundancy



MANAGER

Shape and control load

- Load forecasting
- Managed charging
- Tenant data
- Efficiency

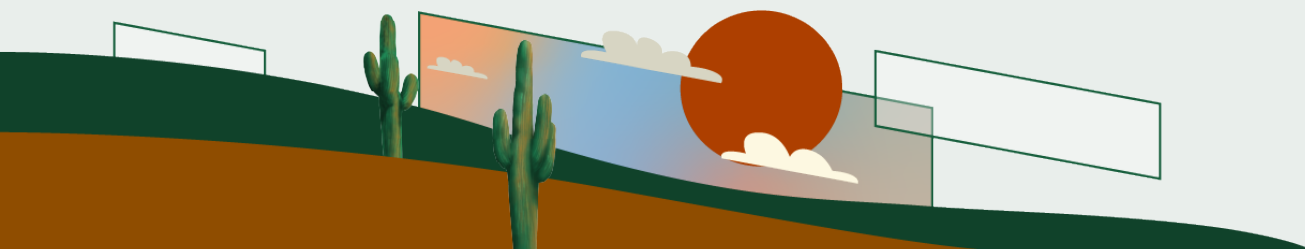


PARTNER / HOST

Develop or host resources

- Solar + storage
- Microgrid
- PPA / energy services
- Revenue or land use

These are not mutually exclusive. Most airports will use a portfolio.



Five questions to ask before the airport commits to new energy strategy

1

LOAD

What new loads, at what locations, on what schedule, with what peak profile?

2

CAPACITY

What can the utility serve now, and what studies and upgrades are required?

3

RISK

Who pays if costs, timing, technology or the forecast changes?

4

RESILIENCE

Which loads are critical, and what recovery standard is required?

5

CONTROL

Who owns, operates, dispatches and receives value from each asset?

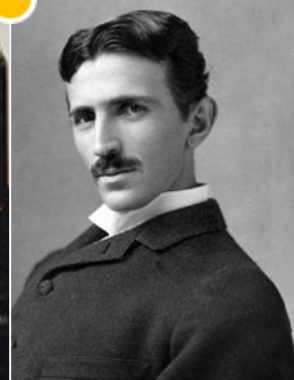
Start with the load and the operating objective. Choose the project structure second.



•Driving Innovation and Sustainability

The Pittsburgh region has a proven track record of innovation and a legacy of solving problems

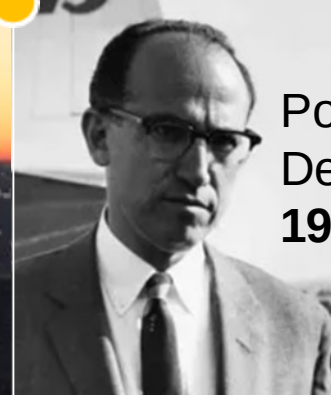
First Known
Petroleum Refining
circa 1850s



Westinghouse
convinces Nikola
Tesla to come work
in Pittsburgh
1888

First Commercial Production
of Aluminum
1888

First Drive-in Gas Station
1913



Polio Vaccine
Developed
1953

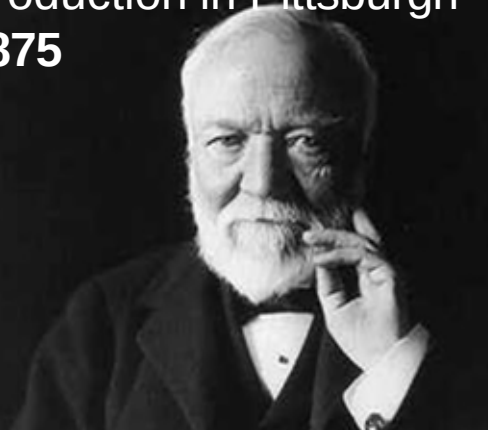
First Ever
Picturephone
Call
1970

First Simultaneous
Heart, Liver and
Kidney Transplants
1989

First Continuous
Roll Printing Press
1863

First Wire Cable
Suspension Bridge
1845

Carnegie Begins Steel
Production in Pittsburgh
1875



First Commercial Radio
Broadcast, Commercial
1920

First Road Map
1914



First Computer-Controlled
Sign in the U.S.
1967



PIT is the 8th largest U.S. airport by land mass with 8,800 acres positioned atop one of the largest natural gas deposits in the U.S.

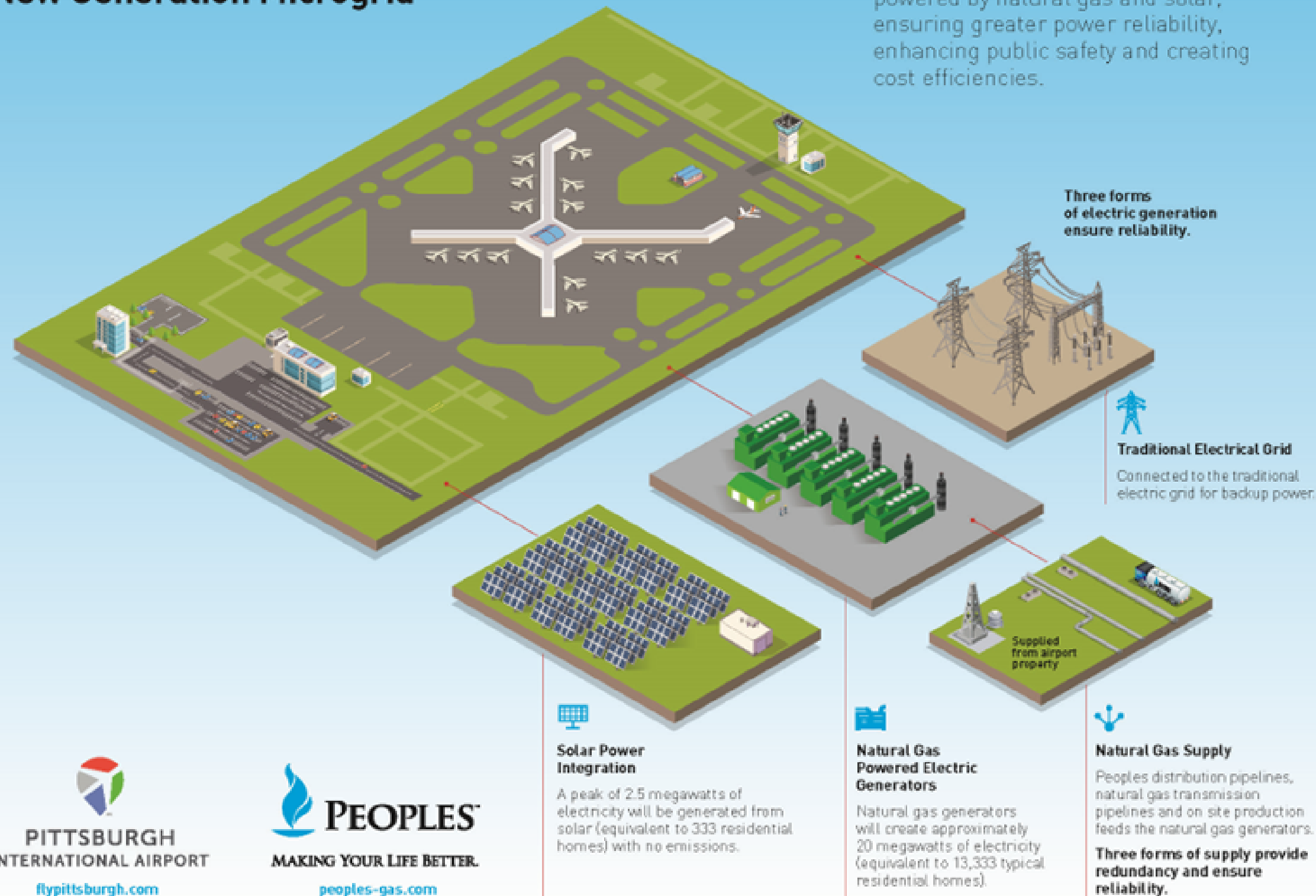


Three parallel and one cross-wind runway

- Microgrid
Building Energy Resilience

Pittsburgh International Airport New Generation Microgrid

Pittsburgh International Airport is building a first-of-its-kind microgrid powered by natural gas and solar, ensuring greater power reliability, enhancing public safety and creating cost efficiencies.

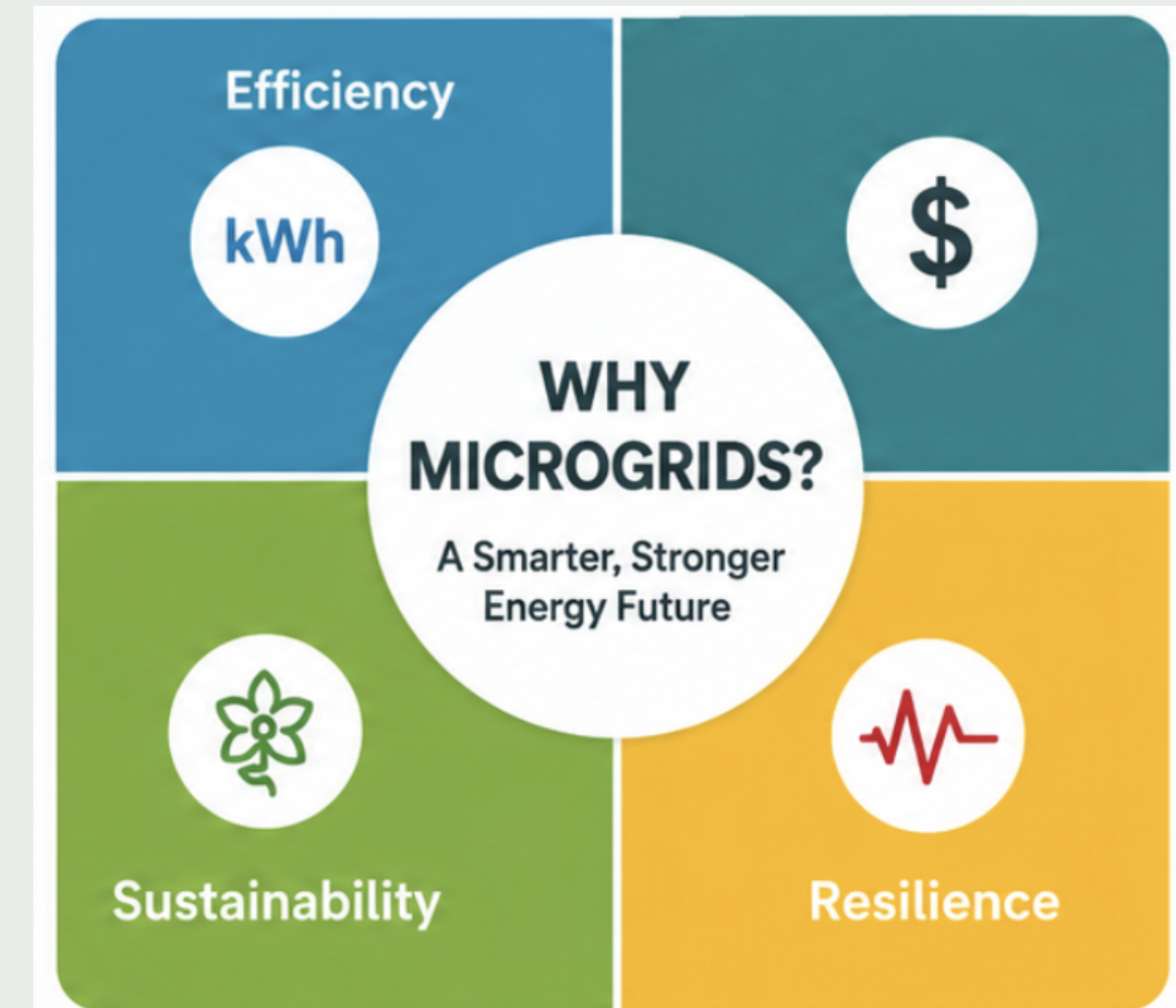


PIT was the first airport to generate its own power for its entire campus

- PIT had a vision to improve resilience and reduce reliance on the grid

Set out on this project with 4 main goals:

- 1 • Improved resilience & reliability
- 2 • Support our sustainability goals
- 3 • Lower the cost of electricity to the ACAA & our tenants
- 4 • Support on-site natural gas & include renewable energy

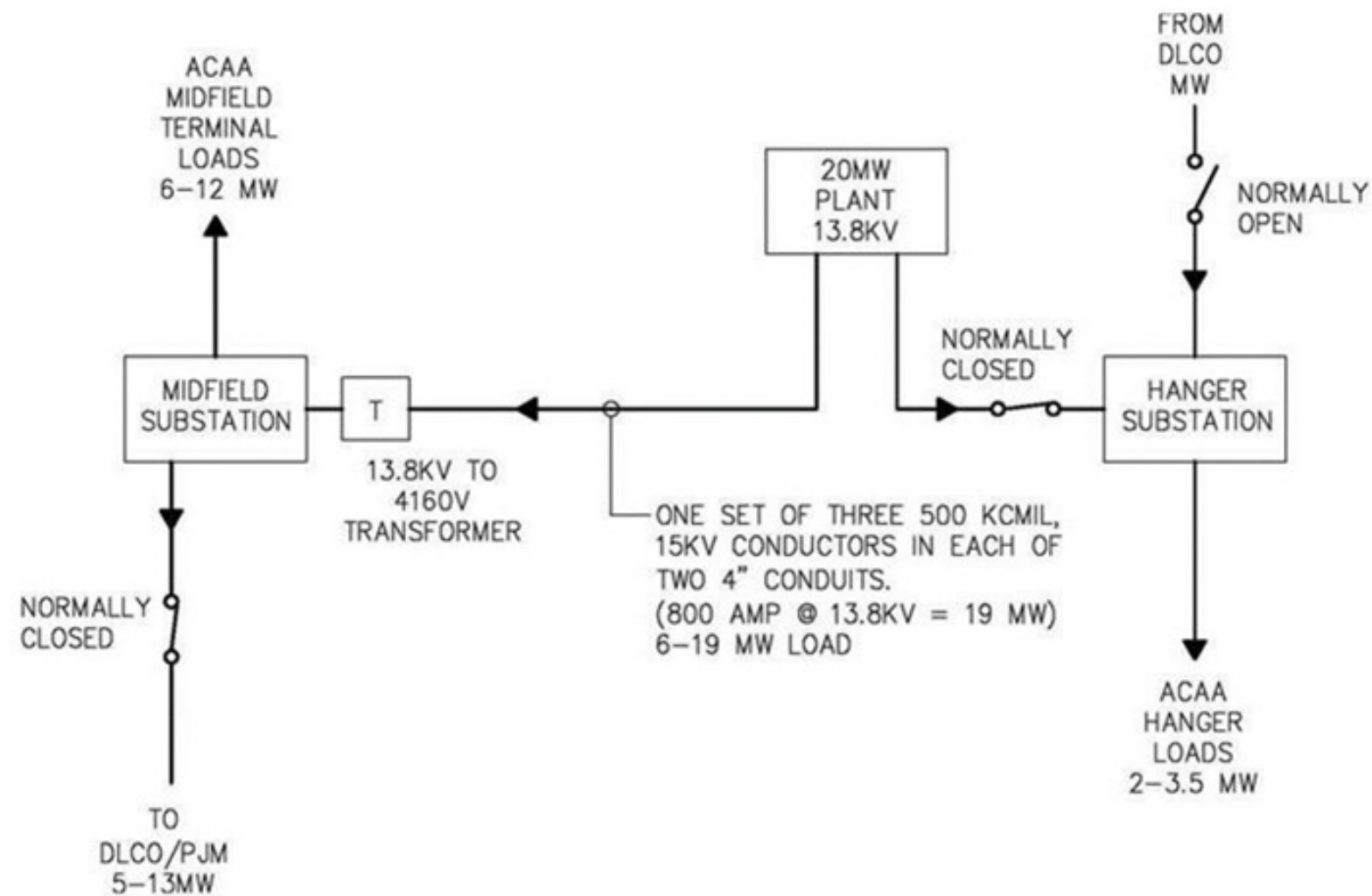


- Our microgrid is fueled by natural gas sourced from gas wells located on our property
- 20 MW energy plant
 - Abundant supply of natural gas from Marcellus and Utica shale formations
- Energy Services Agreement – Grants Peoples Natural Gas (Assigned to Cordia) right to construct, use, maintain; sell power back to ACAA, sell excess power to 3rd parties
- \$0 capital investment through Public Private Partnership
- If the grid goes down, the plant automatically enters island mode



Public-grid interconnection provides backup power

Emergency power and excess capacity



MIDFIELD SUBSTATION

Connects to on-site generation and the utility for backup, emergency power and export of excess capacity.

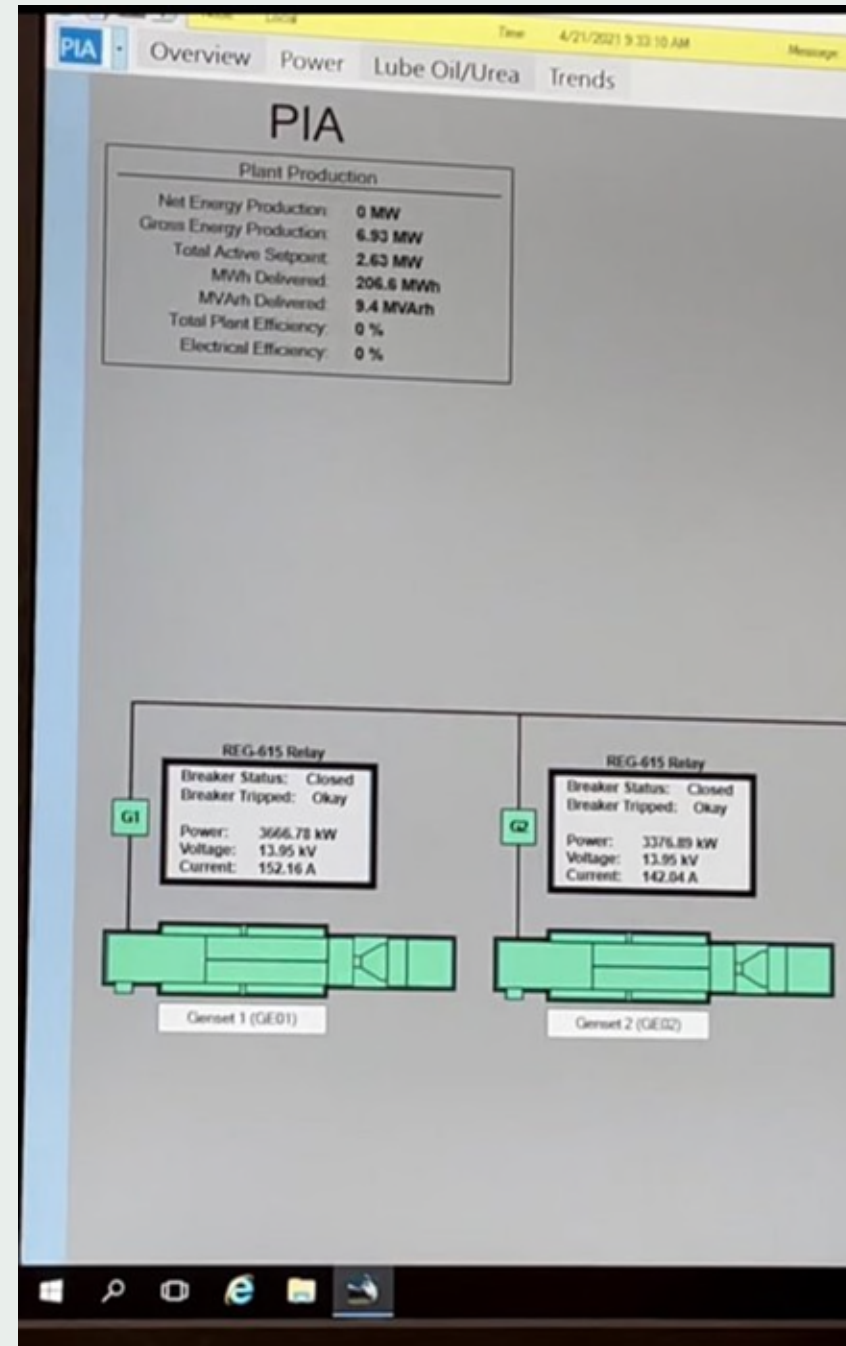
TWO-WAY RESILIENCE

Island mode keeps PIT online if the utility fails. The utility powers PIT if the microgrid fails.

CONTRACTS AND COSTS

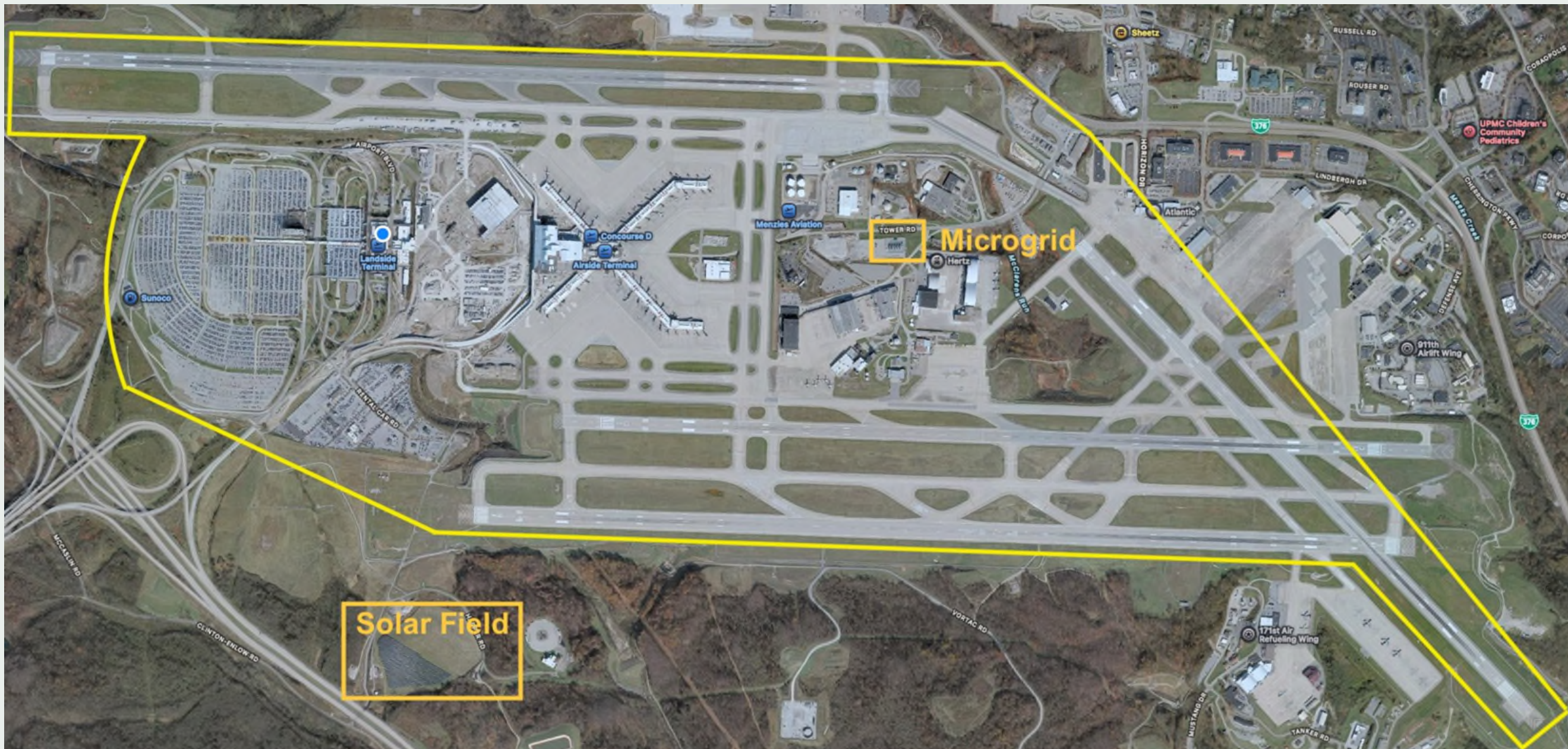
Local utility contracts provide backup power. Exporting additional generation lowers electricity costs for ACAA.

- The microgrid is operated on-site and remotely



- On-site Operations:
 - Two on-site technicians:
 - 8 hours a day M-F and on call on weekends
 - Breaker operations, island mode, black start
 - General operation is automatic
- Remote Operations:
 - 24/7 monitoring
 - Trend power production, temperatures, pressures, responds to alarms
 - Monitor security cameras and smoke alarms
 - Solar operation is completely remote

The PIT microgrid powers the airport's entire airfield



The PIT microgrid also powers:

- Hangars
- Terminals
- Hyatt Hotel
- Gas Station

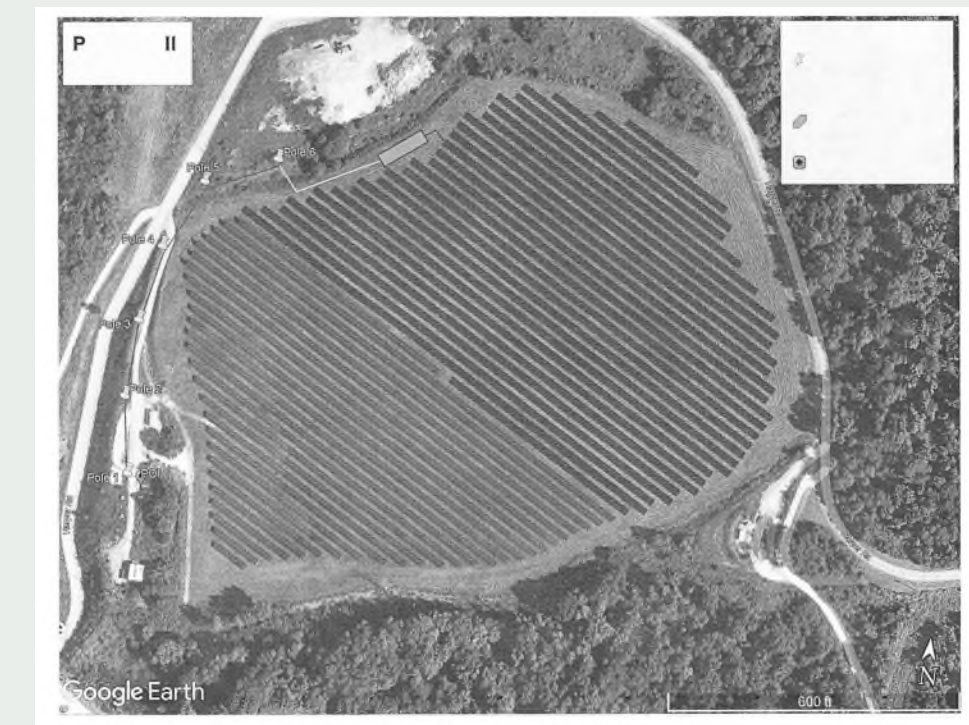
The PIT solar array powers airport facilities through net-metering

- The solar farm was installed on a closed landfill

- Permitted by the PA Dept. of Environmental Protection (PADEP)
- Viewed favorably by the PADEP for re-use of landfill property – Brown Field vs. Green Field
- Future landfill solar projects in PA will be viewed favorably since ACAA established a path to success
- The closed landfill was property that was otherwise unable to be developed
 - Adjacent Landfill Leachate Treatment Plant (LLTP)
- Cost savings of over \$1.5M per year



- Good morning.
- You work for environmental today.
- Phase 2 beginning
- Right of Way needed for installation/driving of “piles”
- Took opportunity to strengthen protections
 - Goal to closely guard landfill, LLTP; avoid NPDES permit implications
- Included strong engineering specifications and indemnity in favor of airport into ROW
 - Contracting note: indemnity survives ROW



- “We have been trying to reach you regarding your Microgrid’s extended warranty.”

- Recall the microgrid operator sells power to ACAA and excess back to grid
- Planned outage for new terminal construction
- Six-figure bill for lost profits
- Contractual dispute –
 - “Planned Outage does not affect bill”
 - But “lost profits” specifically excluded



- What's Next?
Alternative Fuels

- PIT is planning to develop an ATJ-SAF facility on our airport campus



- PROVEN TECHNOLOGY
 - PureSAF technology, invented by Swedish Biofuels and exclusively licensed by KBR
 - Converts ethanol into SAF and allows for ethanol diversity
 - Diversified sources of ethanol (sugar based and cellulosic) as well as CO2 can enable 2G SAF and E-SAF (PtL)
- READY FOR COMMERCIAL USE
 - This variation of SAF technology is already approved and ready to be used by commercial aircraft
 - It has been used by the U.S. Military Since 2010

- Once fully operational, the SAF plant will be the largest ATJ facility in the nation

Phase 1 Annual Production

25M
GALLONS



Developed with Partners Avina & KBR



~\$755 Total Investment



Certified for US and EU Markets



Powered by PureSAF
(KBR Licensed Technology)



Scalable up to 120M Gallons Annually

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• Thank You

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Questions?




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Thank You!



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