

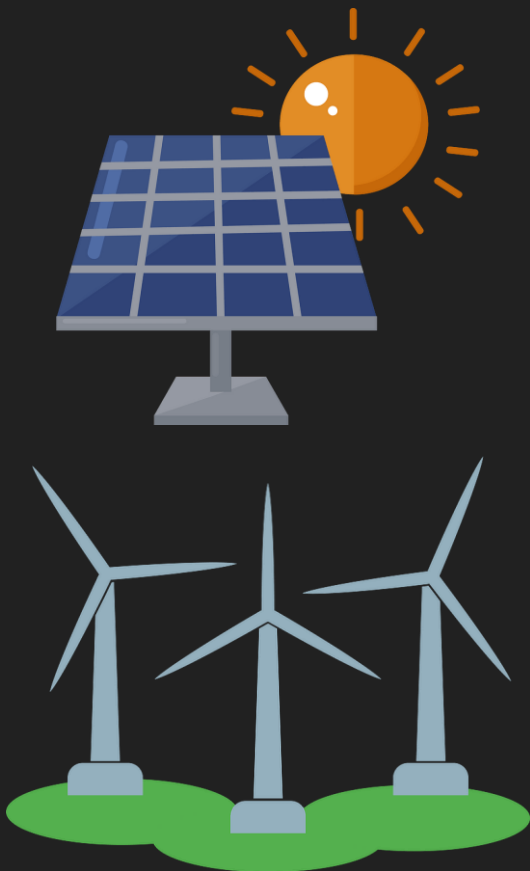
Eliminating energy waste is critical to achieving net-zero

Kelly Donahoo, Managing Director



Environmental Professionals of Arizona
19th Annual Conference
February 27, 2024

How do we get to Net-Zero success?

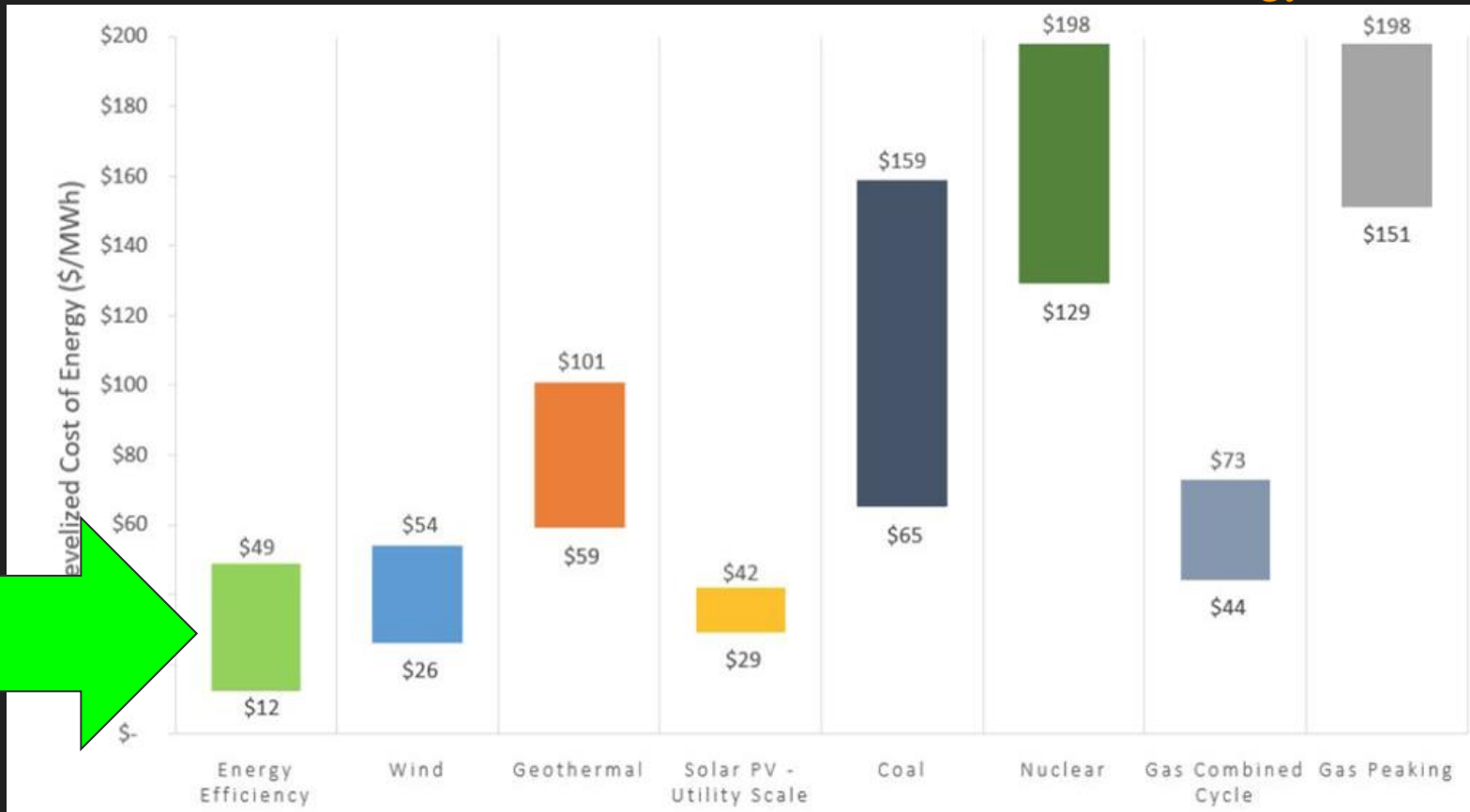


*"We consider Energy Efficiency to be the 'first fuel' as it still represents the **cleanest** and, in most cases, the **cheapest** way to meet our energy needs."*

– **Fatih Birol**,
International Energy Agency



Cost of implementing solutions



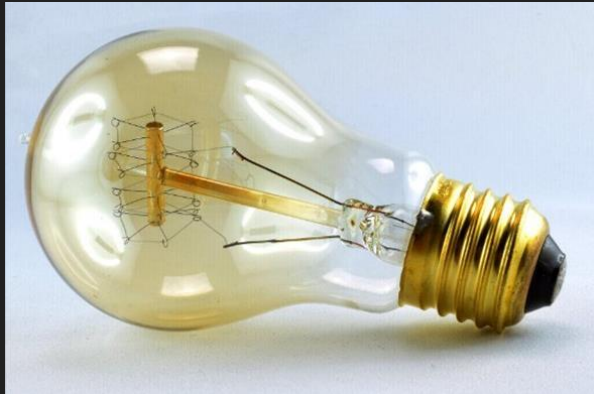
Cheapest!



What are the types of energy waste?

Avoidable

- Inefficient equipment
- Energy vampires
- Outdated lighting

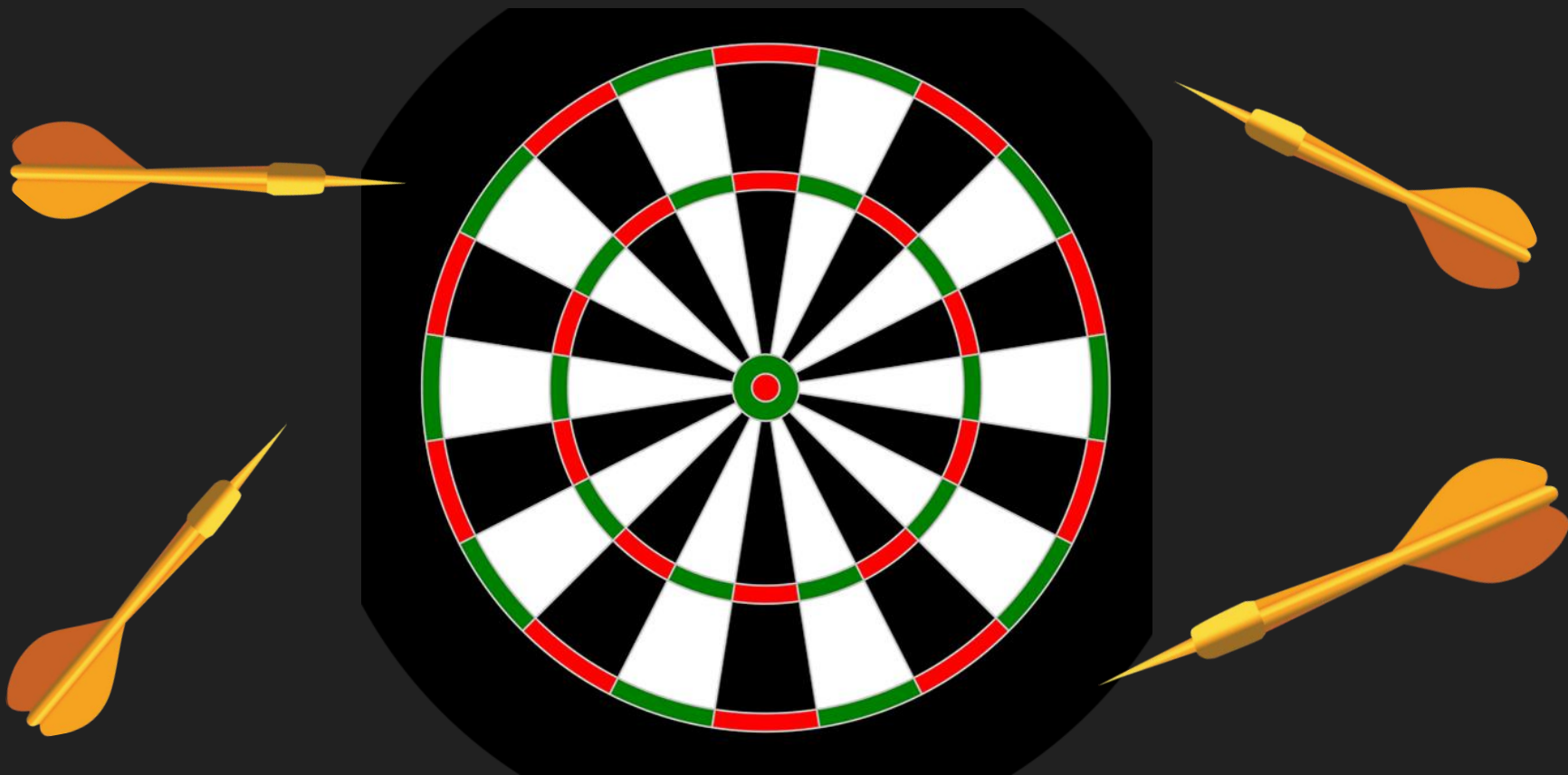


Unavoidable

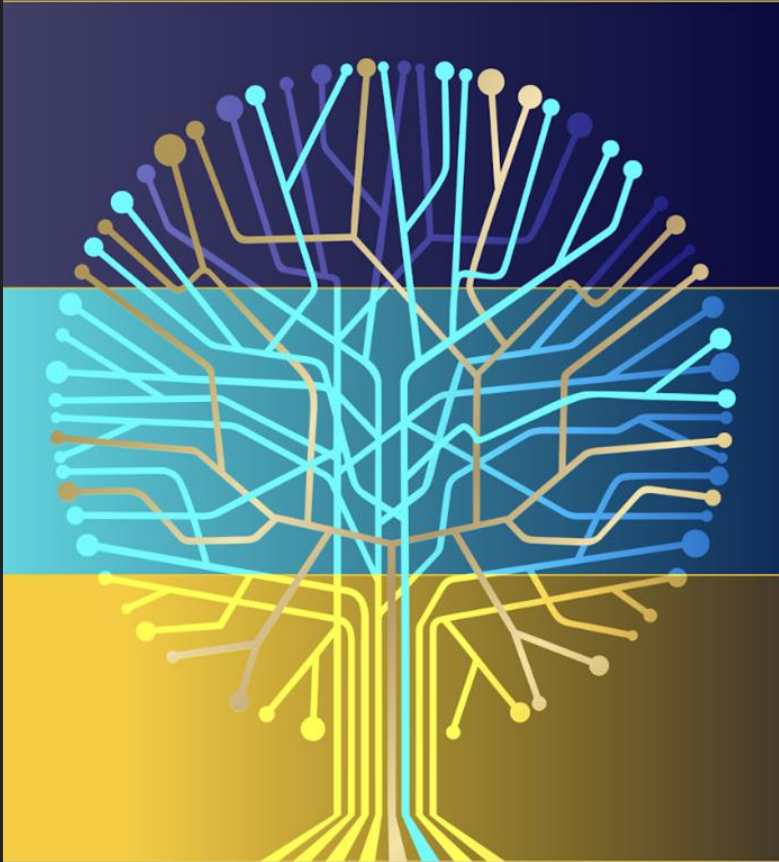
- Heat waste
- Surplus energy
- Transmission losses



How do we identify waste?



How can we use the microdata?

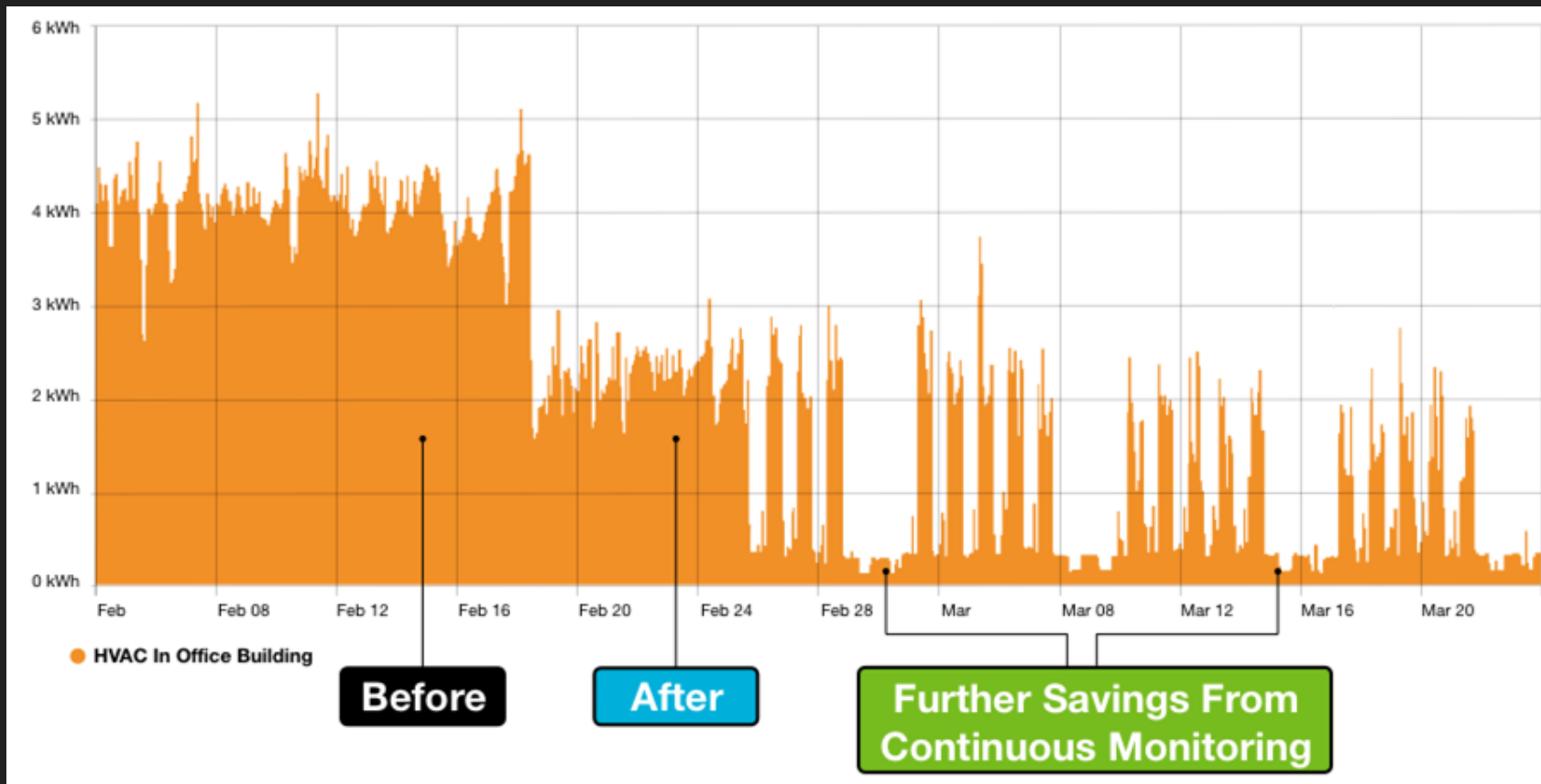


Technological Enhancements

Out of Hours Optimization

Process & Asset Optimization

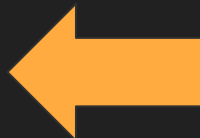
How it works | Optimization



How it works | Technological enhancements



Increasing visibility = lower energy use

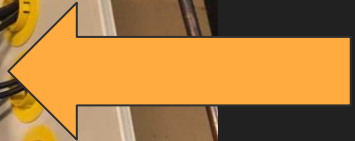
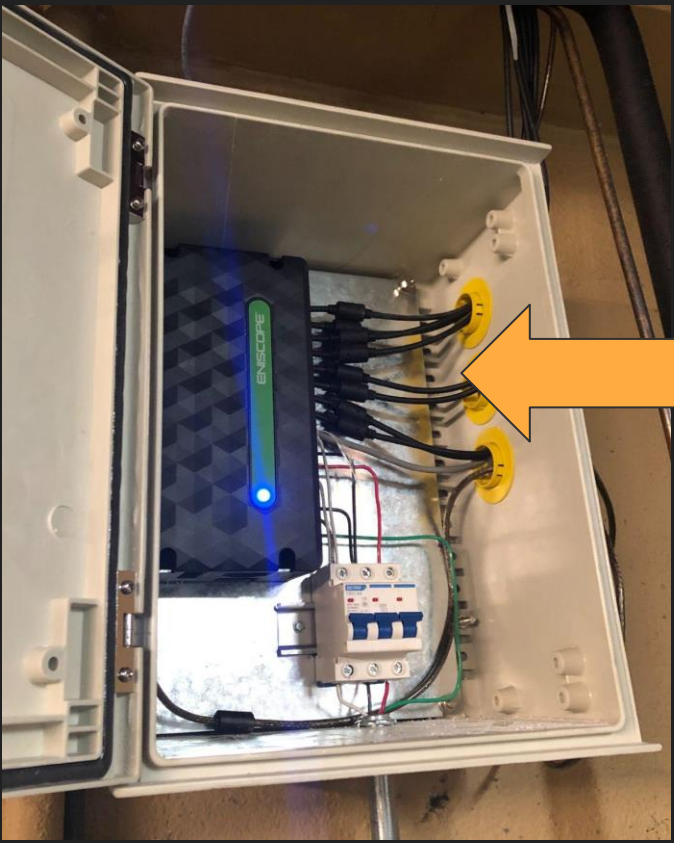


Monthly Energy Bill

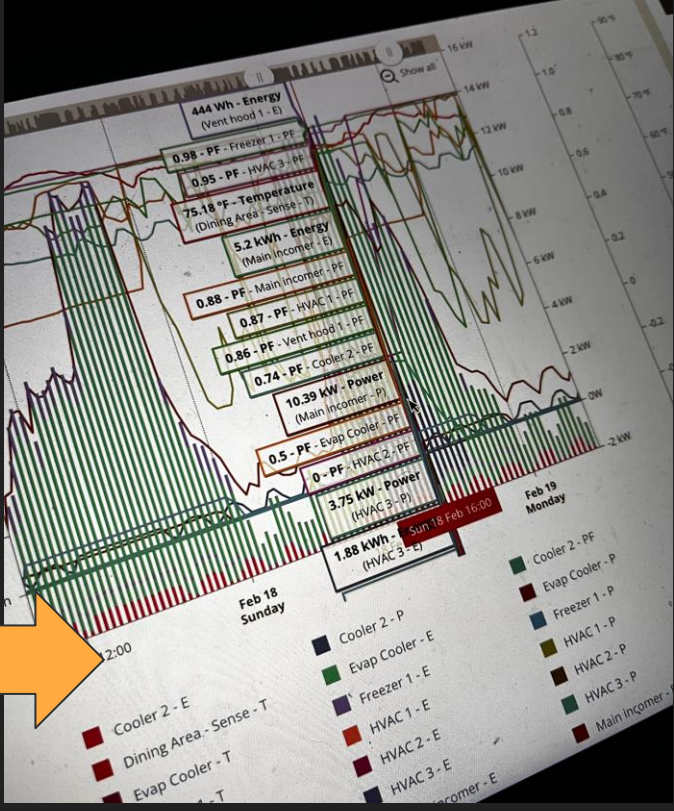
Disaggregated Data



How do we get the microdata?



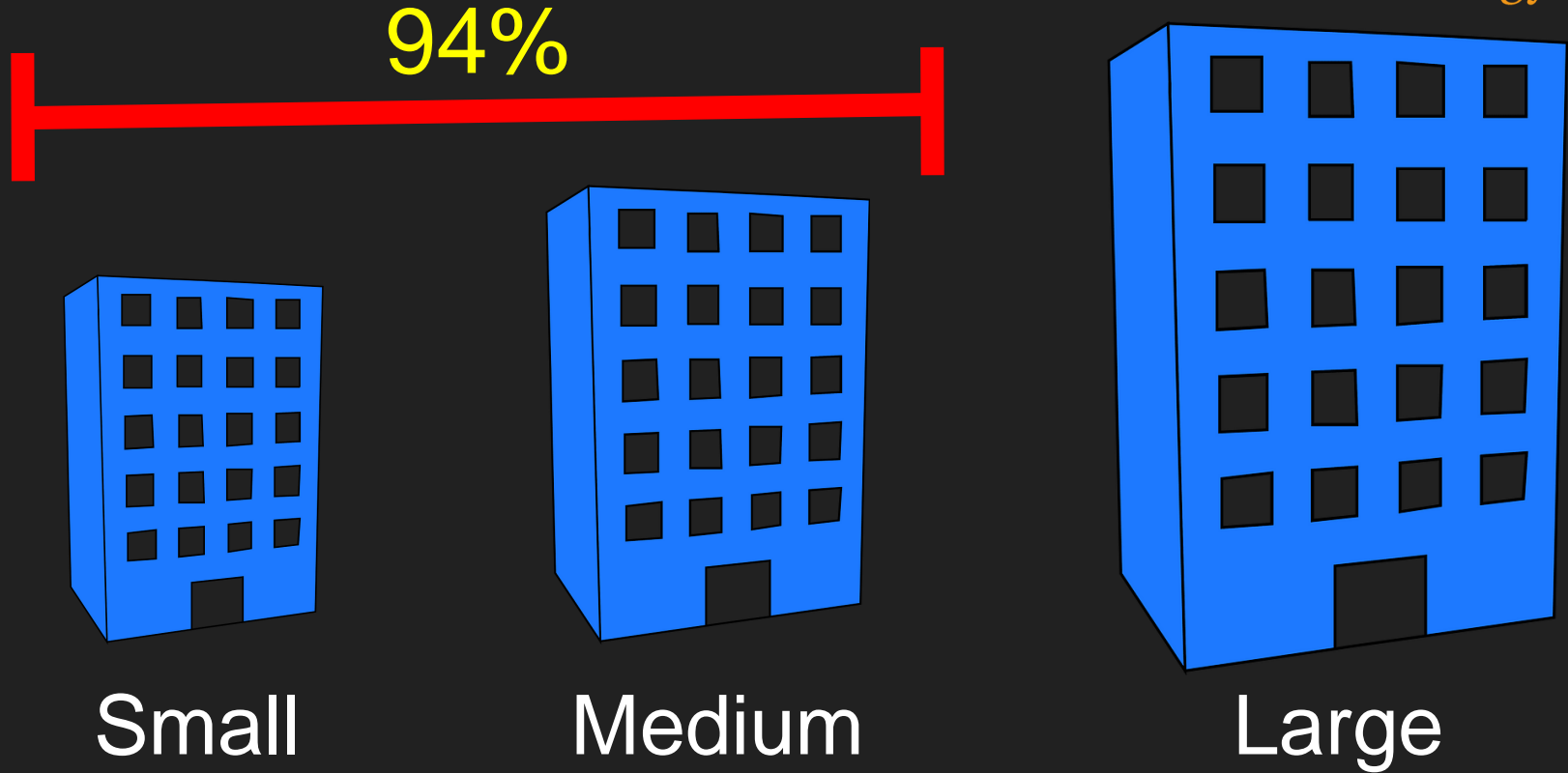
Meters



Disaggregated
Data
Display

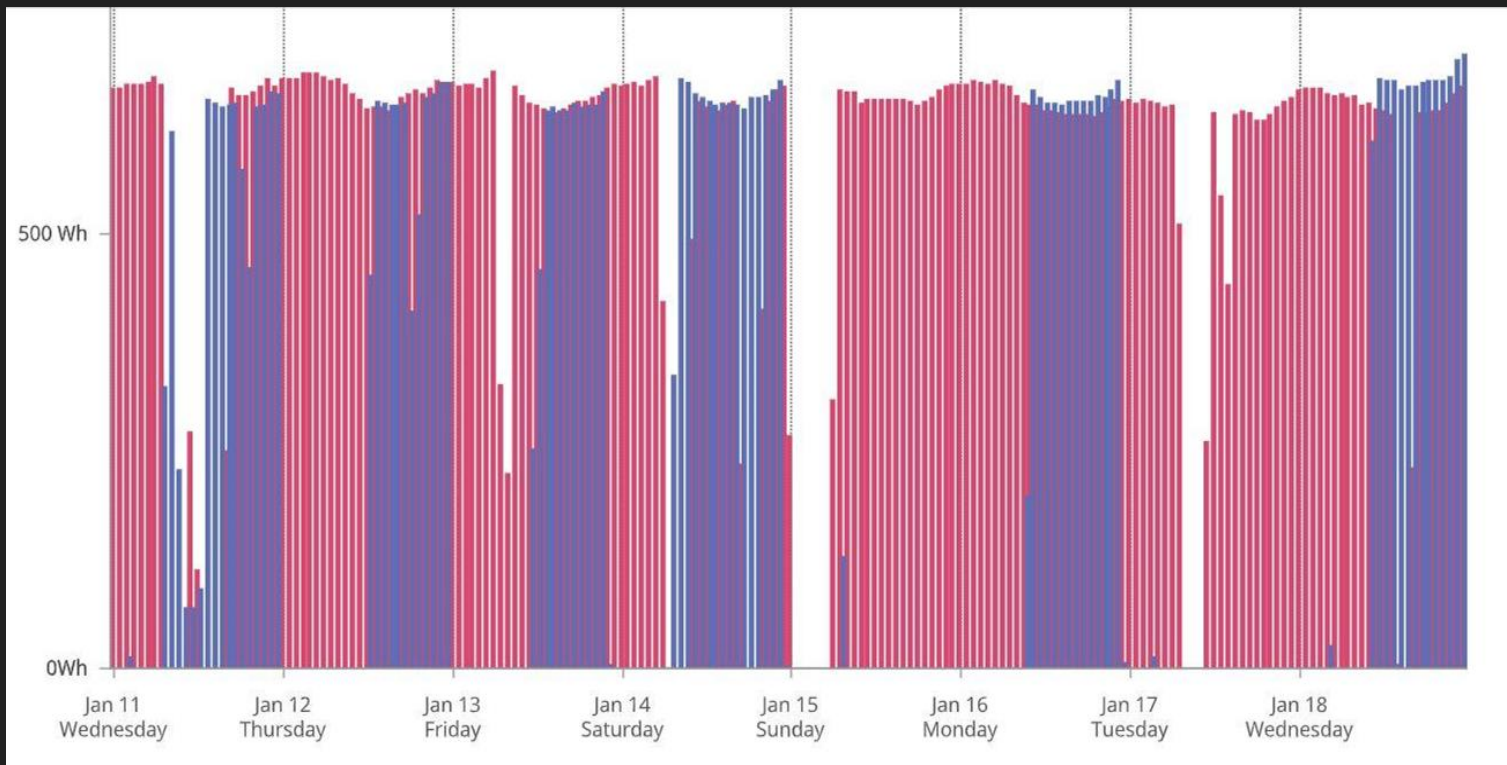


Opportunities to make big impacts



What do we do with the data?

Before > After



53%
Reduction
in Energy
Use

Why is this critical to achieving net-zero?



Monitoring

Technological Enhancements

Renewables



Optimization

Equipment Upgrades

Case Study | Public School



- Hillsborough
County Schools
- 7th largest school system in the U.S.
 - 304 buildings
 - 215,000 students



Annual
Electric Bill

\$37
million

Case Study | International Airport



20 million passengers per year

Expanding to 40 million passengers per year



- Real-time monitoring of 1,417 circuits
- 22% reduced energy consumption
 - Smart maintenance plan
 - Tenant billing



Case Study | Metal Foundry

- Motors, lighting and industrial ovens pose significant energy challenges
- 42.5% energy cost savings
- 28.63% cost reduction in cast metal production



Case Study | University Building



Problem: Multiple power surges over 5 years costing \$10,000 in damages each time

Cause: Water chiller preset to shut down at minimum load; restart caused energy spikes

Energy Savings: 30%

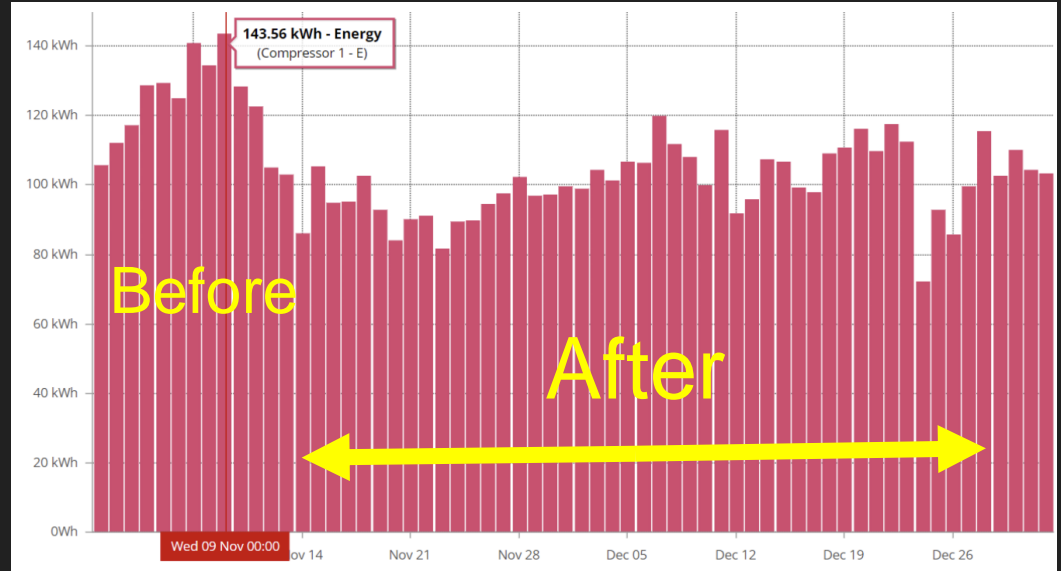


Case Study | Floriculture

120 acres, multiple buildings and greenhouses

Monitoring included:

- Temperature fluctuations in Cold Room
- Environmental sensors in greenhouses



30% Cold Room savings
18% overall savings

Case Study | Texaco Gas Station



Compressor continuously operating

Compressor cycling correctly



33%
Energy
Savings



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