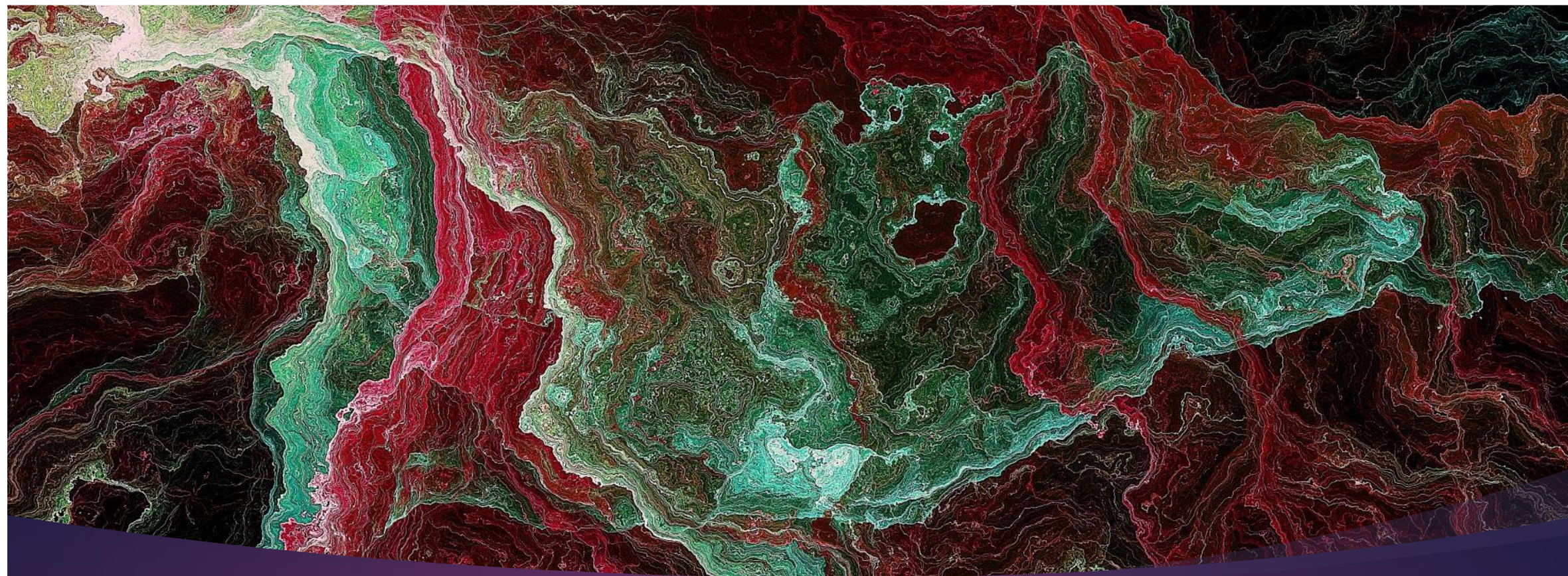




# Finding and Building Momentum

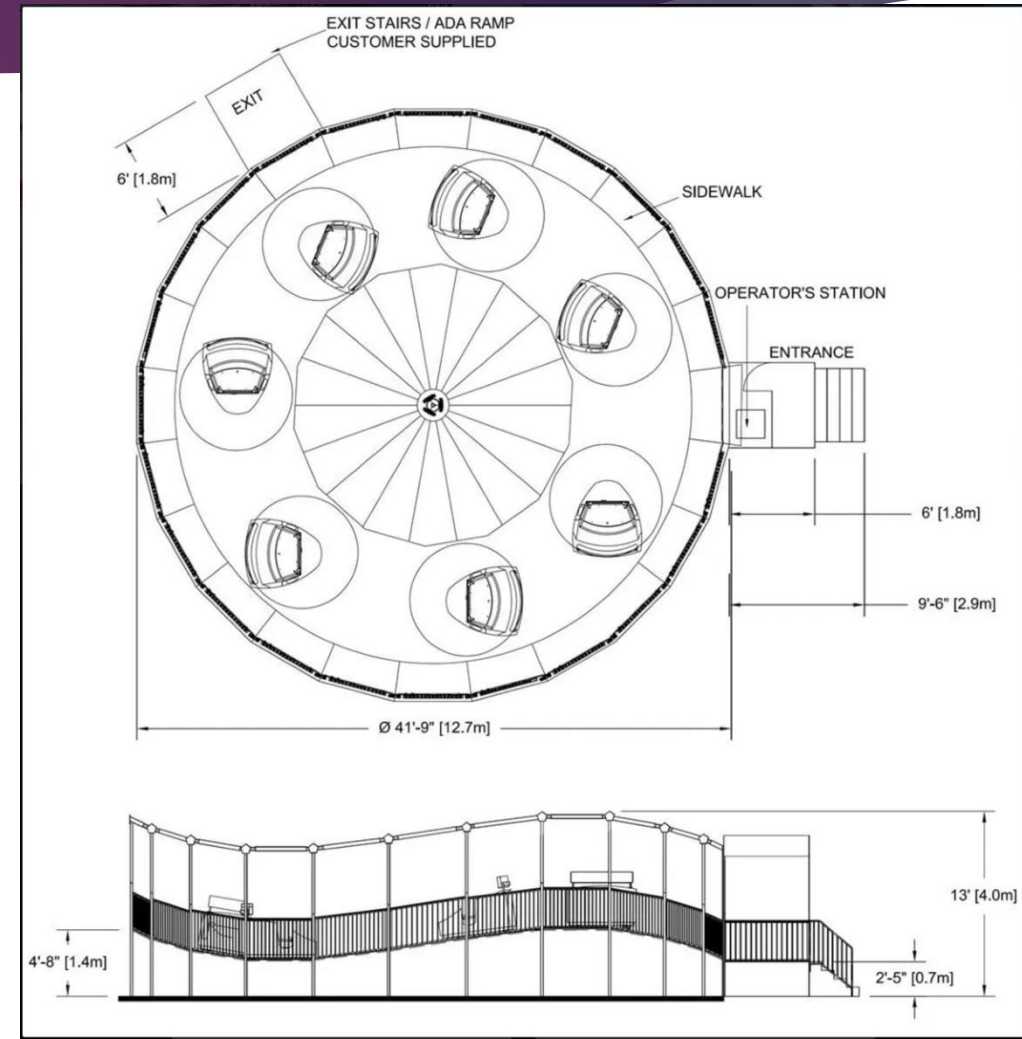
AN AI ARCHITECT'S PATH IN CHANGING THE WEATHER  
SYLVIA DOWNING, CHIEF TECHNOLOGY OFFICER  
AZIMUTH AI



Background

# Lessons in Momentum

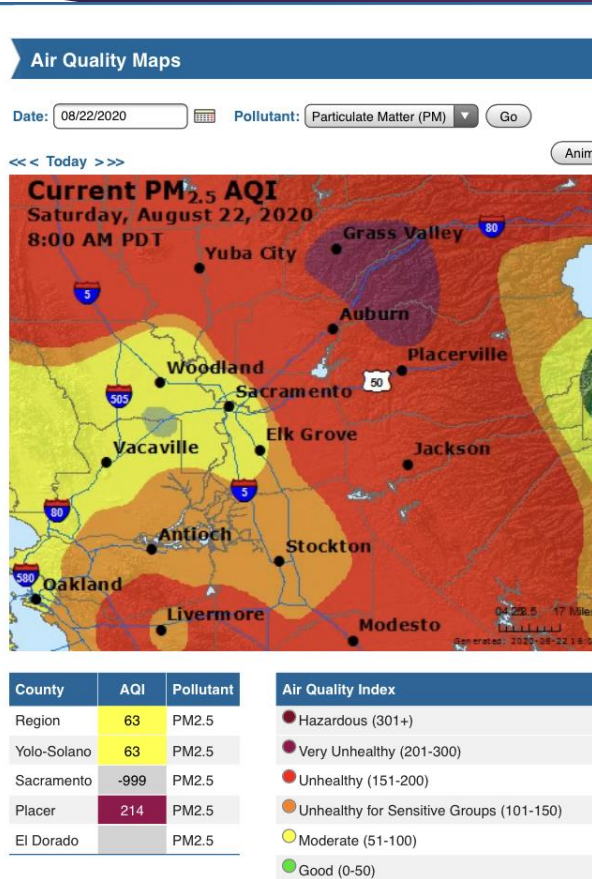
<https://larsonintl.com/ride/the-tilt-a-whirl/>



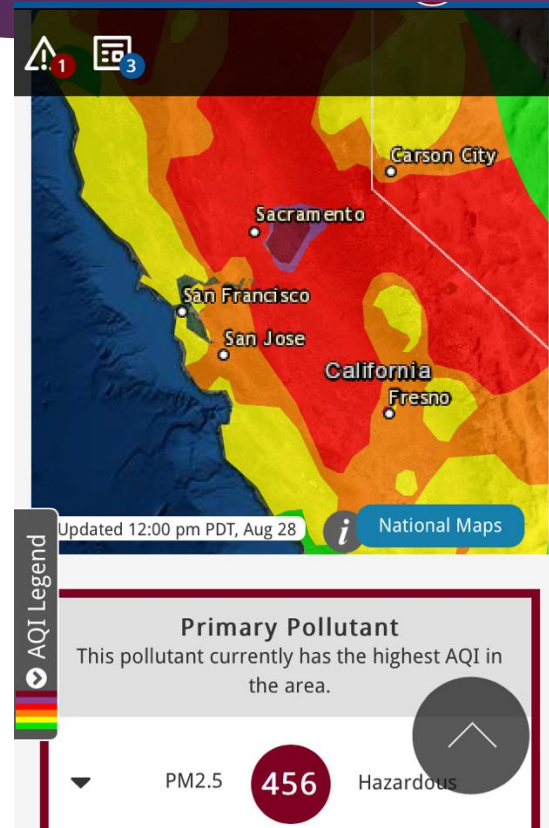
► New Bike Day, October 2017



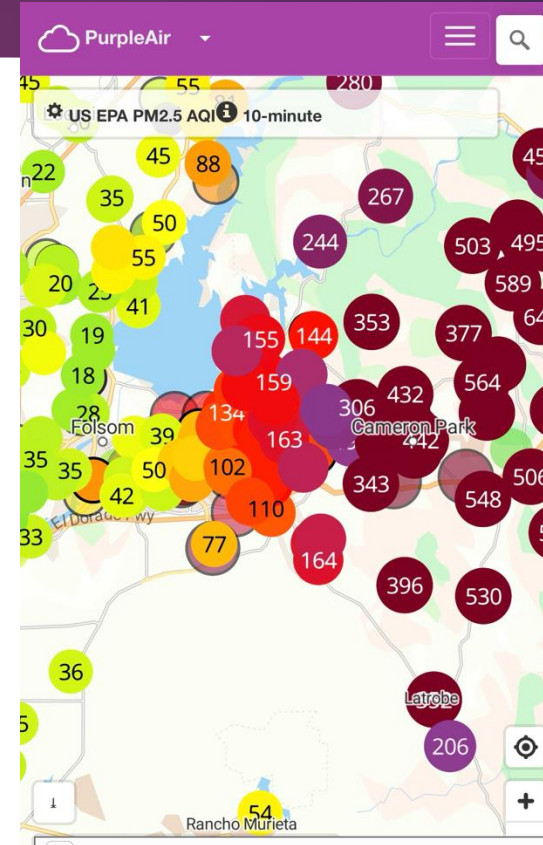
# I Can't Breathe



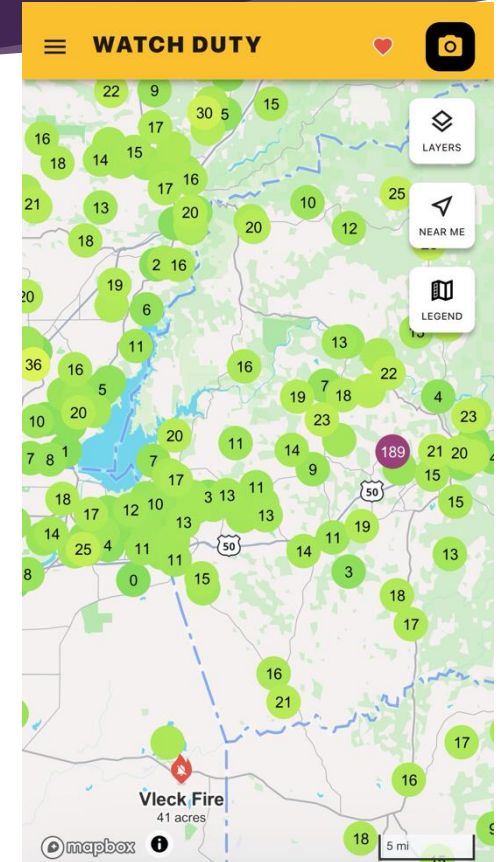
2020



2021

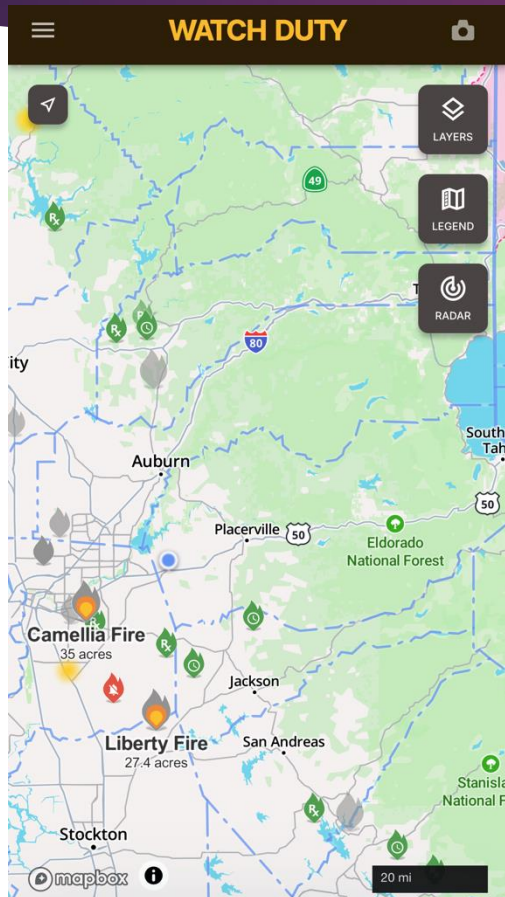


2022

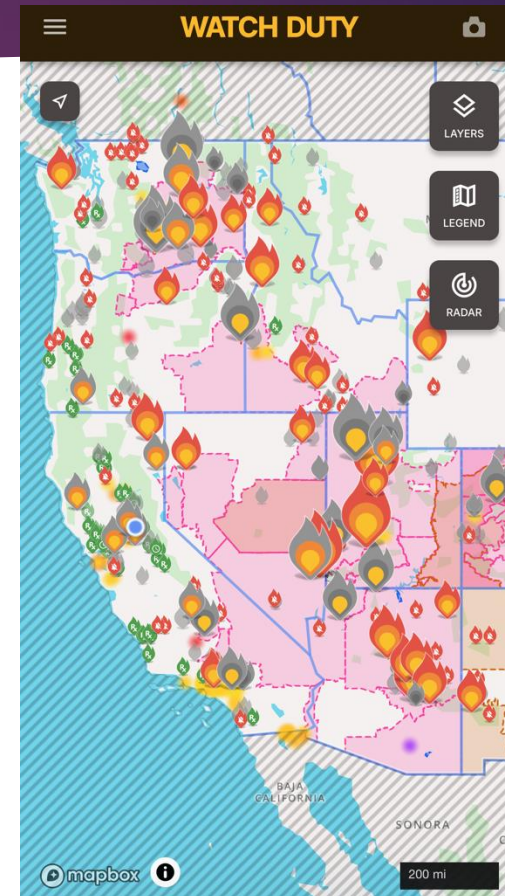


30 September 2025

June 25, 2026



My Neighborhood

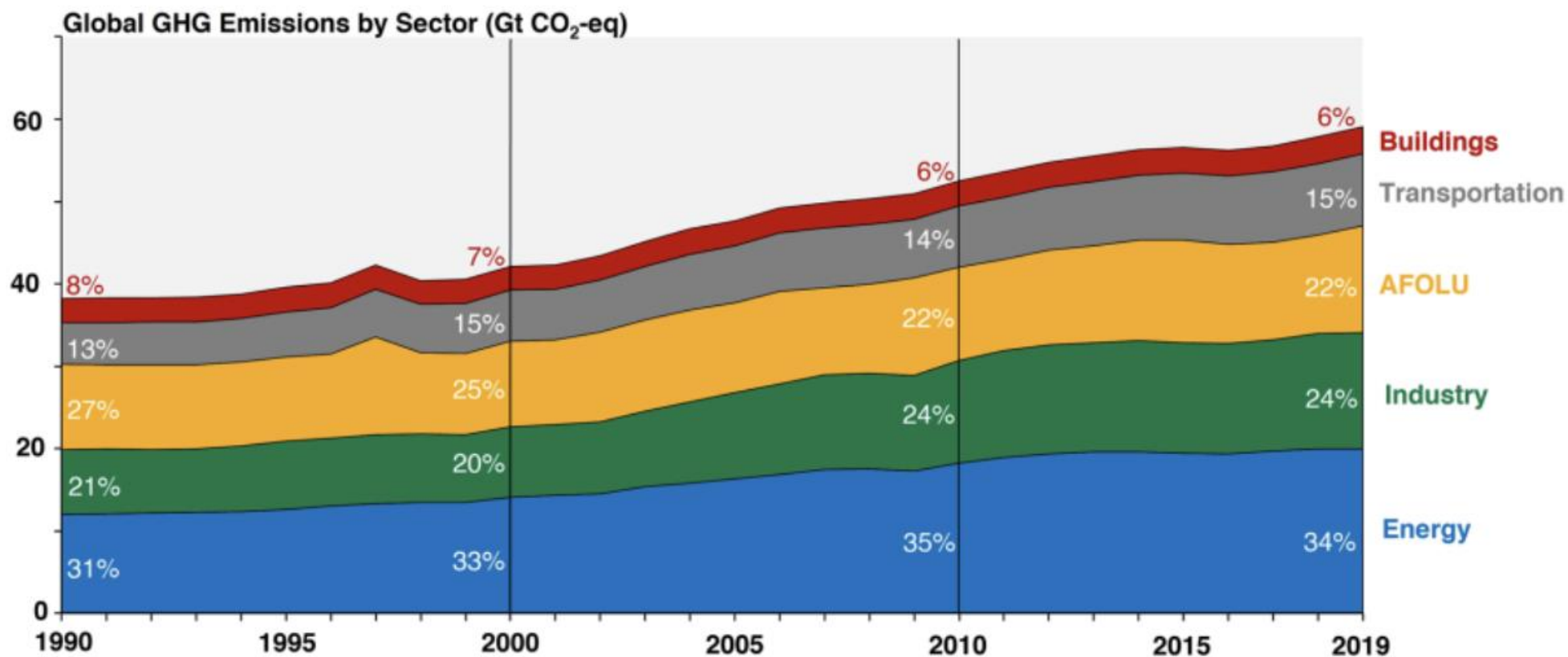


My Home

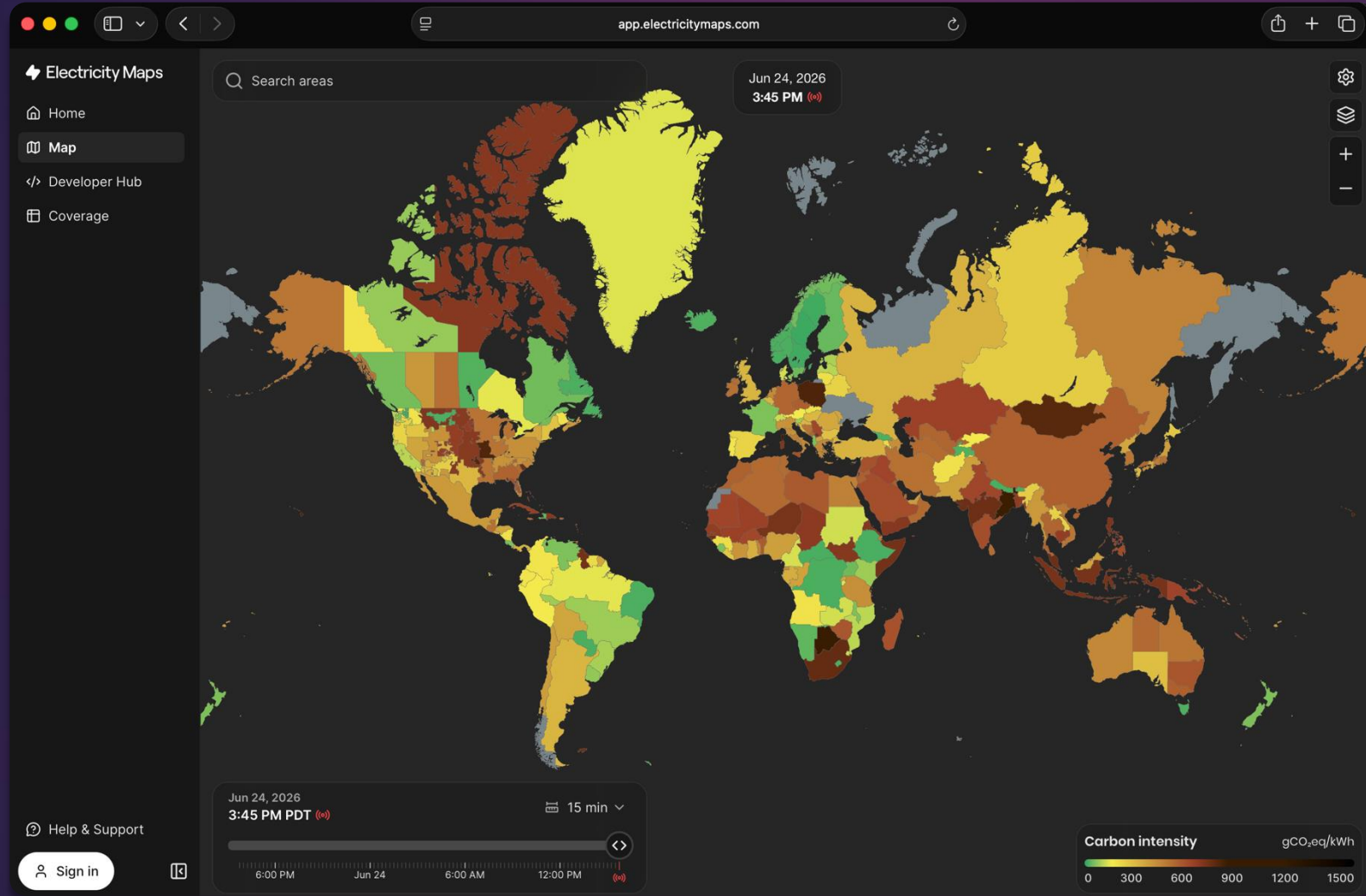


# The Cool Kids

# What I Knew

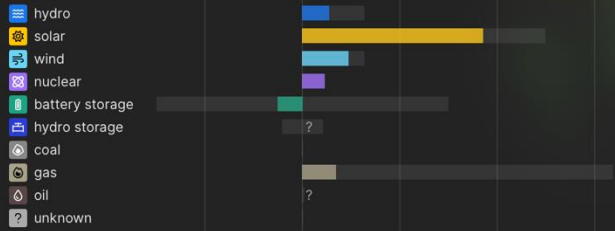


Source: Data from IPCC (2022); Based on global emissions from 2019, details on the sectors and individual contributing sources can be found in the *Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, Mitigation of Climate Change, Chapter 2*.

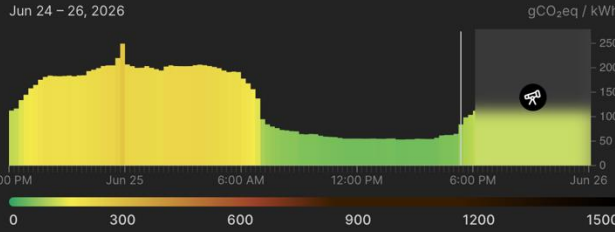


# Where

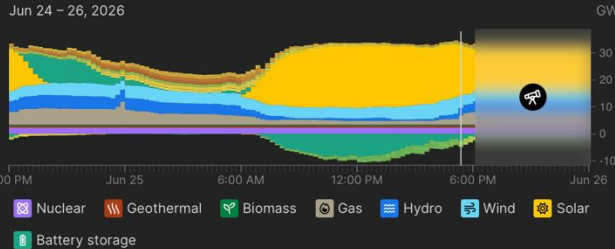
Source:  
Electricitymaps.com



### Carbon intensity



### Electricity mix



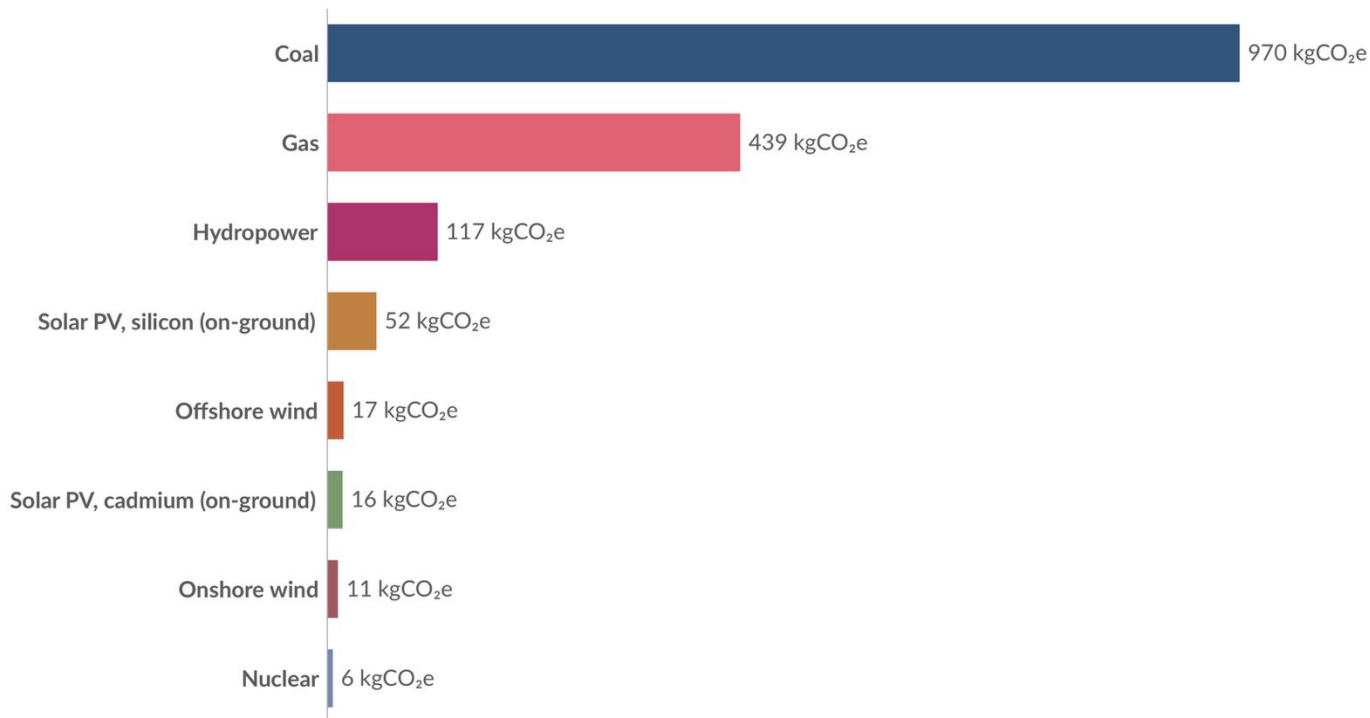
# How it Works

[electricitymaps.com](https://electricitymaps.com)

# Fuel

## Greenhouse gas emissions per unit of electricity

Lifecycle greenhouse gas emissions measure amount of total greenhouse gases emitted over a technology's full supply chain. This includes emissions from the burning of fuels, in addition to those generated through the mining of materials, and production of energy technologies. This is measured per megawatt-hour of electricity.

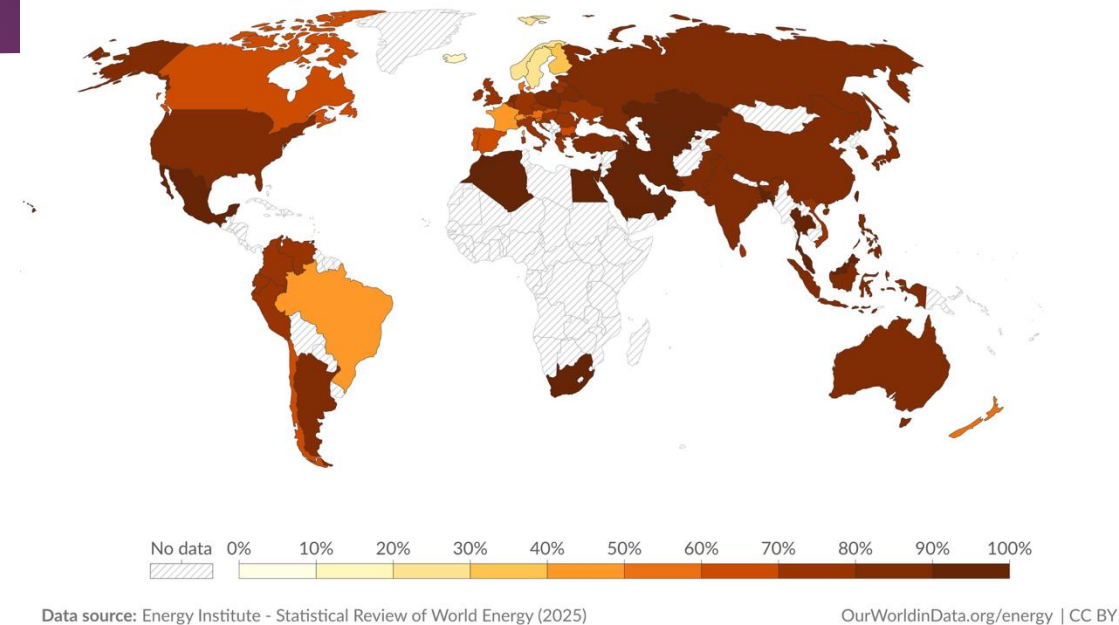


Data source: UNECE (2021)

OurWorldinData.org/energy | CC BY

## Share of primary energy consumption from fossil fuels, 2024

Measured as a percentage of primary energy<sup>1</sup>, using the substitution method<sup>2</sup>.



**1. Primary energy** Primary energy is the energy available as resources – such as the fuels burnt in power plants – before it has been transformed. This relates to the coal before it has been burned, the uranium, or the barrels of oil. Primary energy includes energy that the end user needs, in the form of electricity, transport and heating, plus inefficiencies and energy that is lost when raw resources are transformed into a usable form. You can read more on the different ways of measuring energy [in our article](#).

**2. Substitution method** The "substitution method" is one method used to adjust primary energy consumption for efficiency losses experienced by fossil fuels. It tries to adjust non-fossil energy sources to the inputs that would be needed if it was generated from fossil fuels. It assumes that wind and solar electricity is as inefficient as coal or gas. To do this, energy generation from non-fossil sources are divided by a standard 'thermal efficiency factor' – typically around 0.4. Nuclear power is also adjusted despite it also experiencing thermal losses in a power plant. Since it's reported in terms of electricity output, we need to do this adjustment to calculate its equivalent input value. You can read more about this adjustment [in our article](#).

# A Friend In Need...



## Leadership & Advisory Team

150+ years combined semiconductor experience · Silicon Valley + India origin · Global team across US, India & Europe

### FOUNDERS

#### Praveen Yasarapu

Founder & CEO

27 yrs in Semiconductor Products,  
Intel, Wharton MBA



#### Sridevi Badiga

Founder & CGO

30 yrs Banking & Biz Dev  
JP Morgan, Kellogg MBA



### LEADERSHIP

#### Sylvia Downing

CTO

30+ yrs in Semiconductor Products  
CPUs, GPUs, HDMI, Intel-GNA AI, UC Berkeley



#### Raghu Chavali

VP, HW Engineering

26 yrs Semiconductor GPUs, SoCs,  
Intel, UC Davis



#### Subash Sudireddy

VP, SW Engineering

21 yrs in SW/FW Dev, AI SW  
Intel, UC Davis



### BOARD & ADVISORS

#### Krishna Bodanapu

Exec. Vice Chairman, Cyient

Managing Director Cyient Ltd  
BoD Azimuth AI



#### Dr. Keith Torpy

Former CTO, Landis+Gyr

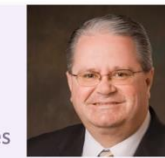
Head of Global Engineering  
Advisor Azimuth AI



#### Jim Thomson

Vice Chair, Deloitte (Retd.)

Head Energy, Utility & Renewables  
Advisor Azimuth AI



### INVESTORS

#### Cyient Semiconductors

Ramya Mohan

CFO, Cyient Semiconductors,  
BoD Azimuth AI



#### Moneta Ventures

Ashu Bhalla, Partner

BoD Azimuth AI



#### AUM Ventures

Chetan Mehta, Founding Partner

#### Jetha Global

Karan Danthi, Founder & Portfolio Manager

#### Growth Factory

Rick Spencer, Managing Partner

# Timing



India: National Electricity Plan (\$109B)



USA: Advanced Metering Initiative upgrade (est. 70% of US households)

# Edge AI Infrastructure Platform, not consumer silicon

*Compute is moving out of the cloud and into the grid, the meter, and the machine. We build silicon for that shift.*

## YESTERDAY

### Centralized cloud

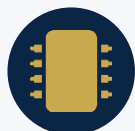
Data travels to compute. Latency, bandwidth, and costs rise.



## WHERE AZIMUTH PLAYS

### Distributed intelligence at the edge

Compute embedded into infrastructure — smart meters, BESS controllers, substations, industrial gateways.



#### Grid edge

Smart meters, substation controllers, Distributed Energy Resource (DER) management. Millions of endpoints, each needing local intelligence.



#### Energy storage

Battery Energy Storage System (BESS) and microgrid controllers. Safety, dispatch, and optimization cannot wait on round-trips to the cloud.



#### Industrial edge

Factory-floor inference, predictive maintenance, closed-loop control. Deterministic latency is non-negotiable.

*This is infrastructure compute — closer to Marvell and Mellanox than to consumer silicon.*

# Azimuth AI Differentiation

Software Defined Silicon SoC vs. Many Discrete General-Purpose ICs

## >10X Performance/\$

Customized scalar, vector & matrix compute in one SoC vs. offload accelerator model. SDS IP — patents filed. On-chip efficiency.

## 30–50% Lower Silicon BoM

1-SoC replaces 5–7 discrete ICs. Reduces customer engineering cost and supply chain complexity.

## 12+ Yr Battery Life

Customized power management for coin-cell devices — patents filed. Isolated metrology execution environment. Secure AI operations protecting model IP and user privacy.

## Edge AI + Advanced Analog

High-accuracy analog metrology + AI engine integrated. Large on-chip memory — no cloud dependency.

## OEM-Ready SDK & SW

Single-packaged Software Development Kit, firmware and SW stack — eliminates customer integration effort.

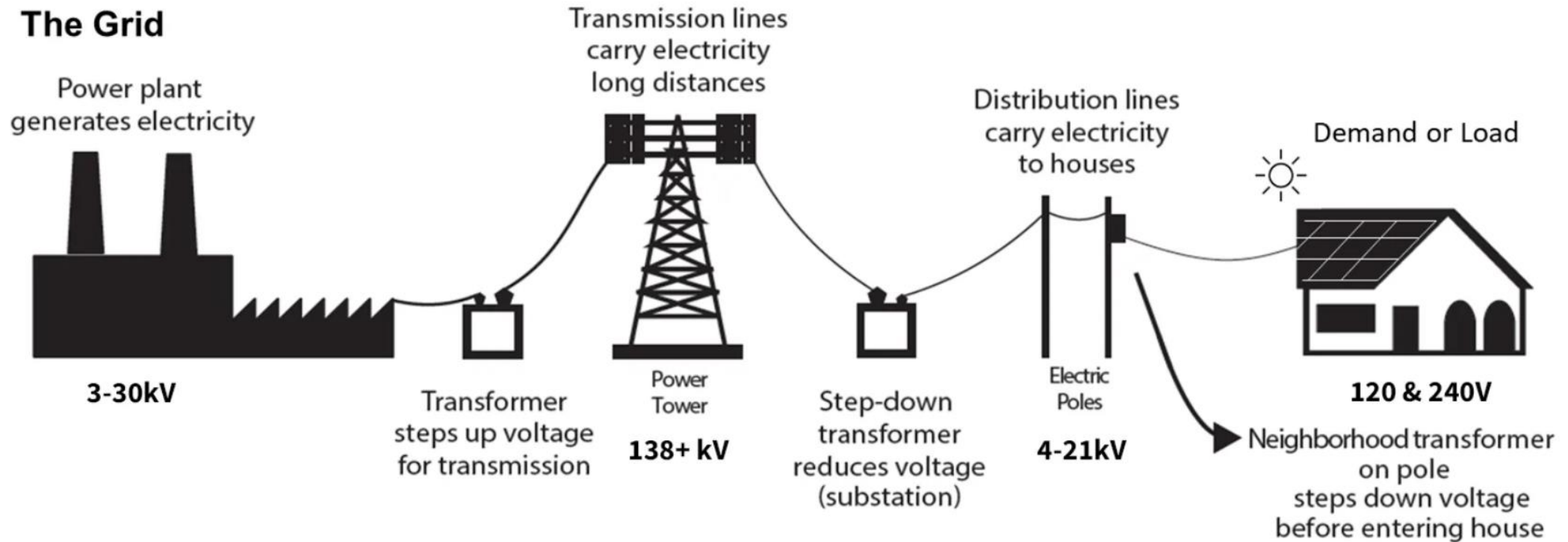
## Security & Reliability

Hardware root of trust with secure boot. ARM TrustZone isolation. Cryptography acceleration. Custom architecture defends against physical attack. Most secure edge AI SoC.



# Opportunities

## The Grid



Source: NEED.org Electricity (2023)

Worldwide: 35,000 - 65,000 power plants, millions of km of distribution

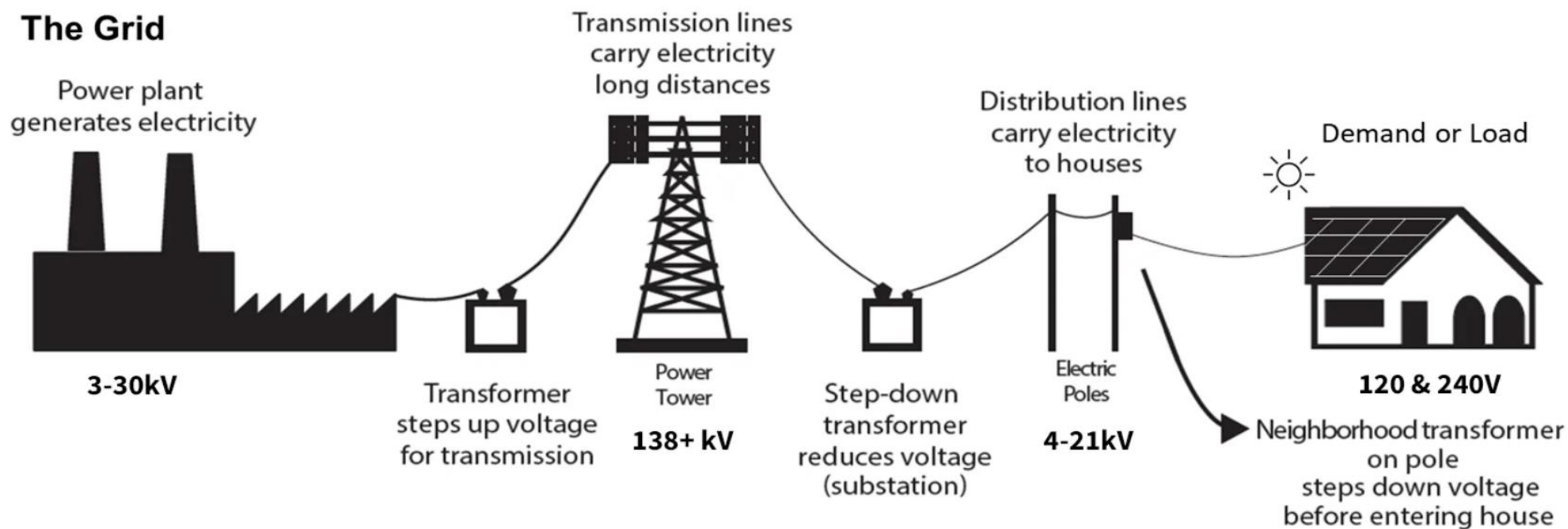
India: > 3800 power plants, millions of km of distribution, 100s of millions of endpoints (homes and businesses)

USA: >15,000 power plants, >1M km of distribution, 100s of millions of endpoints

Source: openinfomap.org

# Efficiency

## The Grid



Source: NEED.org Electricity (2023)

### Generation efficiency

Coal: 35-43%

Gas: 50-63% (peaker 33-40%)

### Grid efficiency

India: 82-84%

USA: ~95%

Sources:

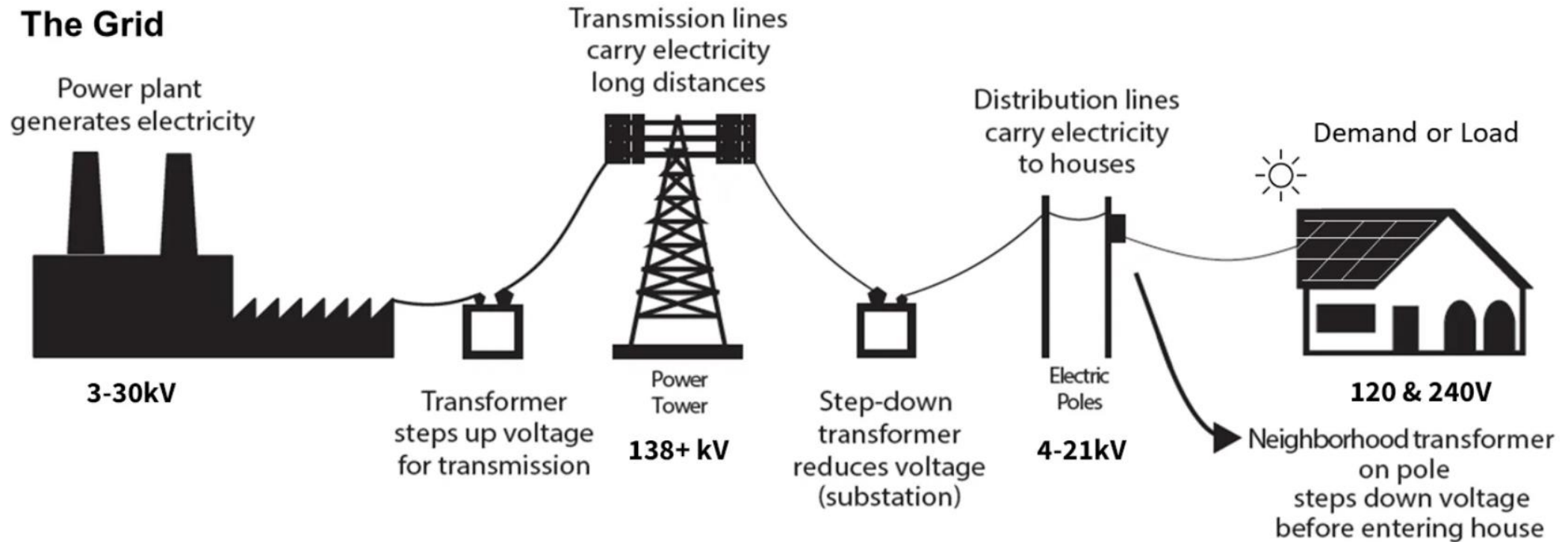
<https://www.iea.org/reports/coal-2025>

[https://www.eia.gov/electricity/annual/html/epa\\_08\\_01.html](https://www.eia.gov/electricity/annual/html/epa_08_01.html)

Grid efficiency: World Bank World Development Indicators, indicator EG.ELC.LOSS.ZS (last updated April 2026).

# Use Case Adjacencies

## The Grid



Source: NEED.org Electricity (2023)

~30 capabilities identified with customers cannot be supported by current meters at the endpoint  
Most of those capabilities apply to every other stage in the distribution system  
Many of those algorithms and building blocks apply to battery management and smart cities

# Smart Edge Infrastructure



One platform. Six verticals. Azimuth AI builds the on-device intelligence for every layer of tomorrow's connected infrastructure.

ARKA

EDGE AI PLATFORM

· SILICON · TOPOLOGIES · IP

## 01 SMART GRID

*From transformer to endpoint — real-time AI in every node of the electric grid.*

- ▶ AMI 2.0/2.5 metering
- ▶ Distribution intelligence
- ▶ Self-healing & outage restoration

## 02 SMART ENERGY

*Battery, solar, and storage assets that monitor, balance, and optimize themselves.*

- ▶ BMS / BESS controllers
- ▶ Cell-level SOC & SOT
- ▶ Rooftop solar integration

## 03 SMART CITY

*Lighting, sensing, and microgrid intelligence that scales across millions of poles.*

- ▶ Smart street lighting
- ▶ Microgrid intelligence hubs
- ▶ Distributed sensing networks

## 04 SMART BUILDINGS

*Energy, HVAC, and occupancy intelligence inside every commercial and residential structure.*

- ▶ HVAC & energy optimization
- ▶ Occupancy sensor fusion
- ▶ Building-server edge AI

## 05 SMART ASSET MONITORING

*Critical infrastructure asset health, AI on the line — from rail networks to oil & gas pipelines.*

- ▶ Railway track, signaling & rolling-stock monitoring
- ▶ Oil & gas pipeline integrity & leak detection

## 06 SMART INDUSTRIAL IOT

*Condition monitoring, predictive maintenance, and process AI on the factory floor.*

- ▶ Vibration & condition monitoring
- ▶ Predictive maintenance
- ▶ Data-center energy mgmt

**ONE SHARED PLATFORM:** every vertical leverages the same SoC architecture, topology library, and hardened IP — compounding ROIC across markets.

# Lessons



California Sea Otters in Elkhorn Slough, April 2025

Assumption  
Checks,  
Interviews

Problem statements

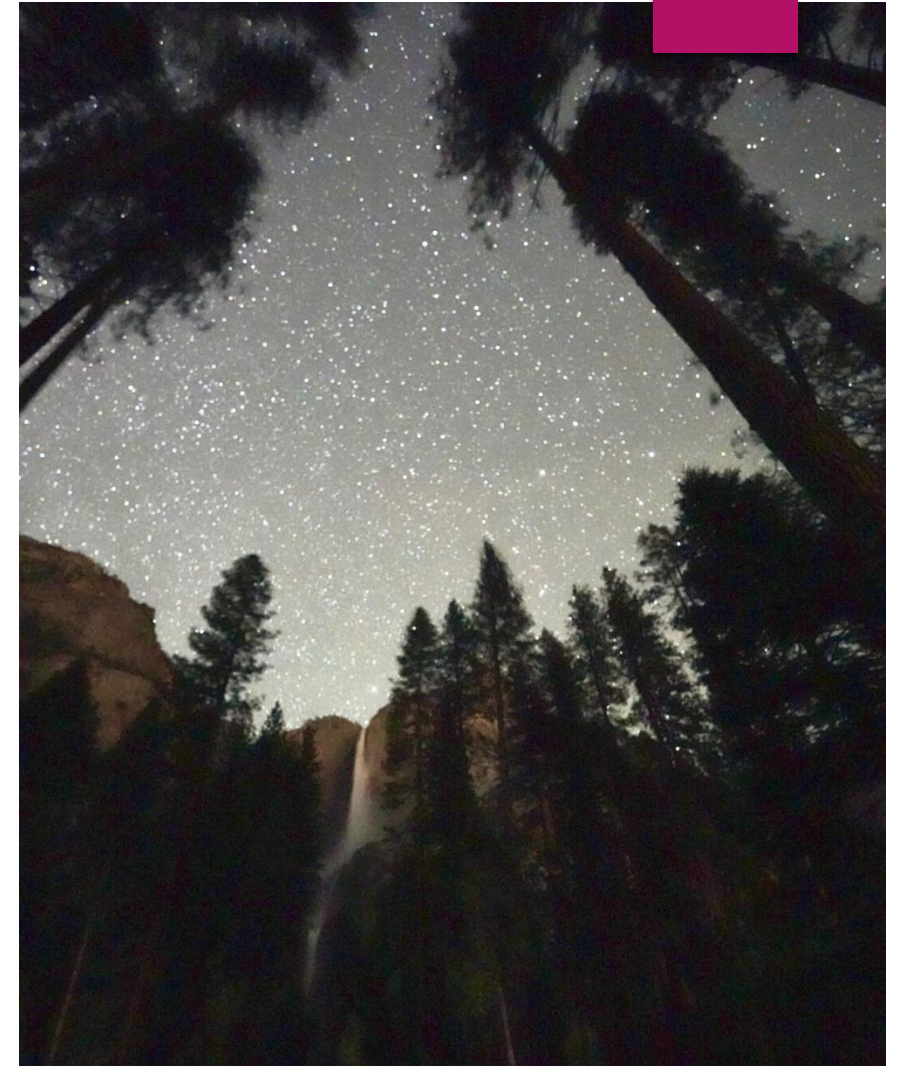
System constraints

Country constraints

Investor constraints

# Advice

- ▶ Be the preferred collaborator
- ▶ Look for big, obvious problems to solve
  - ▶ Keep a list: what bothers you?
  - ▶ How does that problem scale?
- ▶ Use your experience
- ▶ Ask a lot of questions
  - ▶ Especially: “What prevented you from doing what you wished you could do?”
  - ▶ Spend no time trying to seem smart.
- ▶ Understand the system
  - ▶ 99% of progress is evolutionary, not revolutionary



Yosemite Falls, 740m, March 2026

**ARKA-GKT1 launched by Hon. Minister Vaishnaw (MEITY)**  
**Nov 17, 2025**



Fortune  
Favors  
the  
Prepared  
Mind



# Backup

# Opportunity

► From IPCC

