Clean Coalition

Making Clean Local Energy Accessible Now

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Community Microgrids

Savings and Resilience for Local Governments

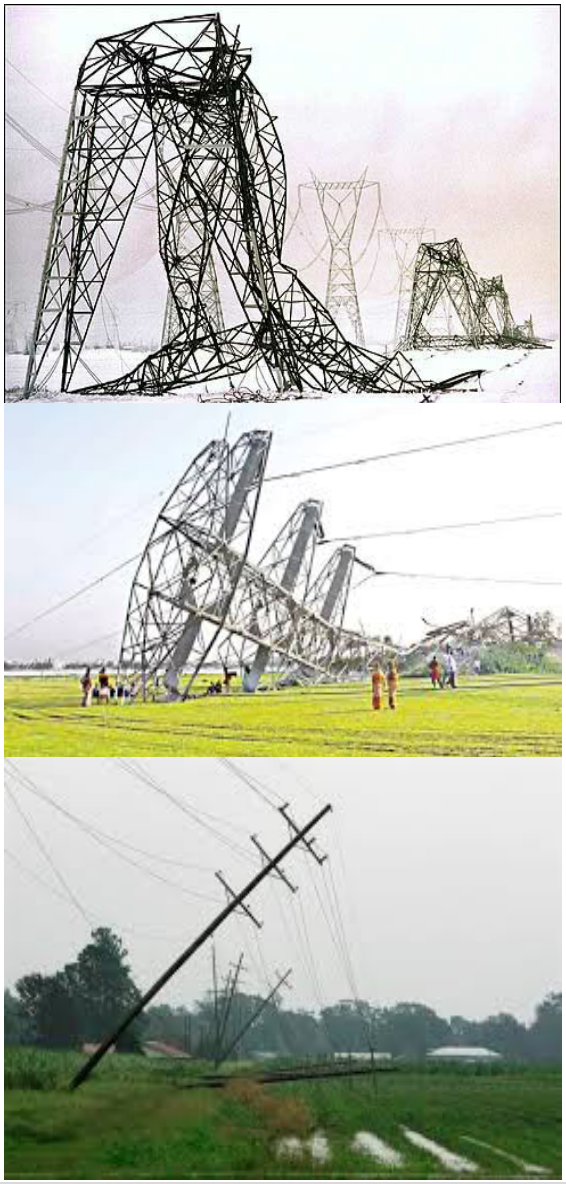
Introduction: Energy is Critical Infrastructure

Energy is Critical Infrastructure.

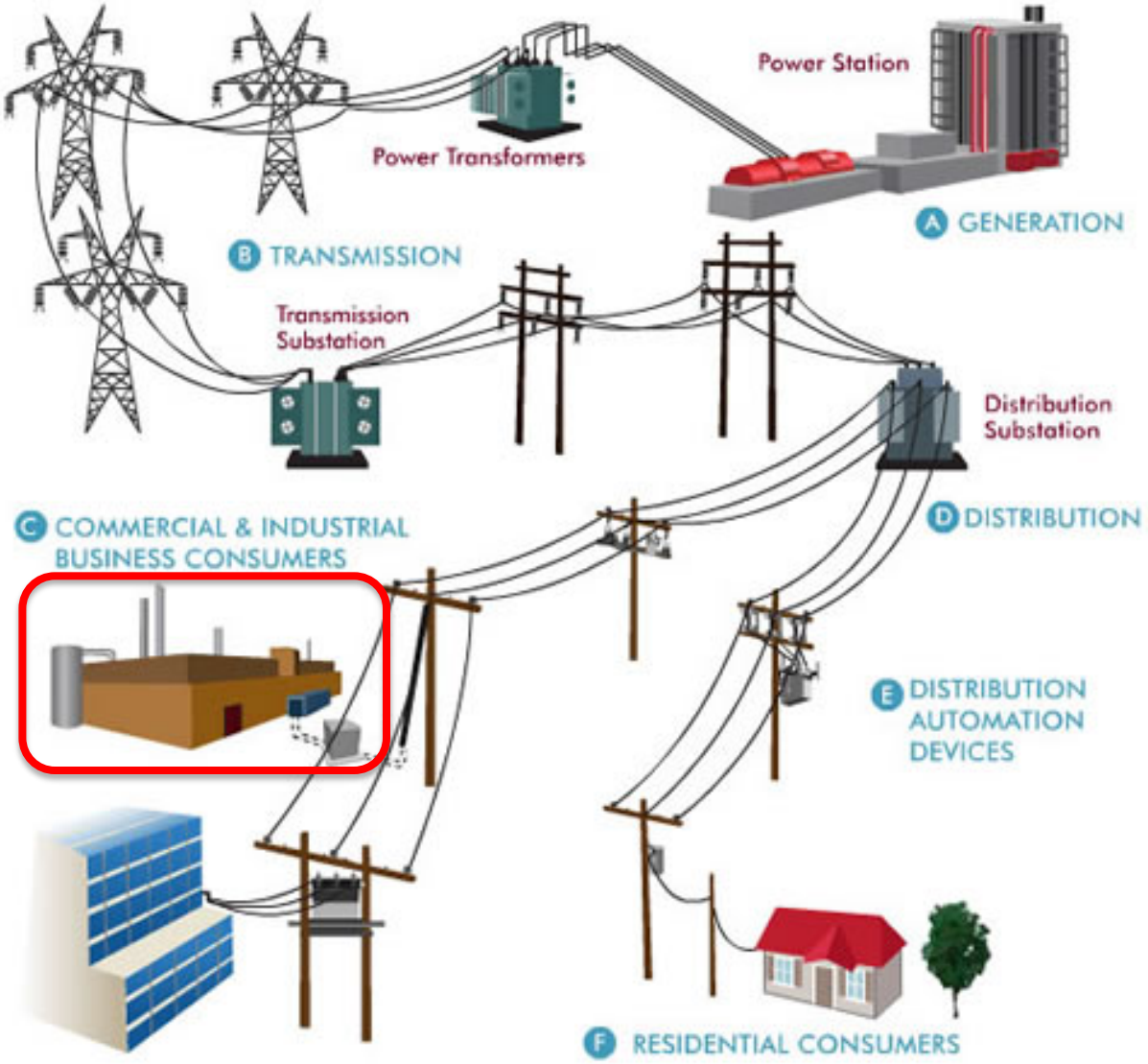
And yet, our legacy, centralized energy architecture carries multiple Critical Risks.

- This architecture is **costly, aging, inefficient,** and a **highly vulnerable security risk**
- **Cyber attacks** are a **growing risk,** and an attack on a centralized system can **affect millions**
- **Extreme weather events** are occurring more frequently, further demonstrating the **vulnerability** and **high cost**
- To accomplish both **local and national security,** we must move more quickly to a new solution

Community Microgrids:
Cleaner, More Reliable, More Affordable

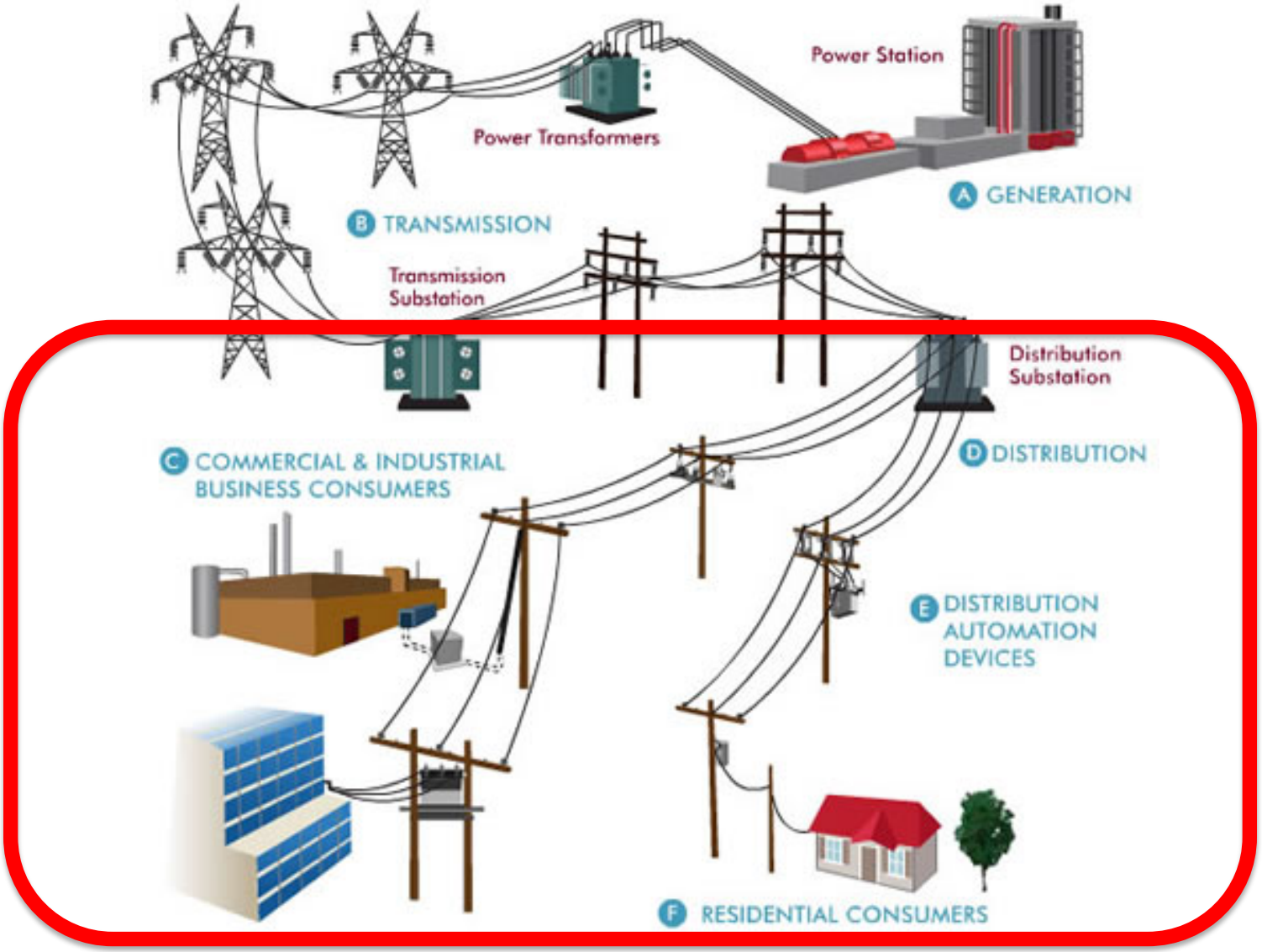


Traditional Microgrids focus on single customers



Source: Oncor Electric Delivery Company

Community Microgrids serve thousands of customers



Source: Oncor Electric Delivery Company

Why Community Microgrids?

A Community Microgrid delivers four combined benefits to communities.

These benefits are not provided by today's centralized energy system.

1. **Lower Costs**: By optimizing local clean energy systems including energy storage and other DER, the cost of sending electricity over long distances during expensive peak times is reduced.
2. **Cleaner Energy**: Via high penetrations of local clean energy that replaces fossil fuel, while also increasing local clean transportation – and at lower costs.
3. **Resilience & Security**: By delivering ongoing, clean power to critical & priority loads across communities – and able to withstand multiple disaster scenarios.
4. **A Replicable Community Solution**: Covering an entire substation area, this solution can be deployed in any community around the world – and also increases local economic investment.

Community Microgrid design steps

Step 1: Goals and Motivations

- **Public Safety**
- **Disaster Recovery and Resilience**
- **Meet municipal climate and emissions goals**
- **Local economic development**
- **Cost savings for constituents** along with environmental and health benefits

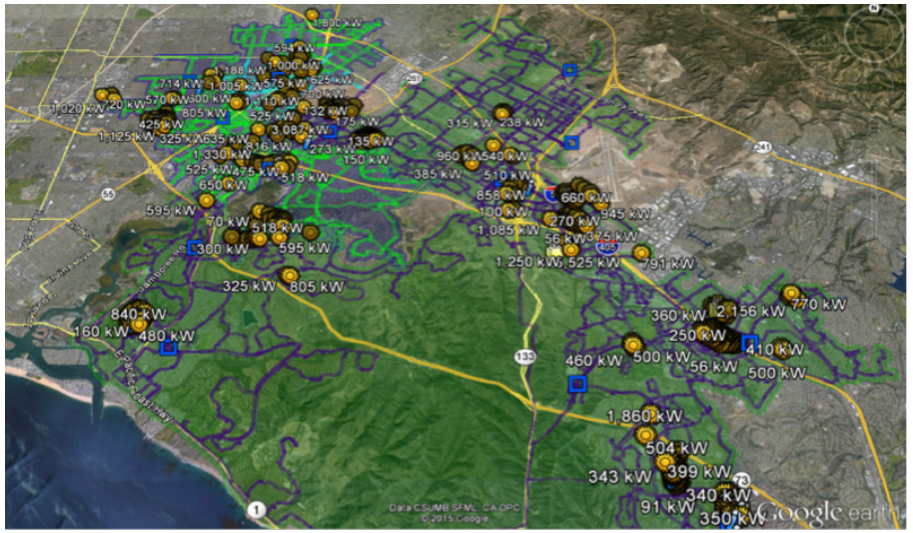
Community Microgrid design steps

Step 2: Baseline Grid Analysis

Step 3: Local Clean Energy Survey

Step 4: Distributed Energy Resource Optimization

- **Critical Loads**
- **DER System Sizing**



Community Microgrid design steps

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Step 5: Benefits Analysis

- **Hunters Point Example** 50 MW PV over 20 years

Energy

Cost Parity: Solar vs. NG, LCOE

$260M: Spent locally vs. remote

$80M: Avoided transmission costs

$30M: Avoided power interruptions

Economic

$200M: New regional impact

$100M: Added local wages

1,700 Job-Years: New near-term and ongoing employment

$10M: Site leasing income

Environmental

78M lbs.: Annual reductions in GHG emissions

15M Gallons: Annual water savings

375: Acres of land preserved

Example: 180 Napoleon St.
- PV Sq. Ft = 47,600
- System size = 714 kW

Commercial: 18 MW

Example: 1485 Bay Shore
- PV Sq. Ft = 37,800
- System size = 567 kW

Parking Lots: 2 MW

Example: 50 avg. rooftops
- Avg. PV Sq. Ft = 343
- Avg. system size = 5 kW

Residential & MDU: 10 MW

Use Cases for Local Governments

- Critical public infrastructure
  - Emergency Shelters (schools, community centers, gyms)
  - Police stations and fire station
  - Public works and corporation yards
- Critical private infrastructure
  - Hospitals and clinics
  - Emergency shelters
    - Universities
    - Corporate campuses
  - Gas stations

How Local Governments can participate

- Explore Community Microgrid options for critical public infrastructure
  - Evaluate community needs and identify critical facilities
  - Engage engineering consultancy to propose system designs
  - Consider project financing and construction timelines
- Streamline permitting processes for renewable energy and energy efficiency projects in your jurisdiction
- Consider public-private partnerships to enable true community resilience

Expertise working with utilities + cities

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Analysis & Planning

Full cost and value accounting for DER; siting analysis

- PG&E
- PSE&G
- SCE

Grid Modeling & Optimization

Powerflow modeling; DER optimization

- PG&E
- PSE&G
- SCE

Program Design

Procurement and interconnection

- LADWP, Fort Collins, PSE&G
- City of Palo Alto FIT
- RAM, ReMAT
- Rule 21 & FERC

Community Microgrid Projects

Design and deployment

- UC Santa Barbara
- Stanford Redwood City
- Simsbury, CT
- San Francisco, CA
- Long Island, NY
- U.S. Virgin Islands

And Finally…

The Thomas Fire in Southern California has burned 281,893 acres in Ventura and Santa Barbara counties, making it the largest officially recorded wildfire in modern California history

- The fires destroyed more than 1,000 structures, including 775 houses. There is now a **nine-plaintiff suit** accusing Ventura and Casitas of damaging or destroying the plaintiffs' properties because of the alleged lack of water pressure to fire hydrants.
- The suit states that the **water-pumping stations** owned and operated by the city **lost electrical power** and the city didn't have properly working backup generators on hand.
- It also alleges **pumping stations** owned and operated by Casitas, which provides water to **fire hydrants** in Ojai, **also lost power** and that backup generators did not work.

Is this the Community Energy We Want?

Source: https://www.noozhawk.com/article/3_lawsuits_blame_southern_california_edison_for_thomas_fire