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Renewable Energy Insights from "California's Energy Future"

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IEPR Lead Commissioner Workshop
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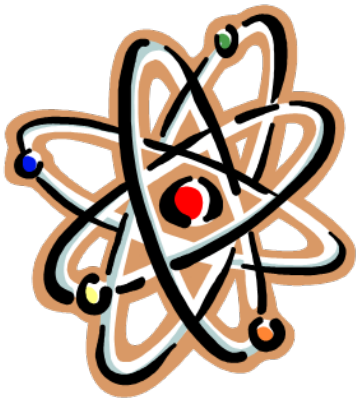
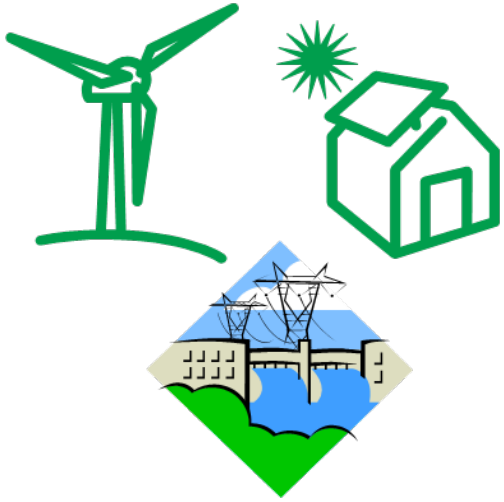
Low-Carbon Electricity Options



Nuclear
62% nuclear
43GW
33% renewable
5% natl gas
load following

Fossil/CCS
62% fossil/CCS
48 GW
33% renewable
5% natl gas
load following

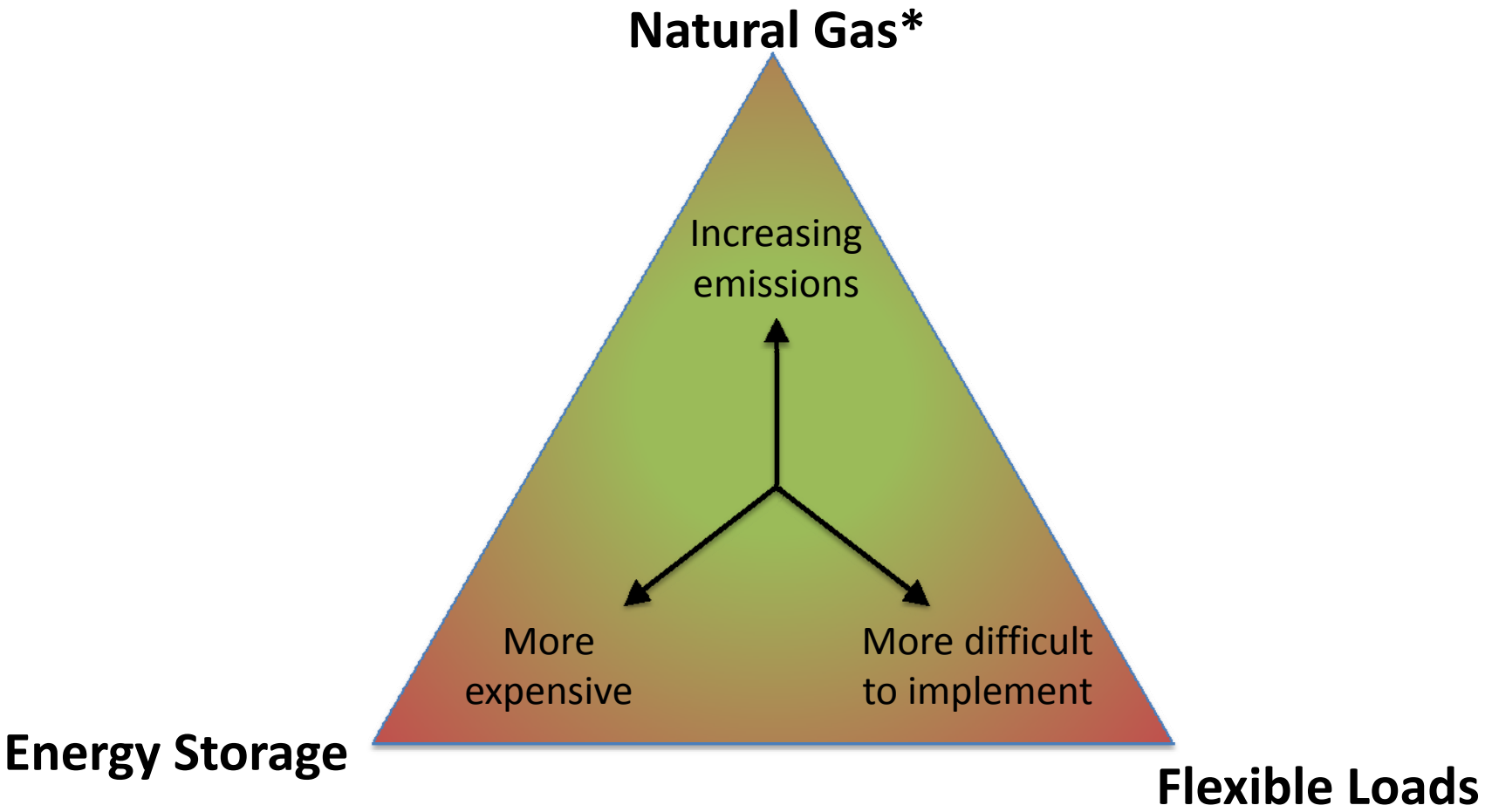


Renewables
90% renewable
(70% intermittent)
150 GW
10% natl gas
following

Barriers to Renewable Energy

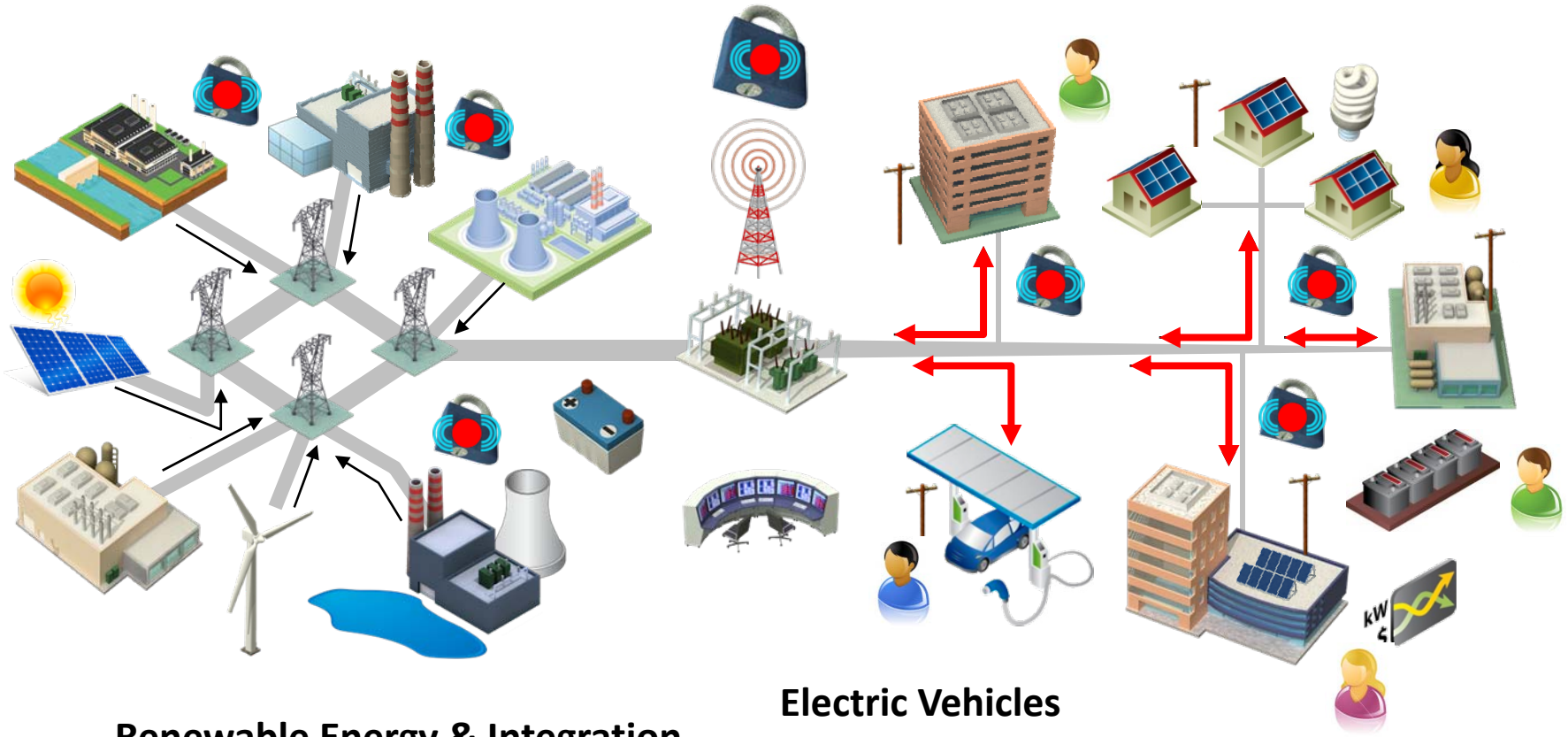
- Improved technology costs and performance
  - Conversion efficiency
  - O&M
  - Environmental controls
- Grid flexibility to balance out variability, particularly for wind, solar
  - Controllable loads, storage, transmission, demand response, electric vehicles
- Water resources for thermal cooling
- Land use and availability

Balancing Supply and Demand



** May be possible with CCS in future*

Power System of the Future



Renewable Energy & Integration

Near-Zero Emissions

Long-Term Operations

Water Management

Electric Vehicles

Demand Response & Efficiency

Distributed Energy Resources

Energy Storage

Sensors, Controls & Cyber Security