### **36<sup>th</sup> West Coast Energy Management Congress** Association of Energy Engineers Seattle, WA June 21-22, 2017

Use Energy Responsibly

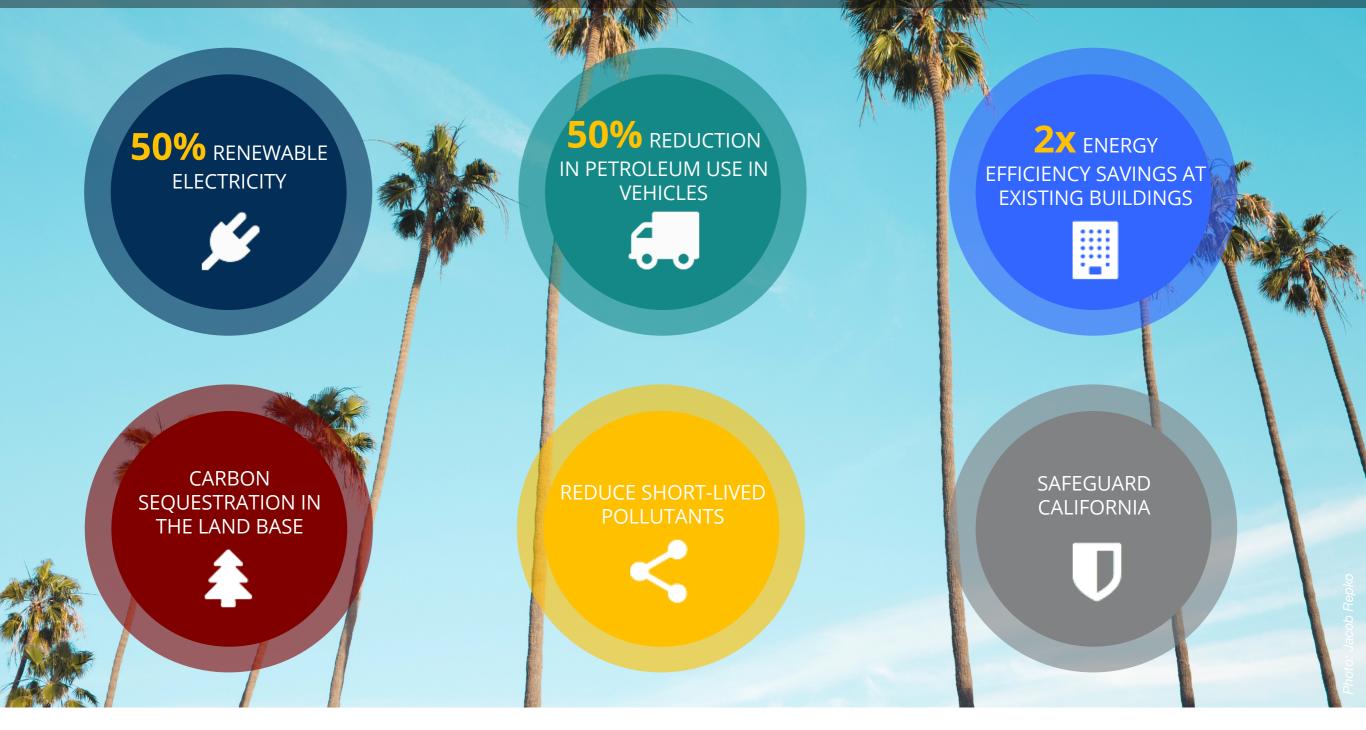


# SEETHE BIG PICTURE au Tri Tar



#### CALIFORNIA CLIMATE STRATEGY

### VISION: Reducing Greenhouse Gas Emissions to 40% Below 1990 Levels By 2030





Sulfur Oxides SOx Diesel Particulate Matter DPM Nitrogen Oxides NOx Greenhouse Gases

56%

# **87%**

## 10%

#### San Pedro Bay Ports

2016 Air Emissions Inventory Compared to 2005 Levels

TEUs



# TECHNOLOGICAL ADVANCEMENTS

are accelerating faster than our ability to accommodate them





# REGULATIONS

are always one step behind



# CHALLENGES

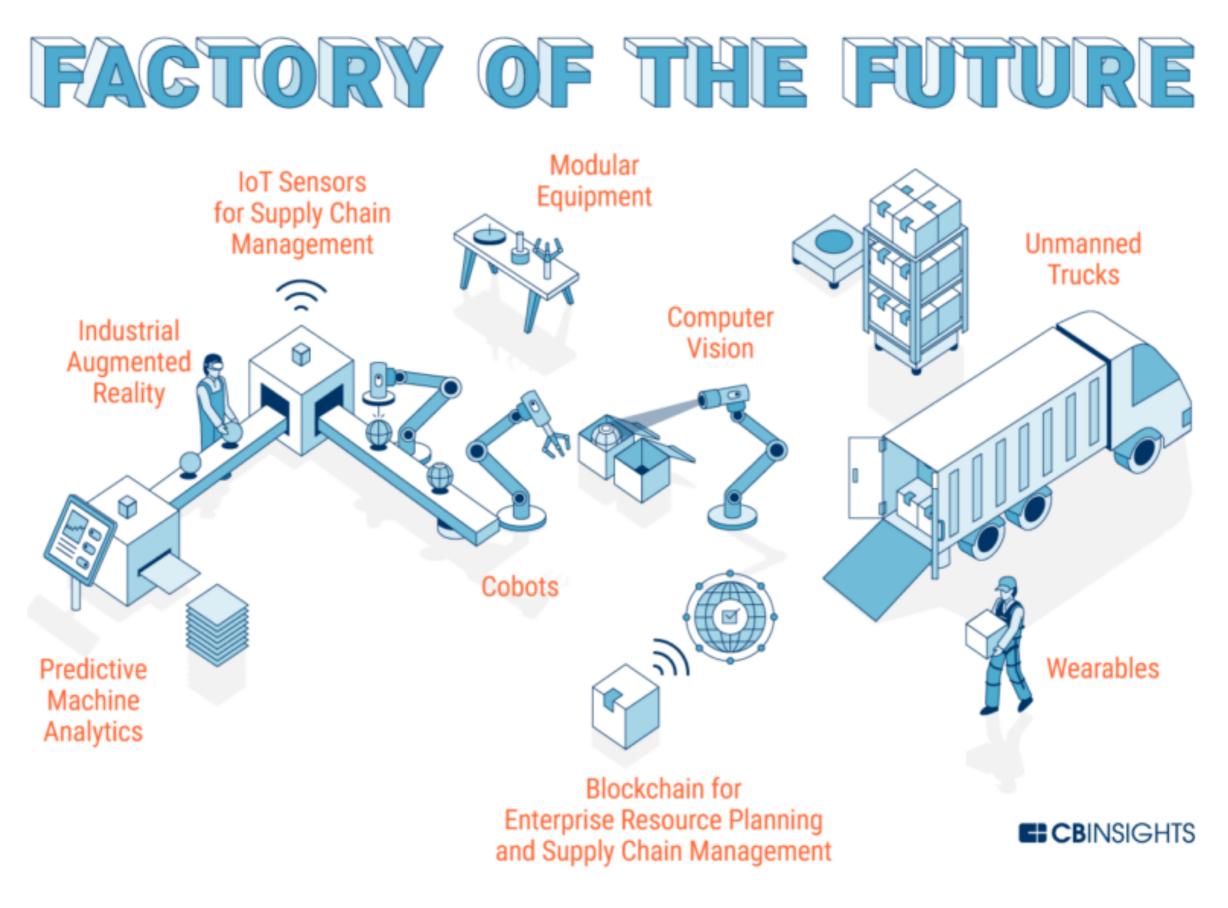
WORKFORCE DEVELOPMENT RESISTANCE TO CHANGE ASSURANCE OF SYSTEMS AND SOFTWARE





## We must understand the COMMERCIAL AVAILABILITY of specific technologies before we decide to adopt them







# Consider a LIFECYCLE APPROACH

Photo: Boris Smokrovic

# Let's take a look at TAILPIPE EMISSIONS



Active

(323) 295.7770

A focus on tailpipe emissions alone may not only result in a slower than desired pace of emission reduction but also



an unsatisfactory shift of emissions from one particular area of concern to another







What does it take to make an electric car?

Lun i



What happens when we no longer need it?



# CHALLENGES OF WASTE MANAGEMENT

Discarded solar panels create **300 times more** toxic waste per unit of energy than nuclear reactors

Source: Environmental Progress



# WHERE DOES THE ELECTRICITY COME FROM?

# CALEORNIA

#### NATURAL GAS 49%

# RENEWABLESHYDROPOWER33%9%

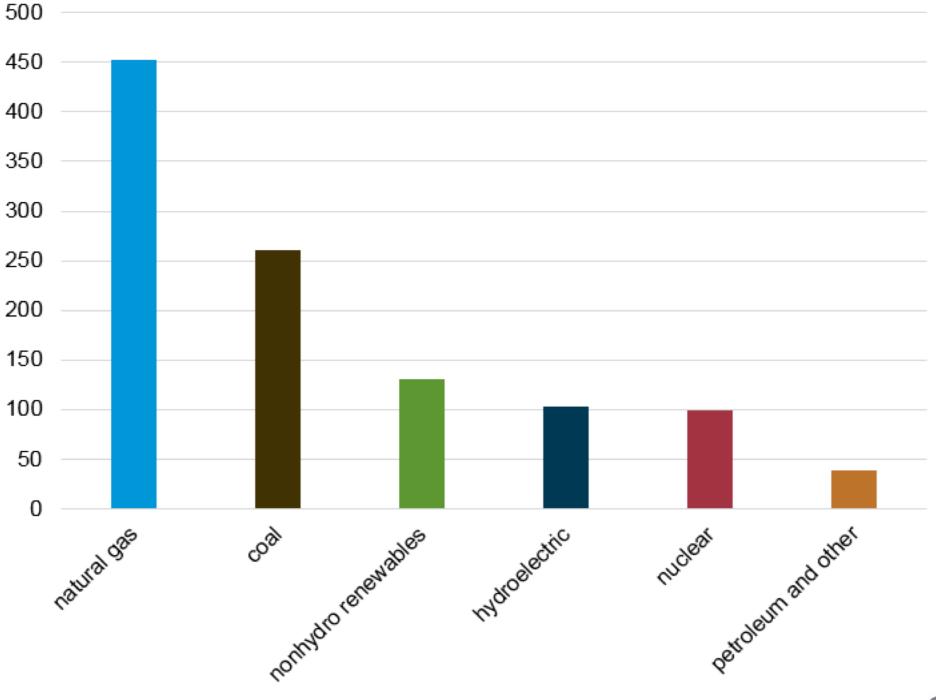


NUCLEAR

8%

## **U.S. ENERGY PRODUCTION**

U.S. electricity generating capacity by major energy source, 2017 million kilowatts



Source: U.S. Energy Information Administration



# HOW EVIL IS THE GAS COMPANY?



# SOLUTION



# HOLISTIC APPROACH TO ENERGY



## **Energy Goals and Priorities**













## **Energy Drivers**





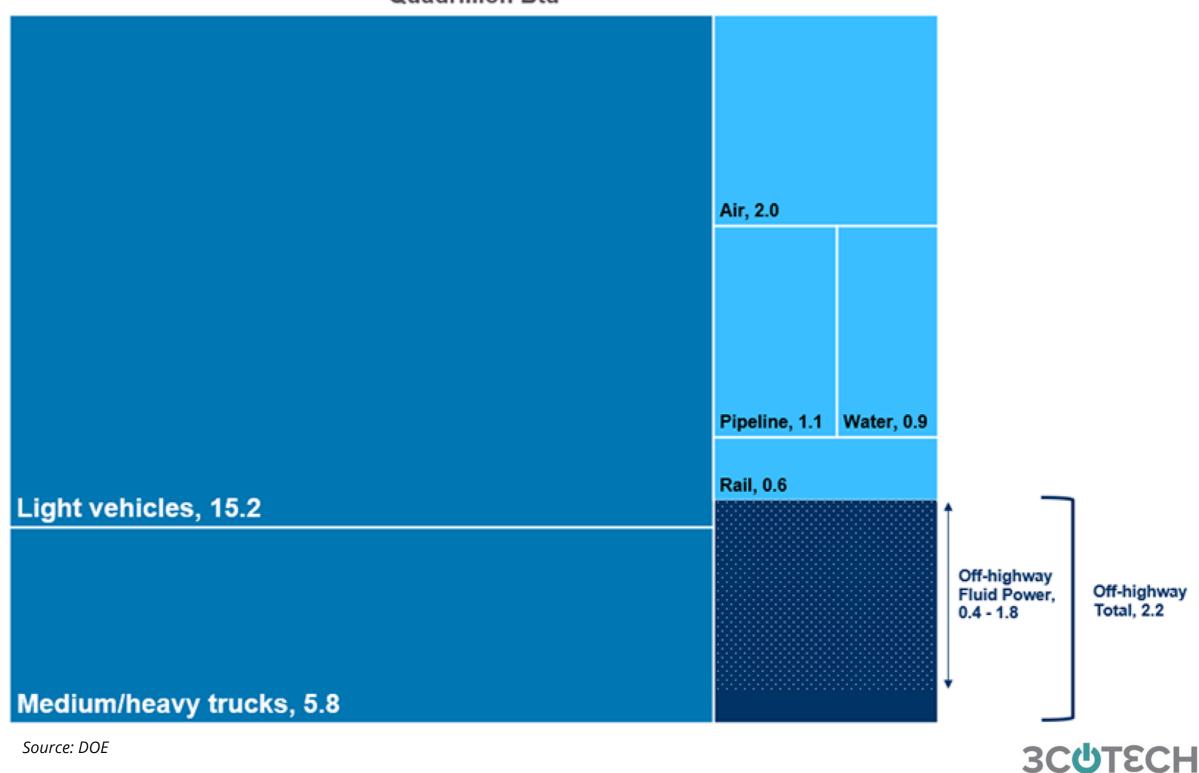
## Roadmap to Strategic Energy Planning





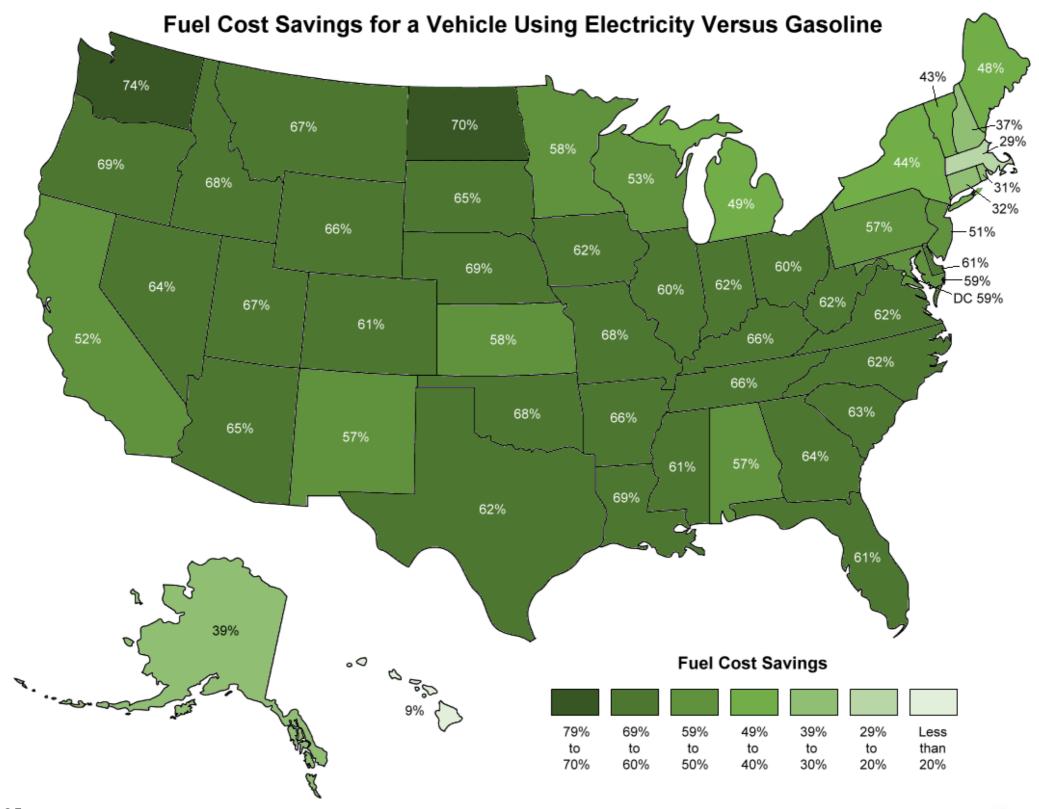
## ON-ROAD VEHICLES USE 3/4 ENERGY

Transportation Energy Use, 2016 Quadrillion Btu



Profitable Sustainability

## AVERAGE 60% FUEL COST SAVINGS



Source: DOE

**3CUTECH** Profitable Sustainability

# We live in COMPLEX ADAPTIVE SYSTEMS



# 

# LOOK BEYOND ...



# "REALISTIC" EXPECTATIONS



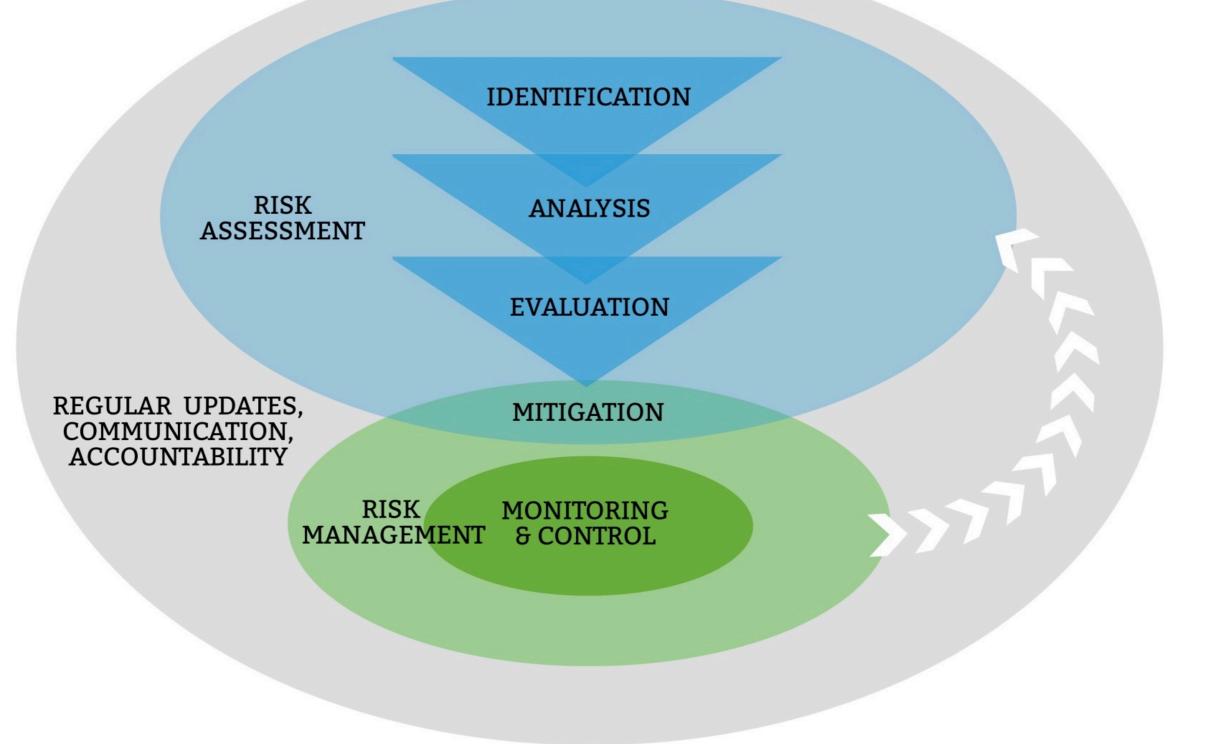
# Have A VISION TO MOVE FORWARD



# Focus on GOALS



## **ASSESS RISKS & OPPORTUNITIES**





# M Identi STAKEHOLDER noto: Kat Jan



# AND ENGAGE THEM

Mina Uanna



# **COLLABORATION IS KEY**





# See it from THE STAKEHOLDERS' PERSPECTIVE



# BUILD RESILIENT COMMUNITIES

SEE THE BIG PICTURE CHALLENGE THE STATUS QUO BE IMPACTFUL



# Thank you

**Kat Janowicz**, MSME, MBA, CEM, LEED GA, ENV SP *President* 

**3COTECH, Inc.** 224 W 8<sup>th</sup> Street San Pedro, CA 90731 <u>www.3cotech.com</u>

714.478.4434 <u>kat@3cotech.com</u>



linkedin.com/company/3cotech linkedin.com/in/katjj

<u>@3cotech</u>



