

Combined Heat & Power (CHP)

U.S.DOE Pacific CHP Technical Assistance Partnership

Gene Kogan (858) 633-8561

Gene.Kogan@energycenter.org



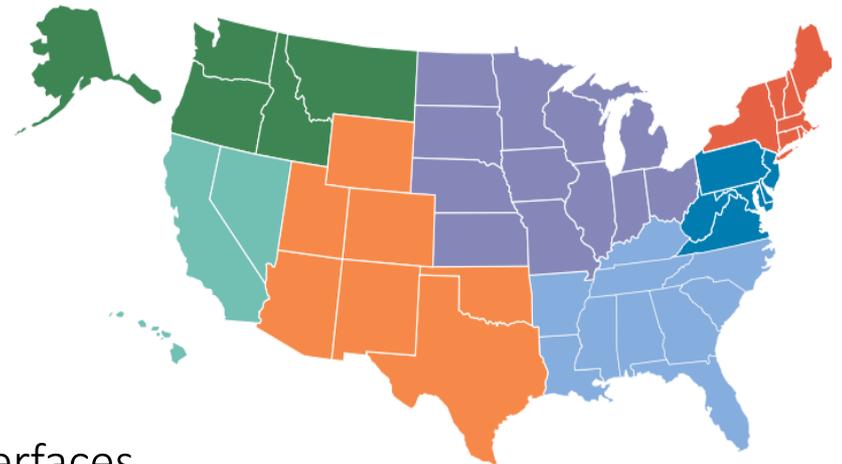
U.S. DEPARTMENT OF ENERGY

CHP Technical Assistance Partnerships

PACIFIC

President's Executive Order 13624: 40GW of new CHP by 2020

- CHP TAPs are critical components of achieving the goal:
 - Regional CHP experts
 - Provide fact-based, un-biased information on CHP
 - Technologies
 - Project Development
 - Project Financing
 - Local electric and natural gas interfaces
 - State best practice policies
 - Vendor, fuel, and technology neutral



<http://eere.energy.gov/manufacturing/distributedenergy/chptaps.html>



U.S. DEPARTMENT OF ENERGY

CHP Technical Assistance Partnerships

PACIFIC

Who We Are: U.S. DOE Pacific CHP TAP

- Previous DOE Pacific Clean Energy Applications Center (CEAC)
-
- Regional Coverage for CA, NV, & HI
- Pacific CHP TAP Team consists of:
 - Center for Sustainable Energy Team Lead (CSE)
 - DE Solutions
 - Valley Consulting
 - Energy and Environmental Economics (E3)



U.S. DEPARTMENT OF ENERGY

CHP Technical Assistance Partnerships

PACIFIC

CHP Technical Assistance Partnerships

Key Activities

- **Market Opportunity Analysis.**

Supporting analyses of CHP market opportunities in diverse markets including industrial, federal, institutional, and commercial sectors

- **Education and Outreach.**

Providing information on the energy and non-energy benefits and applications of CHP to state and local policy makers, regulators, end users, trade associations, and others.

- **Technical Assistance.**

Providing technical assistance to end-users and stakeholders to help them consider CHP, waste heat to power, and/or district energy with CHP in their facility and to help them through the development process from initial CHP screening to installation.



<http://eere.energy.gov/manufacturing/distributedenergy/chptaps.html>



U.S. DEPARTMENT OF ENERGY

CHP Technical Assistance Partnerships

PACIFIC

DOE CHP Technical Assistance Partnerships (CHP TAPs)

NORTHWEST www.northwestCHPTAP.org

Dave Sjoding
Washington State University
360-956-2004
sjodingd@energy.wsu.edu

MIDWEST www.midwestCHPTAP.org

John Cuttica
University of Illinois at Chicago
312-996-4382
cuttica@uic.edu

Cliff Haefke
University of Illinois at Chicago
312-355-3476
chaefkl@uic.edu

NORTHEAST www.northeastCHPTAP.org

Tom Bourgeois
Pace University
914-422-4013
tbourgeois@law.pace.edu

Beka Kosanovic
University of Massachusetts Amherst
413-545-0684
kosanovi@ecs.umass.edu

PACIFIC www.pacificCHPTAP.org

Jack Clark
Center for Sustainable Energy
858-244-1187
jack.clark@energycenter.org

Gene Kogan
Center for Sustainable Energy
858-633-8561
gene.kogan@energycenter.org

MID-ATLANTIC www.midatlanticCHPTAP.org

Jim Freihaut
The Pennsylvania State University
814-863-0083
jdf11@psu.edu

SOUTHWEST www.southwestCHPTAP.org

Christine Brinker
Southwest Energy Efficiency Project
720-939-8333
cbrinker@swenergy.org

SOUTHEAST www.southeastCHPTAP.org

Isaac Panzarella
North Carolina State University
919-515-0354
ipanzarella@ncsu.edu

DOE CHP Technical Assistance Partnerships (TAPs): Program Contacts

Claudia Tighe
CHP Deployment Lead
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
Phone: 202-287-1899
E-mail: claudia.tighe@ee.doe.gov

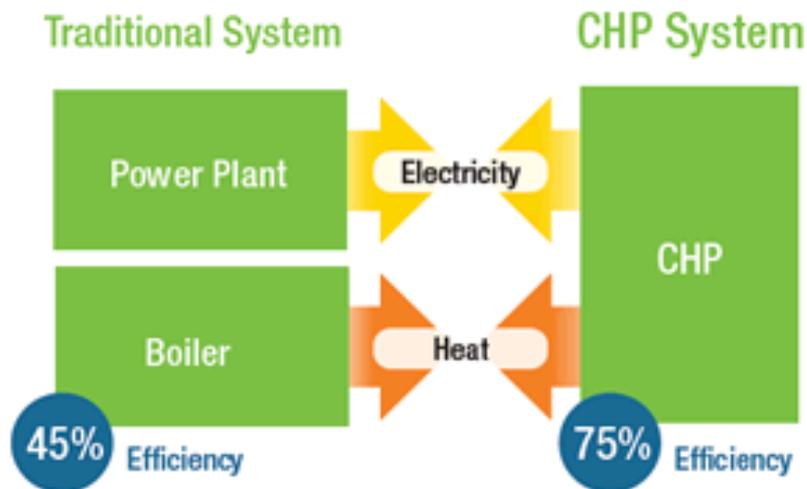
Jamey Evans
Project Officer, Golden Field Office
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
Phone: 720-356-1536
E-mail: jamey.evans@go.doe.gov

Patti Welesko Garland
CHP Technical Support Coordinator
Oak Ridge National Laboratory
Supporting, Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
Phone: 202-586-3753
E-mail: garlandpw@ornl.gov

Ted Bronson
DOE CHP TAPs Coordinator
Power Equipment Associates
Supporting, Office of Energy Efficiency and Renewable Energy
Phone: 630-248-8778
E-mail: tbronsonpea@aol.com

What Is Combined Heat and Power?

- Form of Distributed Generation (DG)
- An integrated system
- Located at or near a building / facility
- Provides at least a portion of the electrical load and
- Uses thermal energy for:
 - Space Heating / Cooling
 - Process Heating / Cooling
 - Dehumidification



CHP provides efficient, clean, reliable, affordable energy – today and for the future.

Source: http://www1.eere.energy.gov/manufacturing/distributedenergy/pdfs/chp_clean_energy_solution.pdf

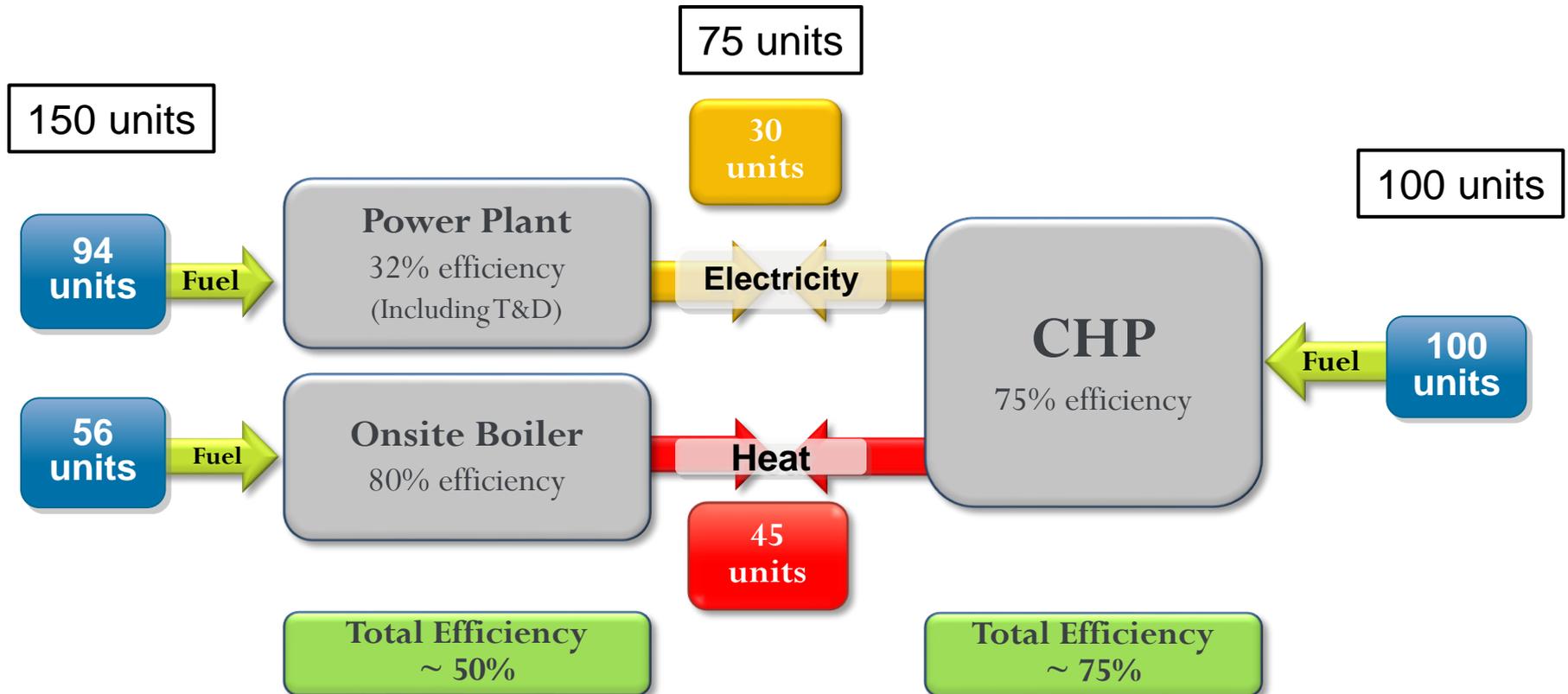


U.S. DEPARTMENT OF ENERGY

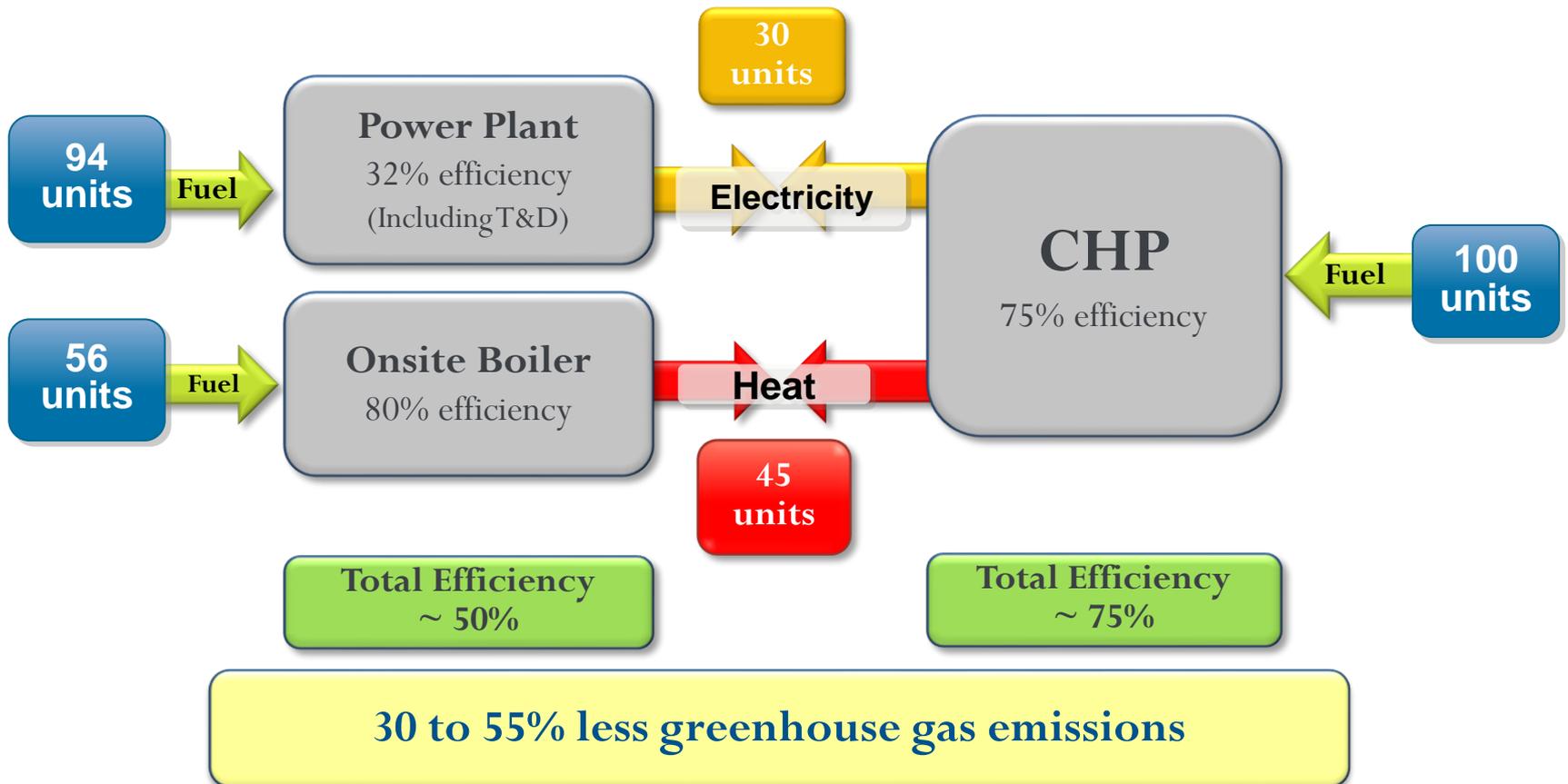
CHP Technical Assistance Partnerships

PACIFIC

CHP Recaptures Much of that Heat, Increasing Overall Efficiency of Energy Services.....



.....and Reducing Greenhouse Gas Emissions



U.S. DEPARTMENT OF ENERGY

CHP Technical Assistance Partnerships

PACIFIC

What Are the Benefits of CHP?

- CHP is **more efficient** than separate generation of electricity and heat
- Higher efficiency translates to **lower operating cost**, (but requires capital investment)
- Higher efficiency **reduces emissions** of all pollutants
- CHP can also increase **energy reliability** and enhance power quality

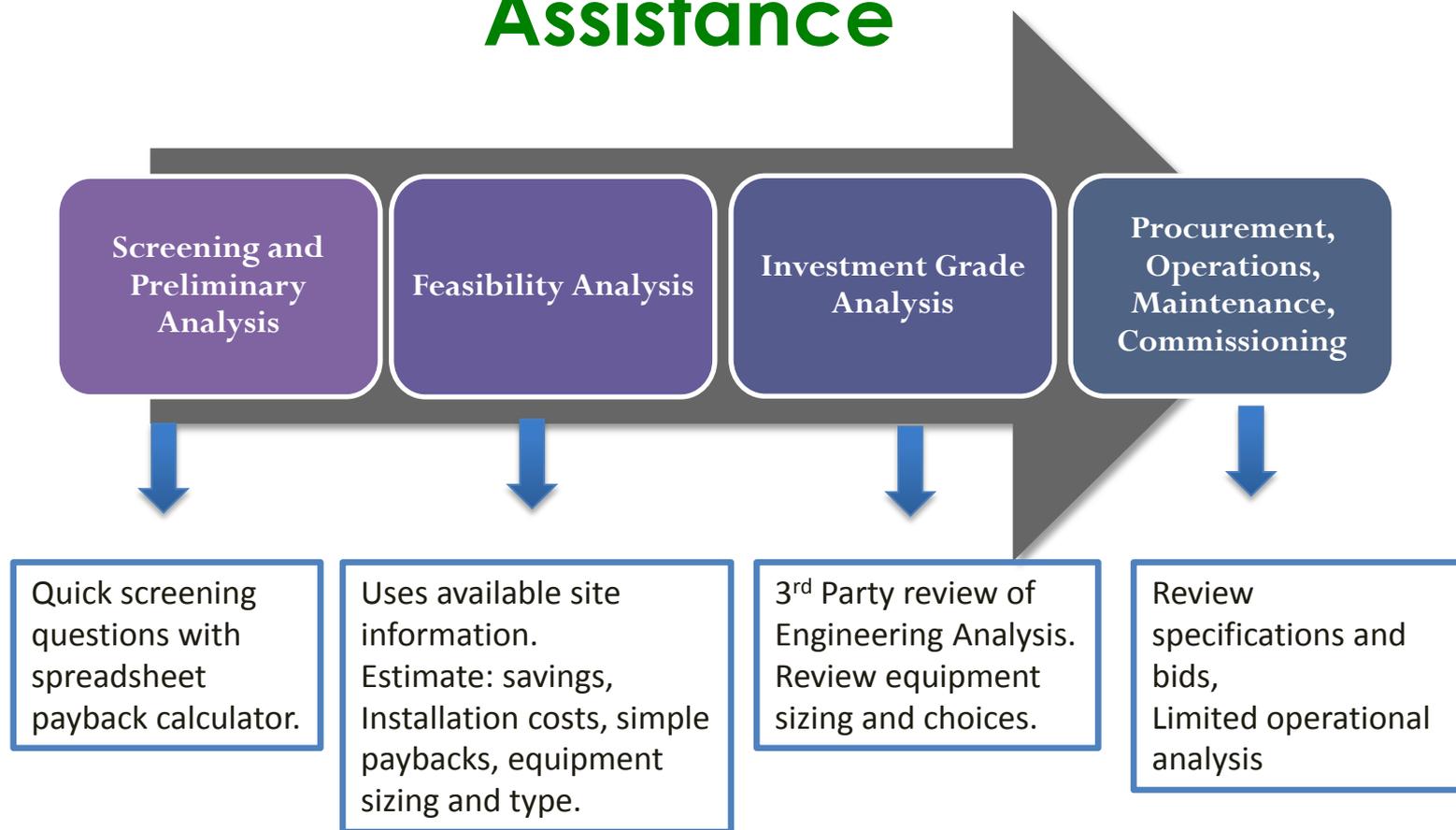


U.S. DEPARTMENT OF ENERGY

CHP Technical Assistance Partnerships

PACIFIC

CHP TAP Project Development Technical Assistance



U.S. DEPARTMENT OF ENERGY

CHP Technical Assistance Partnerships

PACIFIC

Next Steps and Questions?

- Contact Pacific CHP TAP for assistance if:
 1. Interested in having a Qualification Screening performed to determine if there is an opportunity for CHP at your site
 2. If you already have an existing CHP plant and interested in expanding it

Contact Gene Kogan (858) 633-8561

Gene.Kogan@energycenter.org



U.S. DEPARTMENT OF ENERGY

CHP Technical Assistance Partnerships

PACIFIC