

Technical Assistance with Development of Microgrids and CHP Projects in the Metropolitan Washington Region

Need: The Energy Advisory Committee (EAC) recently met to discuss new initiatives in the region to advance clean energy technology - microgrids, combined heat & power, and thermal utilities. Members expressed interest in COG's assistance in developing appropriate and effective procurement approaches, including development of a model RFP. Members also requested planning assistance to identify suitable sites for development of new CHP and microgrid resources in the region. Deployment of microgrid and CHP technology in the region has the potential to reduce emissions of both criteria pollutants and greenhouse gases.

Approach: COG will form an expert task force, with representatives from area universities and others to advise COG's technical and policy committees on development of resources and approaches to overcome barriers to more widespread use of clean energy technologies. The task force will leverage the MWAQC funds with funding from universities and technical assistance from EPA and DOE. Focus will include best practices for procurement of emerging clean energy resources, criteria for siting clean energy resources, identification of suitable sites for development, and recommendations for inclusion of such clean energy approaches in air quality and climate plans. The project will also assess the potential for deployment of new clean energy sources in the region and the associated air quality benefits using readily available modeling tools from EPA's CHP Partnership Program.

Tasks:

Convene expert task force (Month 1-6)
Research best practices for model RFPs (Month 1-2)
Prepare model RFP (Month 2-3)
Development of criteria for siting resources (Month 1-3)
Survey of municipalities to identify suitable sites (Month 3-5)
Assess CHP/microgrid potential and associated air emission benefits (Months 4-6)
Final reports and presentations (Month 5-6)

Budget:

COG Staff 200 hours \$20,000
Consultants (3-5 academic experts) \$50,000

Project Outputs: Model RFP for microgrids, report on suitable sites for CHP and microgrid development, revisions to COG's procurement regulations/protocol to facilitate inclusion of emerging technologies, recommendations for inclusion in air quality and climate plans, and assessment of CHP/microgrid potential and associated air emission benefits.

Relevant COG Committees:

Energy Advisory Committee (EAC)
Energy Finance Subcommittee
Climate, Energy and Environment Policy Committee (CEEPC)
Chief Purchasing Officers
Planning Directors Technical Committee

Supporting Policies and Tools

EPA CHP programs, clean air State Implementation Plans (SIP)

Original 2004 guidance:

http://www.epa.gov/ttncaaa1/t1/memoranda/ereseerem_gd.pdf

Current approaches for “output-based” emissions regulations, which is the mechanism for crediting emissions improvements from CHP and District Energy approaches:

<http://www.epa.gov/chp/state-policy/output.html>

CHP Emissions Calculator

<http://www.epa.gov/chp/basic/calculator.html>

Technology Verification Reports

<http://www.epa.gov/nrmrl/std/etv/vt-ggt.html#advanceenergy>

U.S. DOE Distributed Energy Information

<http://www1.eere.energy.gov/industry/distributedenergy/>

Integrated Assessment of the Energy Savings and Emissions-Reduction Potential of CHP

http://www1.eere.energy.gov/industry/distributedenergy/pdfs/chp_integrated_assessment.pdf

Academic Experts and Government Staff Expressing Support for the Task Force

Universities

- Dr. Joe Orlando, Penn State University (has offered in-kind dollars)
- Pat Dunne, George Mason University Center for Infrastructure Protection
- Dr. Stephen Hsu, George Washington University, Energy Research Faculty

U.S. Government

- Neeharika Naik-Dhungel, U.S. EPA Combined Heat and Power Partnership Program (has offered technical assistance)
- Merrill Smith, US Department of Energy Microgrid Expert
- Robert Westby, US Department of Energy, National Renewable Energy Laboratory

Consultants

- Colin High, Resource Systems Group. Expert at estimating emission benefit from renewable energy technologies.