



DOE ESPC
Emerging Technology (ET) Matrix
-
Renewable Energy (RE) Screening

PG&E
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Emerging Technology (ET) Matrix

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“Emerging Technology Evaluation for
Application in the Federal Sector”

Emerging Technology (ET) Matrix

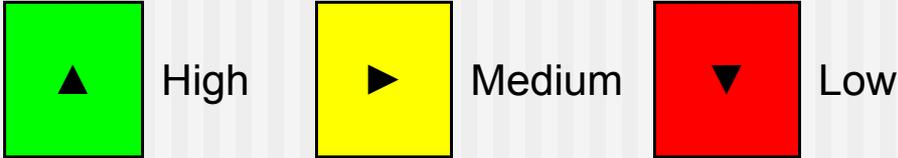
- The Emerging Technology (ET) Matrix is an Excel spreadsheet tool to assist agencies and ESCOs:
 - Identify emerging technologies for Federal ESPC/UESC projects.
 - Provide references for additional information, points of contact, and resources.
 - Save research time and provide better direction in making Energy Conservation Measure (ECM) decisions.
- ECM Categories
 - Building Envelope
 - HVAC
 - HighTech Buildings
 - Lighting
 - Power Generation
 - Water/WasteWater
 - Water Heating
 - Other

ESCO/Agency Review and Support

- Prior to the Preliminary Assessment (PA), agency customers are provided the ET Matrix
- Agencies are requested to review the matrix for potential saving opportunities
- At the PA kick-off meeting, FEMP will provide an overview of the ET Matrix to the project team
- FEMP may schedule a meeting with the ESCO and/or agency to go over the matrix and identify potential ET ECMs for project

ET Matrix: Federal Sector Applicability

Example – Scotopic Lighting



Lighting					
Technology	Federal (Market) Leverage	Savings Potential		Cost Effectiveness	Retrofit Applicability
		Federal	US economy		
Scotopic Lighting	▲	▲	▶	▲	▲

ET Matrix: ESPC Applicability Example – Scotopic Lighting

A

All or most federal facilities

M

Many federal facilities

S

Special conditions
(see measure description)

Technology	ESPC Applicability	Application	Description
Scotopic Lighting	A	Residential and Commercial	Optimized color temperature for improved visual effectiveness even at dimmed light output

ET Matrix: Information Sources

Example – Scotopic Lighting

	Report Type	Source	Date	URL
Scotopic Lighting	Website	DOE	2007	http://www1.eere.energy.gov/femp/new_technology/tech_demo_comp5.html
	2-pager	FEMP	2007	Download
	ACEEE Study (p. 134)	ACEEE	2004	http://www.aceee.org/pubs/a042full.pdf
	Field Evaluation	PNNL	2006	http://www.eere.energy.gov/buildings/info/documents/pdfs/selpies_field_eval_083006.pdf
	Economic Analysis	DOE	2006	http://www.eere.energy.gov/buildings/info/documents/pdfs/selpies_economics_validation_083006.pdf

FEMP ET Matrix & Report

- ET Matrix

http://www1.eere.energy.gov/femp/docs/emerging_tech_matrix.xls

- ASE Report "Deploying New Technologies to Increase Energy Savings in the Federal Sector"

http://www1.eere.energy.gov/femp/pdfs/emerging_technologies_ase_report.pdf



Renewable Energy (RE) Screening

Renewable Energy (RE) Screening

- Prior to the Preliminary Assessment (PA), agency customers are requested to provide site data needed for RE screening
- FFS or PF will forward electronic data collection sheet to customers for assembly of data and where to send for screening

Renewable Energy (RE) Screening Report

- Solar
 - Photovoltaics (PV)
 - Concentrating Solar Power (CSP)
 - Solar Water Heating
 - Solar Ventilation Preheating
 - Daylighting
- Wind
- Biomass and Alternative Methane Fuels (BAMF)
- Geothermal Heat Pumps (GHPs)

Site Data Needed for RE Screening Report

- **Site Location: Lat/Long (preferred) or address**
- **Land Area Available for Power Generation**
_____ acres
 - Compatible with mission
 - Lat/Long if available
- **Facility Square Footage**

Utility Info Needed for RE Screening Report

- **Electric**
 - Rate _____\$/kWh (Blended \$/kWh: annual \$/annual use)
 - Annual Energy Use _____ kWh
 - Annual Cost _____\$
 - Annual Peak Demand _____kW _____ month
- **Natural Gas**
 - Rate _____\$/therm or \$/decatherm (select units)
 - Annual Use _____ therm or decatherm (select units)
 - Annual Cost _____\$
- **Other Fuels (Coal, Oil #2, Oil #6, Propane)**
 - Rate _____\$/gallon or \$/ton (select units)
 - Annual Use _____ gallons or tons (select units)
 - Annual Cost _____\$
- **Water**
 - Rate _____\$/KGal
 - Annual Use _____ KGal

Additional Site Considerations

- Is there a waste water treatment plant on site?
- Is there a landfill on site?
- Is there wood waste production on site?
- Are there any existing geothermal heat pump systems on-site, or have any thermal conductivity tests been performed for potential projects?
- Are large volumes of groundwater being brought to the surface (for example, as part of a remediation project) or are there large volumes of wastewater available at the site?
- Are large surface bodies of water, e.g., ocean, lake, river, available at/near the site?