Roles and Responsibilities of VA Energy Mangers in 2023

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Presented to James A Haley Veterans' Hospital on behalf of the National Renewable Energy Laboratory (DOE)

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THE DURHAM SCHOOL
OF ARCHITECTURAL ENGINEERING AND CONSTRUCTION

Overview

- Typical Energy Manager Scope of Work (Non-VA and VA)
- Energy Manager Guiding Documents
- Energy Manager Recurring Responsibilities
- Energy Manager Development
- Wrap-up

Energy Manager Scope of Work

Private Sector and VA Positions

Roles and Responsibilities

Energy Manager Responsibilities:

Non-VA, Non-Executive/Director
(from job listings)

Energy Manager Responsibilities:

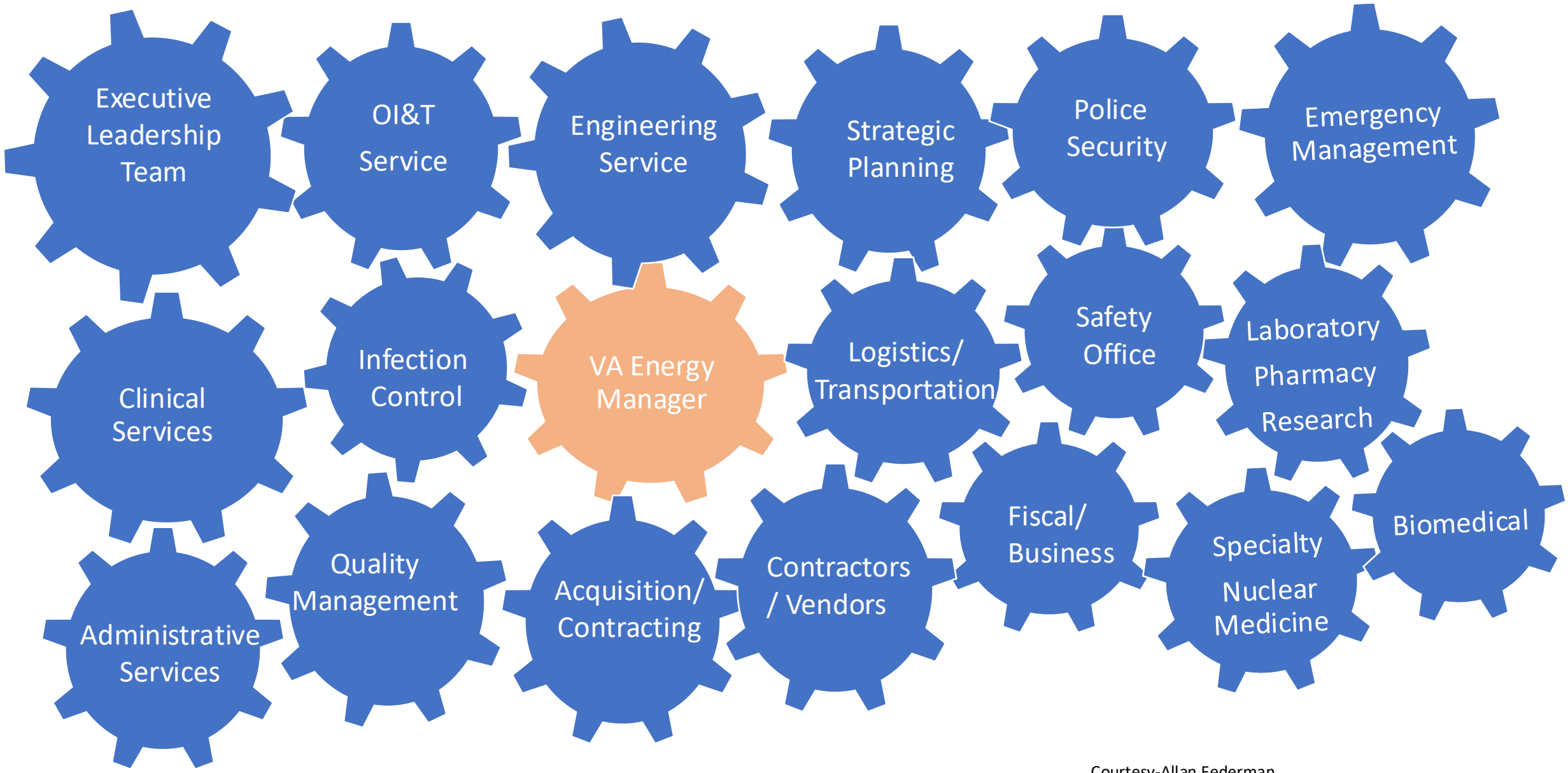
Per job post descriptions at VA.gov

Typical Job roles

- Work with other EMs to work toward VISN/VHA energy goals
- Use energy measurement tools and software
- Plan/Execute commissioning and retro-commissioning projects
- Provide technical support to VISN Capital Asset Manager, NCA, VBA, Joint DOD/VA sites
- Conduct Audits using standard energy analysis tools and software. Provide reports to Center Leadership, VISN, VACO
  - See Appendix/Spreadsheet for additional Information

Varying responsibilities depending on location.

- Some facilities have personnel at different General Schedule Grades
- >1 building/facility per Energy Manager?
- May be responsible for owned and leased spaces, which have different requirements
- May overlap with Facilities Manager or Energy Engineer
- Manages Healthcare Design and Construction Administration
- Infrastructure Planning
- Work with regulatory Agencies (TJC)
- Network Security for BAS and engineering databases



Energy Management – HCS level

Courtesy-Allan Federman
From: Best Practices for Leadership and Organizational Design
Better Buildings Summit, 2018, Cleveland Ohio

Energy Manager FTEs

General Government

VA-Specific

Energy Manager FTEs:

Governmental Facilities

DOE acknowledges that scope varies by location, use type, etc.

EISA requires energy manager responsible for area that constitutes 75% of energy use by agency, but does not define FTE

Some agencies/departments have standards, others do not

Energy Manager FTEs: Healthcare Facilities (Non-VA)

79% had dedicated staff (practicegreenhealth.org, 2020)

No clear rule that is universally applied across all healthcare organizations.

Organizational Structure, roles and responsibilities vary between organizations

Any Facility-1.5 man-years for ISO-50001 compliant Energy Management System

Energy Manager FTEs:	Full-time Energy Manager for all VHA Facilities
	FTE scope varies
Healthcare Facilities (VA Specific)	No current standard, but recommendations for staffing standard

Energy Manager Guidance

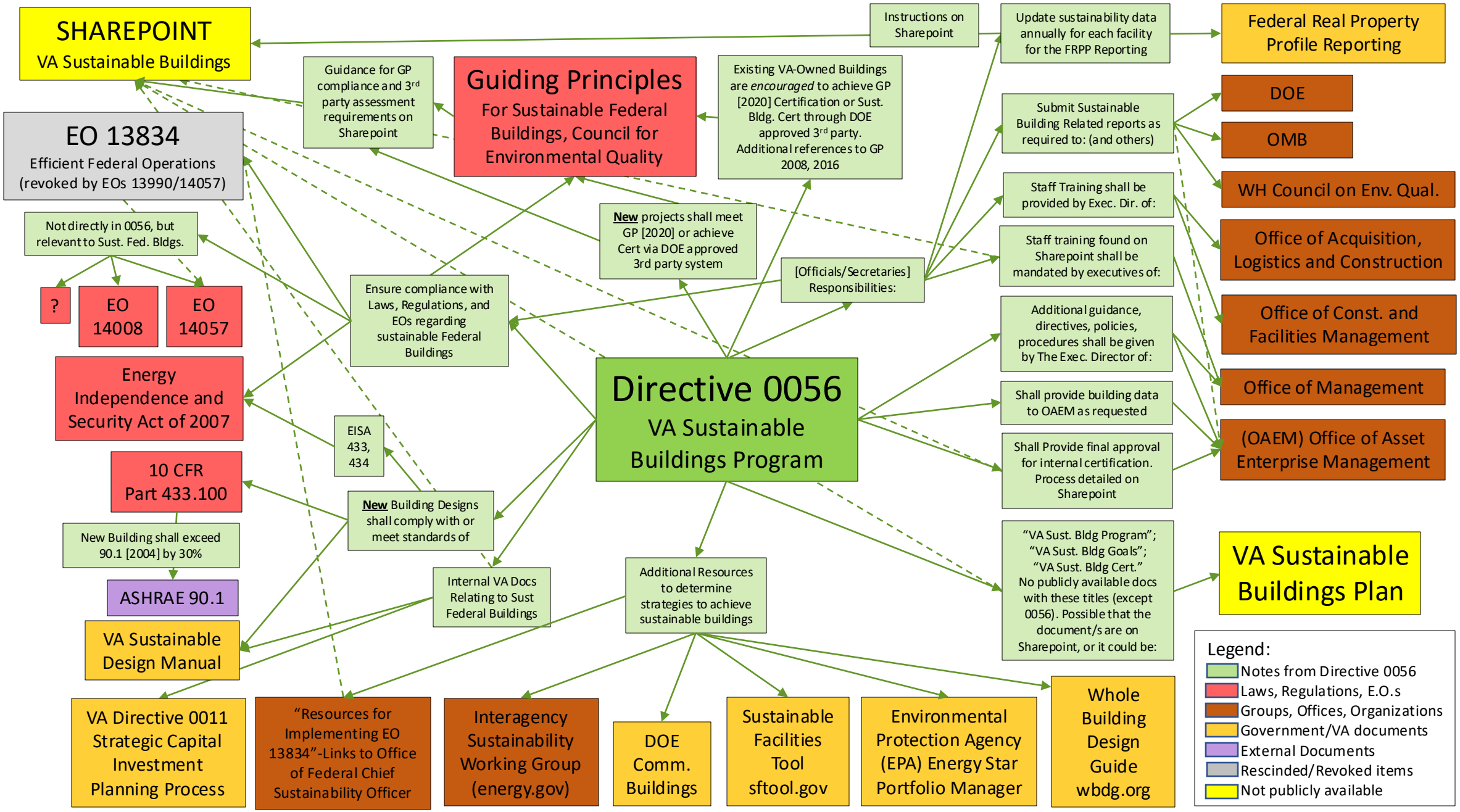
Prescribed by Documentation

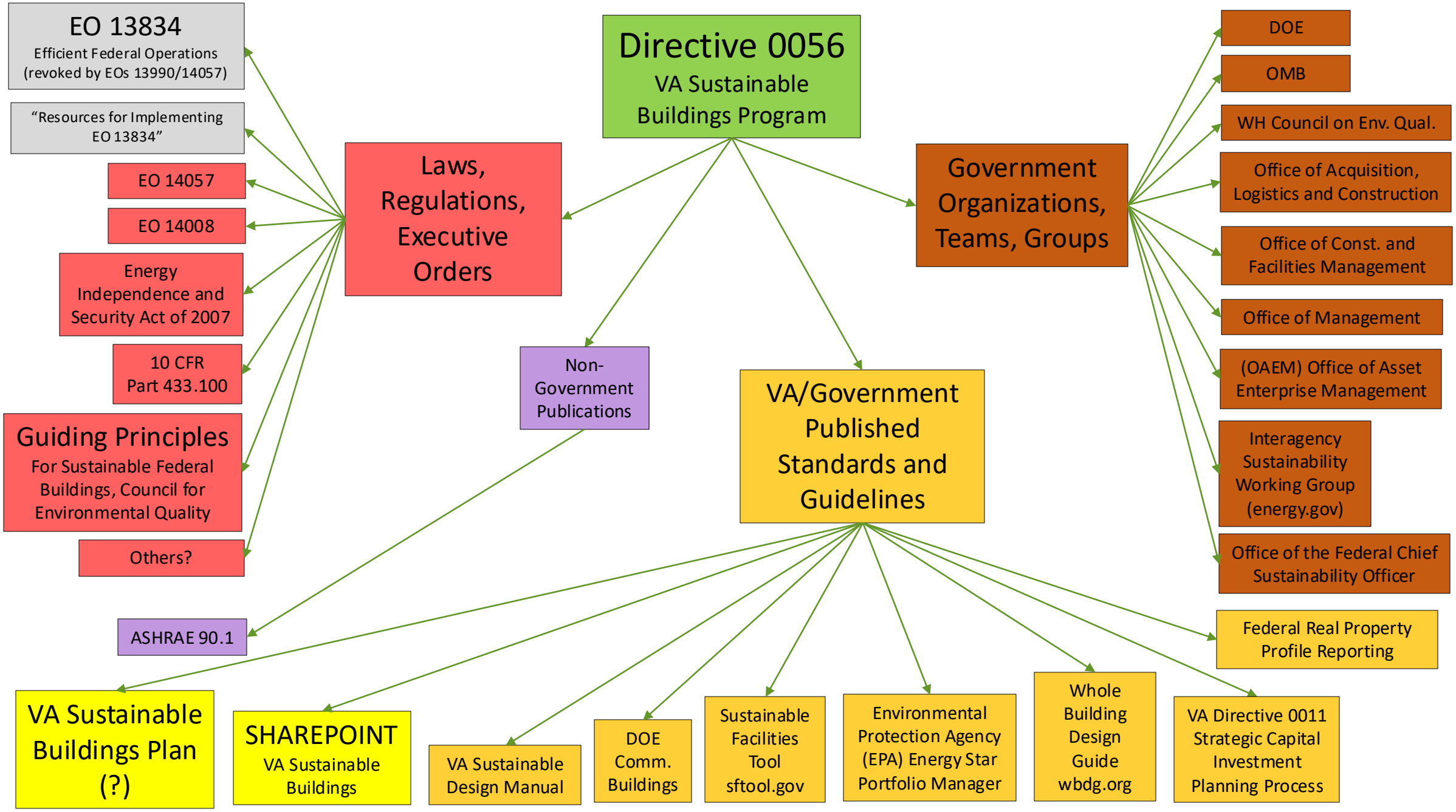
Directed by VISN, VHA, or other Agencies

Where to Start?

Directive 0056-VA Sustainable Buildings Program

Most recent version from 2021


SHAREPOINT
VA Sustainable Buildings
Instructions on Sharepoint
Update sustainability data annually for each facility for the FRPP Reporting
Federal Real Property Profile Reporting
Guidance for GP compliance and 3rd party assessment requirements on Sharepoint
Guiding Principles
For Sustainable Federal Buildings, Council for Environmental Quality
Existing VA-Owned Buildings are encouraged to achieve GP [2020] Certification or Sust. Bldg. Cert through DOE approved 3rd party. Additional references to GP 2008, 2016
EO 13834
Efficient Federal Operations
(revoked by EOs 13990/14057)
Submit Sustainable Building Related reports as required to: (and others)
DOE
OMB
WH Council on Env. Qual.
Staff Training shall be provided by Exec. Dir. of:
Office of Acquisition, Logistics and Construction
Staff training found on Sharepoint shall be mandated by executives of:
Office of Const. and Facilities Management
Not directly in 0056, but relevant to Sust. Fed. Bldgs.
New projects shall meet GP [2020] or achieve Cert via DOE approved 3rd party system
[Officials/Secretaries] Responsibilities:
?
EO 14008
EO 14057
Ensure compliance with Laws, Regulations, and EOs regarding sustainable Federal Buildings
Additional guidance, directives, policies, procedures shall be given by The Exec. Director of:
Office of Management
Energy Independence and Security Act of 2007
Directive 0056
VA Sustainable Buildings Program
Shall provide building data to OAEM as requested
(OAEM) Office of Asset Enterprise Management
EISA 433, 434
Shall Provide final approval for internal certification. Process detailed on Sharepoint
10 CFR Part 433.100
New Building Designs shall comply with or meet standards of
New Building shall exceed 90.1 [2004] by 30%
"VA Sust. Bldg Program"; "VA Sust. Bldg Goals"; "VA Sust. Bldg Cert." No publicly available docs with these titles (except 0056). Possible that the document/s are on Sharepoint, or it could be:
VA Sustainable Buildings Plan
ASHRAE 90.1
Internal VA Docs Relating to Sust Federal Buildings
Additional Resources to determine strategies to achieve sustainable buildings
VA Sustainable Design Manual
VA Directive 0011 Strategic Capital Investment Planning Process
"Resources for Implementing EO 13834"-Links to Office of Federal Chief Sustainability Officer
Interagency Sustainability Working Group (energy.gov)
DOE Comm. Buildings
Sustainable Facilities Tool sftool.gov
Environmental Protection Agency (EPA) Energy Star Portfolio Manager
Whole Building Design Guide wbdg.org
Legend:
Notes from Directive 0056
Laws, Regulations, E.O.s
Groups, Offices, Organizations
Government/VA documents
External Documents
Rescinded/Revoked items
Not publicly available


EO 13834
Efficient Federal Operations
(revoked by EOs 13990/14057)
"Resources for Implementing EO 13834"
EO 14057
EO 14008
Energy Independence and Security Act of 2007
10 CFR Part 433.100
Guiding Principles
For Sustainable Federal Buildings, Council for Environmental Quality
Others?
Directive 0056
VA Sustainable Buildings Program
Laws, Regulations, Executive Orders
Non-Government Publications
VA/Government Published Standards and Guidelines
Government Organizations, Teams, Groups
DOE
OMB
WH Council on Env. Qual.
Office of Acquisition, Logistics and Construction
Office of Const. and Facilities Management
Office of Management
(OAEM) Office of Asset Enterprise Management
Interagency Sustainability Working Group (energy.gov)
Office of the Federal Chief Sustainability Officer
ASHRAE 90.1
Federal Real Property Profile Reporting
VA Sustainable Buildings Plan (?)
SHAREPOINT
VA Sustainable Buildings
VA Sustainable Design Manual
DOE Comm. Buildings
Sustainable Facilities Tool sftool.gov
Environmental Protection Agency (EPA) Energy Star Portfolio Manager
Whole Building Design Guide wbdg.org
VA Directive 0011 Strategic Capital Investment Planning Process

Publications that Include Facility Requirements that (may) Fall to Energy Managers

Priority Publications

- Several recommendations, specific to Energy Manager roles and responsibilities

- VA Directive 0055
- VA Directive 0056
- Energy Policy Act of 2005
- EISA 2007
- Energy Act of 2020
- Energy Act of 2020 VHA Interim Guidance
- Guiding Principles
- Sustainable Facilities Tool
- ISO 50001 & Ready Playbook

See Also

-Referenced by Priority Publications or recommendations are tangential to Energy Manager

- ASHRAE 90.1
- EO 13834 (revoked)
- EO 14057
- 10 CFR Part 433
- VA Sustainable Design Manual
- Other TIL Design Documents
- Whole Building Design Guide
- VA Sustainable Buildings Sharepoint
- VA Energy, Environment, and Fleet Program

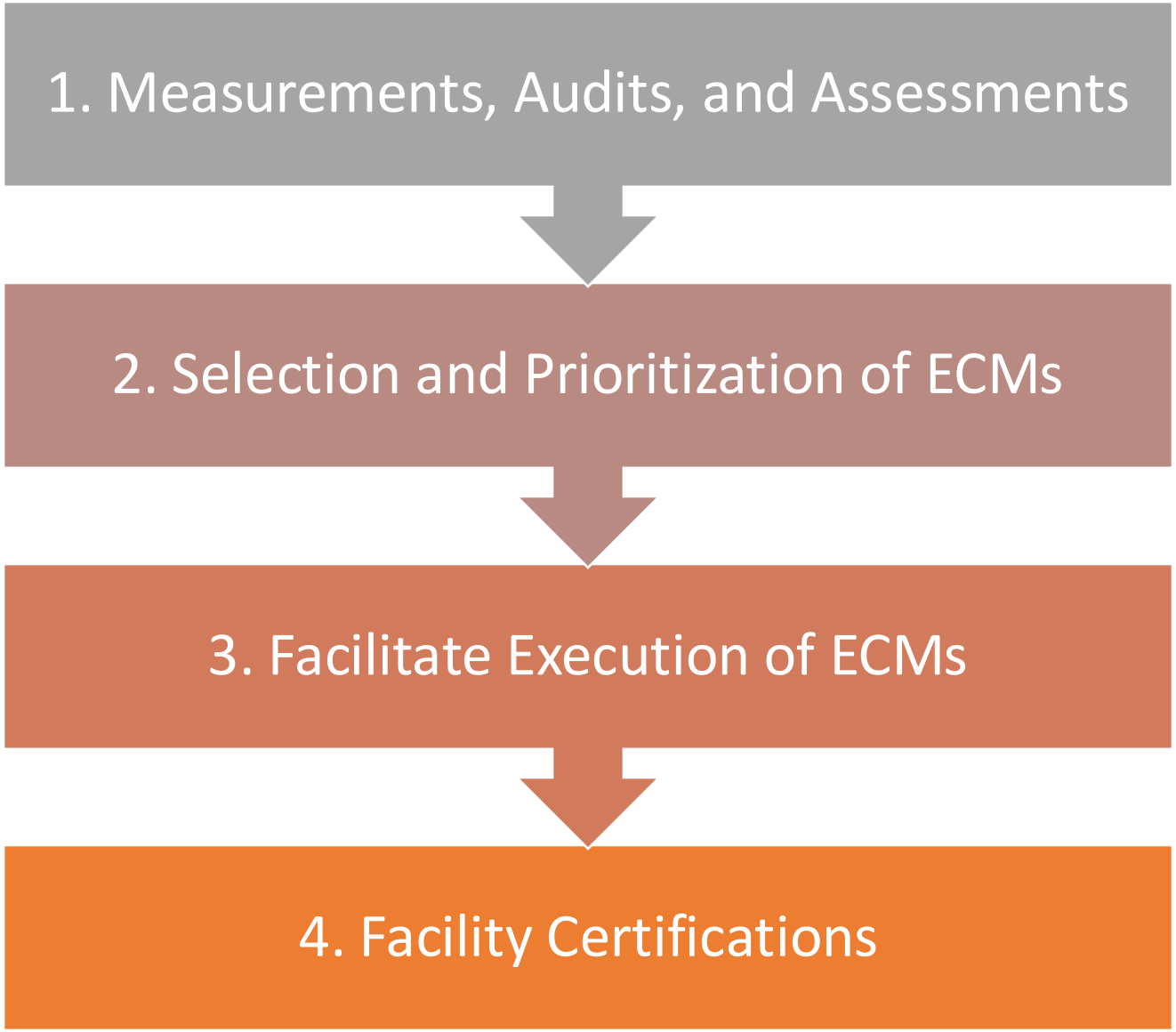
See Appendix A for links/summaries

Energy Manager Responsibilities

Starting point for driving energy efficiency

Categories of Energy Manager Responsibilities

Rough grouping of tasks found in Directing Documents

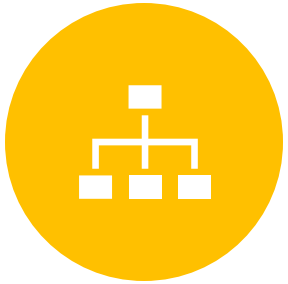


Step 1: Audits and Assessments - Local/Site

ISO 50001 Ready Playbook

Guiding Principles Compliance

Benchmarking of existing energy consumption (timelines vary)



Energy Management Plan to SCIP (Directive. 055)

Step 1: Audits and Assessments - Admin Level

- Energy Audits to DOE EISA 432 Compliance Tracking System (CTS) (Dir. 0055)
- Energy Conservation Measures (ECM) to CTS (Dir. 0055)
- Energy and Water Consumption to VSSC database (Dir. 0055)
- Energy, Water and Sewer Costs to FMS (Dir. 0055)
- Facility Information entered into Energy Star Portfolio Manager (Dir. 0055)
- Facility Energy and Water Audits (OAEM schedule /template) for Sharepoint and CTS

Step 2: Select and Prioritize ECM's

Administration, VISN, Local targets

Payback requirements of Handbook 135

Approval/submittal to SCIP

Requirements of EO 14057

Requirements of Sustainable Design Manual

Step 2a: Potential Additional Requirements

- Building Audit or Retro-commissioning report
- LCCA
- Maintenance, repairs, upgrades, or performance contracting
- Additional Training necessary to complete
- SCIP submittal for Energy/Water investments
- GMP Feasibility Study
- Water Sense Labeled Products
- Energy-Star Products or DOE-Designated Energy efficient products

Step 3: Execute ECMs

- Will vary by facility
- Execution must take into account disruption of care
- May require planning to execute during seasonal shut-downs

- Preventative Maintenance
- Repairs
- Device/Component Upgrades
- See Appendix B

Step 4: Certification

Internal Federal/VA certification

DOE-Approved 3rd Party Certification

Re-Certification of Existing Facilities

Guiding Principles Compliance

3rd Party DOE Compliance for VA Facilities

Step 4: Guiding Principles (GP) Certification

- Directive 0056 *encourages* Existing Buildings to achieve either:
  - Standards of Guiding Principles
  - Sustainable Building certification via DOE approved 3rd party
- Internal Certification can be achieved via procedures on the VA Sustainable Buildings Sharepoint Site (Sharepoint).
  - Current GP is 2020, however if buildings were certified using 2008 GP AND meet the 6th GP from 2016, they are grandfathered through 2025.
- Interpretation
  - Work toward self-certification to meet GP 2020 if not yet internally certified or grandfathered.
  - If self-certified, work toward external certification via 3rd party process
  - Guiding Principles also includes a checklist for re-certification. This should be pursued if certification is already met.

Energy Manager Capabilities

Continuing Education, Training, and Supplemental Documentation

Workforce Development-Steps 1 and 4

Audits, Assessments, and Certification-Tasks for FTE estimates

Monthly Energy/Water Reporting

ISO 50001 Ready Playbook

Building Energy Benchmarking, EUI Calculations, and miscellaneous reports

Guiding Principles Certification or Re-certification

Workforce Development-Steps 1 and 4

Audits, Assessments, and Certification-Training

VA-Internal

- Sharepoint training
- Training mandated by Executives/Secretaries

ASHE

- Video Series
- Certified Healthcare Constructor
- Energy University

Sustainable Buildings Tool

- FBPTA Compliance and Skills Gap Checker
- Core competencies List and recommended trainings
- Lists of various External Trainings

Workforce Development-Step 2

Select and Prioritize ECMs-Training

- ASHRAE-Effective Energy Management in new and existing buildings
- ASHE ECM Video Series
- ASHE Certified Healthcare Constructor
- ASHE Finance and Budgeting for Facility Managers
- ASHE Energy University (Energy Manager/Healthcare Facility Manager)
- Whole Building Design Guide

Workforce Development-Step 2

Select and Prioritize ECMs-Tasks for FTE estimation

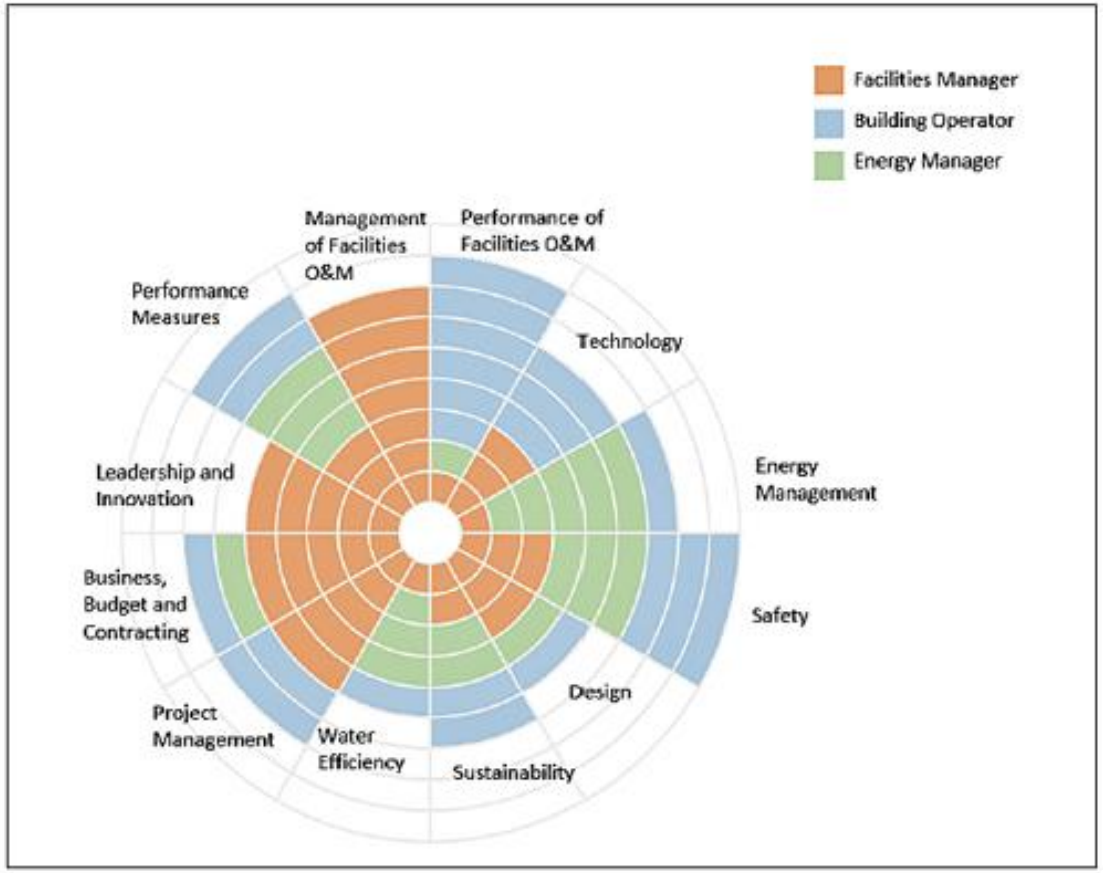
ISO 50001 Ready Playbook

SCIP Assessment

LCCA per Guidebook 135

Workforce Development-Step 3
Training to Execute ECMs-Will Vary by Facility

- ASHE Energy University (Technician)
- ASHE Energy to care (ECMs)
- Federal Building Personnel Training Act Compliance
- Whole Building Design Guide Continuing Education
- Whole Building Design Guide Workforce Development



Source: Whole Building Design Guide Core Competencies

Summary

Energy Manager Scope of Responsibilities

- Measurements/audits
- Prioritization
- Facilitation
- Compliance

Energy Manager Guidance

- Start with Directive 0056, Sharepoint, sftool.gov, Guiding Principles

Energy Manager Training

- ASHE Facilities
- ASHRAE
- CEM

Thank you!

Acknowledgements

We are grateful for the expertise, insights, and generous sharing of their time:

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Allan Federman, General Engineer at Department of Veterans Affairs

Rick McKittrick, Energy Engineer at Department of Veterans Affairs

Appendix A

Document Summaries

As relevant to Energy Managers

Directive 0055

VA Energy and Water Management Program, Dec 2014

Requires-

- Energy/water consumption data to VSSC database monthly
- Energy, water, sewer cost to VA FMS
- Energy Audit and ECM/WCM data uploaded to DOE EISA section 432 compliance tracking system (CTS)
- Facility info updated/validated quarterly in Energy Star Portfolio Manager
- EISA 432-compliant energy/water audit every 4 years (per OAEM schedule)
- Annual energy management plan at each facility, submitted through SCIP process
- Rules on utility procurement
- For energy/water investments, SCIP process. For GMP funding, CHP and renewable energy projects need feasibility study through GMP, and LCCA
- Water-sense labeled or other water conserving fixtures
- Energy Star certified equipment for 95% of all new contracting actions.
- Additional requirements for construction/renovation

Encourages

- Alternative Financing for energy/water projects (energy savings performance contracts, utility contracts, etc)

References:

- Directive 0011, Strategic Capital Investment Planning Process
- Directive 0056
- EPA-2005
- EISA-2007
- EO 13423, EO 13514

Dir. 0056: VA Sustainable Buildings Program.

Requires Compliance with All or Part of:

- Laws, Regulations, and Executive Orders
  - EO 13834 *(revoked by EO 14057)*
  - EO 14008
  - EO 14057
  - Energy Independence and Security Act of 2007 (EISA)
  - Code of Federal Regulations; 10 CFR,
    - Part 433.100
    - Part 436 (From sustainable Buildings tool)
  - Others not listed

- Direction from Organizations
  - Interagency Sustainability Workgroup (energy.gov)
  - Department of Energy
  - Office of Management and Budget
  - White House Council on Environmental Quality
  - Office of Acquisition, Logistics, and Control
  - Office of Construction and Facilities Management
  - Office of Management
  - Office of Asset Enterprise Management
  - Office of the Federal Chief Sustainability Officer

- VA/Government Documents, Certifications, Testing, Tools, or Compliance Guidelines
  - VA Sustainable Design Manual
  - VA Sustainable Buildings Plan
  - VA Directive 0011: Strategic Capital Investment Planning Process
  - DOE's Commercial Buildings Guidance
  - Sustainable Facilities Tool (sftool.gov)
  - Environmental Protection Agency (EPA) Energy Star Portfolio Manager
  - Whole Building Design Guide (wbdg.org)
  - Federal Real Property Profile Reporting
  - VA Sustainable Buildings Sharepoint Site
    *Not publicly accessible, additional information needed

- Non-VA/Government guidelines referenced in 0056
  - ASHRAE 90.1

Energy Policy Act of 2005

- 550 pages
- Title 1, Subtitle A- relates to federal programs for government buildings on energy efficiency, reporting,
- Subtitle C-Energy Efficient Products
- Title II-Renewable Energy
- Title VII-Vehicles and motor fuels
- Title IX-Electricity
- Title XI-Hydropower and Geothermal Energy
- Title XII-Climate Change Technology

Energy Independence and Security Act (EISA-2007)

From the EPA.gov summary Page:

- move the United States toward greater energy independence and security;
- increase the efficiency of products, buildings, and vehicles;
- improve the energy performance of the Federal Government; and

EISA 432 Compliance Tracking System

Hub for reporting on, tools to help report development of:

- Designation and location of facilities covered by EISA requirements
- Assignment of energy managers
- Energy and water evaluations completed at covered facilities
- Implementation of energy and water efficiency measures, including estimated cost and savings
- Follow-up status on implemented measures, including measured savings and persistence of savings
- Building benchmarking information.

Energy Act of 2020

Federal Funding for Programs and Guidelines for

- Energy Efficiency in buildings
- Nuclear energy
- Renewable energy and storage
- Carbon managemeng
- Carbon removal
- Industrial tech
- Mining
- Grid modernization
- DOE innovation

Summary Impacts of Energy Act 2020 to Federal Sustainability Community (ppt)-summarizes effects of EA2020, EO 13990 and EO 14008

Energy Act of 2020 VHA Interim Guidance

- Internal Document?
- May be related to the 2022 sustainability plan, but is not found externally

Guiding Principles for Sustainable Federal Buildings (2020)

- Response to/Complies with
  - **EO 13834/13834 Implementing Instructions**
    - later revoked (Jan/Dec 2021)
    - Comments here reflect document as-printed (when 13834 was intact)
  - EISA 2007 (high-perf. green bldg.)
  - Various items from U.S.C.
  - Env. Prot. Act of 1969
  - Other Codes, guidelines, and tools

- 6 Principles
  1. Employ Integrated Design Principles
  2. Optimize Energy Performance
  3. Protect and Conserve Water
  4. Enhance the Indoor Environment
  5. Reduce the Environmental Impact of Materials
  6. Assess and Consider Building Resilience

Guiding Principles for Sustainable Federal Buildings (2020) – cont.

- Provides Checklists for Facility Managers to:
  - Assess New Construction Projects Using Guiding Principles
  - Assess Existing Buildings Using Guiding Principles
  - Assess New Projects/Existing Buildings using 3rd Party Certification
  - Re-Assess a building for continued certification using the Guiding Principles.
- Provides reporting Requirements

1.0 - Employ Integrated Design Principles			
EB Criteria 1.1	**Integrated Design and Management**	**CORE** (Std)	
Ensure that sustainability goals for the operation of the building are established and are incorporated into the building's Operations and Maintenance (O&M) procedures. If a renovation project is planned in the building, ensure that sustainability goals have been developed as part of the project to meet the Guiding Principles and that they are incorporated into applicable project design documents.			
AND ONE OF THE FOLLOWING OPTIONS:			
Option 1	Use a collaborative, integrated process team tailored to the size and function of the building to plan, program, operate, and maintain the building. Ensure opportunities to optimize energy, water, materials, indoor environmental quality, recycling and composting, occupant health and wellness, transportation (including public transit, safety, parking, and electric vehicle charging), siting and landscape, the protection of historic properties and other cultural resources, community integration, and building resilience continue to be considered, supporting the building's function and mission throughout the life of the building.		
Option 2	For buildings with renovation projects, use a collaborative, integrated process and team tailored to the size and function of the building to plan, program, design, construct, commission, and transition to operation the building renovation. Identify team members and roles. Ensure all opportunities from Option 1 are considered in the project.		
Option 3	For buildings with renovation projects, use an integrated design process consistent with 2018 IgCC Appendix F Integrated Design.		
EB Criteria 1.2	**Sustainable Siting**	**NON-CORE** (S)	[C/I]
Follow all relevant requirements of 41 CFR § 102-76.20 of the Federal Management Regulation to make a positive contribution to the surrounding landscape, and comply with the National Environmental Policy Act of 1969, as amended, 42 U.S.C. § 4321 et seq., and the National Historic Preservation Act of 1966, as amended, 54 U.S.C. Subtitle III, Division A.			
AND ONE OF THE FOLLOWING OPTIONS:			
Option 1	In alignment with sustainable siting best practices, assess any relevant opportunities for continued protections and potential enhancements to the site's sustainability and engage with building occupants. The specific actions of the site enhancements or optimization should reflect the scope and complexity of the proposed project or building and include, as applicable and technically feasible, the following: **1)** mitigate any potential or existing impacts to neighboring prime farmland; **2)** take action to enhance, mitigate, and preserve existing areas with permeable soils; **3)** minimize potential harm to or within the floodplain; **4)** protect and conserve existing landscapes, wetlands, forest, and wilderness areas; **5)** if impacting site, minimize site disturbance; **6)** implement policies and programs to preserve threatened or endangered species and their habitats, including pollinators' habitats; **7)** optimize linkages and connections to surrounding destinations and neighborhoods; **8)** continue use of historic properties, especially those located in central business districts; and **9)** enhance appropriate security design parameters.		

Sustainable Facilities Tool

- GSA Website
- Provides links to several training resources, learning topics and links to various tools

Key links at site

- Energy Facility Topics
- Cost-Effective Upgrades assessment tool
- Career training/compliance training (requires login)
- Sustainability project guidelines and tools

ISO 50001 (2018)

Contains playbook tasks to measure, benchmark and address energy use items.

Designed for facility/energy managers to better understand Energy Conservation Measures and to implement an energy management system.

From ISO website:

- Develop a policy for more efficient use of energy
- Fix targets and objectives to meet the policy
- Use data to better understand and make decisions about energy use
- Measure the results
- Review how well the policy works, and
- Continually improve energy management

ASHRAE 90.1

Energy Standard for Sites and Buildings Except Low-Rise Residential Buildings

- Defines energy metrics to be met via 2 paths
  - Prescriptive (defines efficiencies of equipment/systems)
  - Total Systems Performance Ratio - TSPR (energy analysis of entire building allows for tradeoffs)
- 2022 version includes guidance for alternative assessment methods (carbon, site/source energy)
- Updated every 3 years.
- Organizational publication, requires adoption, check current adoption requirements
- Additional ASHRAE standards
- 189.1 Standard for the Design of high-performance Green Buildings
- 36 High Performance Sequences of Operation for HVAC Systems

EO 13834: Efficient Federal Operations (revoked)

- Issued May, 2018
- Implementing Document Published April, 2019
- Referenced in most recent **Guiding Principles document-Dec 2020**
- Partially revoked by EO 13990 (Jan 20, 2021)
- **Directive 0056** was re-issued August 31, 2021
  - Makes reference to 13834 and Implementing Document (no mention of partial revocation)
- Fully Revoked by **EO 14057** (Dec 13, 2021)
- **Implementing Instructions for EO 14057** were issued by the White House Council on Environmental Quality (Aug, 2022).

Interpretation by author

- Bulk of EO is generalized guidance to reduce use of water/energy, along with responsibilities of Agency Executives to implement and assess current procedures and weigh proposed actions.
- Assume contents of Implementing Document are still valid, even though the EO itself has been revoked.
- EO 13834 granted the Council on Environmental Quality (CEQ) the ability to amend directives from 13834 and its implementing instructions. Since the EO and the allowance within it were soon revoked, the implementing instructions are treated as if intact.
- Since 14057 fully revoked 13834, and since the implementing instructions for EO 14057 largely in parallel or overlap the intent and content of the 13834 documents, 13834 was ignored in this document.

EO 14057: Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability

- Issued December 08, 2021
- Outlines plan to achieve environmental goals, including:
  - Reduce fleet emissions (ZEV procurement)
  - 50% building emissions reduction by 2032
  - Net-zero building portfolio by 2045
  - 65% reduction in Greenhouse gases from 2008 levels by 2030
  - Net-zero emissions from Federal procurement, including promotion of construction materials with lower embodied carbon.
- Agency heads develop targets, sustain. plan
  - Plans to be reviewed and progress annually reviewed by CEQ and OMB
- Establishes Working groups for all targets
  - Each working group requires regular reporting
- Coordinates with EOs 13985, 13990, 14005, 14008, 14017, 14030
- Achieving targets will require:
  - Prioritization of energy efficiency
  - pursuit of building electrification
  - Phase-out of on-site fossil fuel use
  - Pursue pollution free energy retrofits
  - Whole-building commissioning
  - Space reduction/consolidation
  - ECMs
  - Implement **Guiding Principles**
  - Performance contracting (**Energy Act of 2020, section 1002**)
- Office of Personnel Management will develop plan for expanding sustainability and climate training
- (Re-)Establishes Federal Chief Sustainability Officer
  - Funded by EPA
- Agency heads can apply for exemptions to compliance requirements

Implementing Instructions for EO 14057

- Agencies must make their own Sustainability Plan
  - Sustainability and Climate Action Plans must be developed annually
  - Plan reporting timeline set by agency (default is yearly, June 30)
  - Targets for scope 1,2. reduction plans for 3.
- Various reporting requirements as well, many require local data
  - Energy/water use and metering
  - GHG emissions, CFE
  - Benchmarking and audit reporting
  - Implementation of ECMs and investments in efficiency
- Reporting Requirements (agency)-section 3.4
  - Annual Energy Management Data Report to DOE-FEMP
  - EISA (2007) 432 Compliance tracking
  - FAST (DOE) for vehicles
  - Federal Real Property Profile Management System (FRPP-MS) to GSA for real property data and sustainable building data
- Emission Scopes:
  - 1-from agency-owned sources (cars, boilers, construction)
  - 2-as a result of purchased energy (steam, electric)
  - 3-from non-owned sources, generated in agency-related activities (travel, energy transmission losses, employee commutes)

VA Sustainable Design Manual

- Compliance required for all construction, renovation and non-recurring maintenance
- For major and minor construction projects
- Requirements for Integrated Design, LCCA, energy modeling, and Commissioning
- Guidelines for implementing renewable energy
- Cites Guiding Principles
- Requires systems sub-metering (depending on building SF and system)
- Current version (2017) requires 30% improvement of building performance from ASHRAE 90.1-2007

VA Sustainable Buildings Sharepoint Site

- Comply with sustainable building requirements per Dir. 0056
- Federal Real Property Profile Reporting
- OAEM Internal Certification instructions for compliance with Dir. 0056
- Centralized Staff Training Resources (Dir. 0056)
- Not externally accessible

Appendix B

?

Workforce Development-Step 3

Execute ECMs-Common ECMs

HVAC

- Equipment Preventative Maintenance

Infiltration

- Seal windows and doors

Controls

- Demand-based
- Occupancy-based
- Optimum Start/Stop
- Time-based
- Variable Speed equipment
- Economization

Monitoring

- Equipment energy consumption
- Supply/return temperatures

Water

- Low-Flow and/or Low Consumption devices

Equipment

- Steam Trap Replacement

Insulation

- Piping/Duct
- Envelope

Electrical/Lighting

- Upgrade to LEDs
- Utilize Daylighting and smart lighting controls
- Exterior Lighting and controls

Others

See Sustainable buildings tool for more examples of low-hanging fruit by visiting the cost-effective upgrades tool at the Sustainable Facilities Tool website