

# Medical Devices Market Characterization Study

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## The Challenge

Millions of medical devices are used in healthcare facilities and home health settings every day. While critical for maintaining life-sustaining functions, diagnosing diseases and disorders, and enhancing health and wellbeing, these devices consume a substantial amount of power, and energy efficiency opportunities are poorly characterized and not well understood. This is further complicated by the diversity of equipment types, models, and use cases.

## The Study Objectives

VEIC researchers aimed to characterize the market for ten medical device types. Their goals were to:

- Quantify the potential for energy savings through device power management.
- Identify opportunities and barriers for procuring and using higher-efficiency devices.
- Identify the most important user information and instructions for power management.
- Provide recommendations on future research opportunities to incorporate medical device efficiency into utility programs.

## Key Practices to Optimize Energy Efficiency



### Utilize Power Management

Turn devices off or use low-power modes when devices are not in use.

### Establish Clear Protocols

Educate staff on how to use devices to optimize energy.

### Practice Strategic Procurement

Purchase higher-efficiency devices or devices with automated power management.

# Key Practices to Optimize Energy Efficiency

## Absence of Regulations & Standards:

- Medical equipment is typically exempt from energy efficiency regulations.
- Residential air cleaners are the only medical devices with published energy consumption standards.
- Limited efficiency standards are emerging. The EPA is currently developing an ENERGY STAR® specification for MRI machines.

## Healthcare & Home Health Needs:

- End-users need clear and easily accessible protocols and training on how to increase energy efficiency through power management.
- Stakeholders want guidance from ENERGY STAR on how to reduce energy consumption.

## Energy Consumption & Savings Opportunities:

- The large number of infusion pump devices in California results in high energy consumption.
- CT scanners consume less energy than MRI machines, but the energy-saving potential is still higher for CT scanners.
- The air cleaner market is the most advanced and defined, with a savings potential of 36.3 GWh annually in California.

# Key Practices to Optimize Energy Efficiency



Focus on power management to boost energy efficiency.



Create an active database of power management instructions that is continuously updated and easily accessible to end-users.



Develop metering guidelines to standardize data collection and reduce barriers for researchers and teams metering equipment.



Develop incentive programs around the forthcoming ENERGY STAR certification.



Require manufacturers to report device energy consumption.



Conduct more research on energy use and savings to characterize diverse end-uses and load profiles.

**To access the final report for the Medical Devices Market Characterization, go to the VEIC website or scan this QR code.**

