



2023

BETTER PRACTICE



STRYKER: Energy Playbook 2.0

Stryker developed and augmented a self-assessment tool to drive a pipeline of over 120 future energy and emissions-reduction projects across the enterprise.



Defines Stryker's energy standards and provides guidance on 10 priority categories



Accompanies a financing structure for projects with less than a 7-year payback to accelerate implementation



Includes replicable case studies of successful projects by Stryker sites along with guidance, an infographic, and rules of thumb for specific energy systems

Energy Efficiency Playbook 2.0
Site Self Assessment - Standard

Site Status: STANDARD NOT ACHIEVED

Energy Efficiency System Category	Site Status	Standard	Stage 1	Stage 2	Stage 3	Stage 4	2023 Assessment Score	Score from the Site	Self-Assessment Stage	Score
Compressed Air	NA	NA								
Building Envelope	NA	NA								
HVAC and motors guidance	NA	NA								
Top 5 Energy Conservation Measures	NA	NA								
Top 5 Energy Efficiency Measures for Motors & Drives	NA	NA								
Table 2.2 energy efficient motors	NA	NA								
Factors Affecting Energy Efficiency & Minimizing Motor Losses in Operation	NA	NA								

HVAC and motors guidance

Electric motors, taken together, make up the single largest end-use of electricity in the United States. In the U.S. manufacturing sector, electric motors used for machine drives such as pumps, conveyors, compressors, fans, mixers, grinders and other material-handling or processing equipment account for about 54% of industrial electricity consumption. Additional energy is consumed in HVAC and refrigeration equipment. Electric motors provide efficient, reliable, and long-lasting service and must require comparatively little maintenance. However, despite these advantages they can result in energy waste and excess energy costs if not properly specified and maintained.

Energy-efficient operation of industrial motor and drive systems requires attention not just to individual pieces of equipment and components, but to the system as a whole. A "systems approach" takes into account how the individual components interact, thereby shifting the focus from individual components to total system performance.

Top 5 Energy Conservation Measures

1. Turn off motors when not in use
2. Replace standard V-belts with matched or synchronous belt drives
3. Replace standard efficient motors with energy efficient/premium efficient motors
4. Reduce voltage imbalance
5. Improve power factor

Determination of Motor Efficiency

It must be clear that accurate determination of efficiency is very difficult. The same motor tested by different methods and by some methods by different manufacturers can give a difference of 2%. In view of this, for selecting high efficiency motors, the following can be done:

- A) When purchasing large number of small motors or a large motor, ask for a detailed test certificate. If possible, try to remain present during the tests; this will add cost.
- B) See that efficiency values are specified without any tolerance
- C) Check the actual input current and kW, if replacement is done
- D) For new motors, keep a record of no load input power and current.

Table 2.2 energy efficient motors

Power loss area	Efficiency improvement
Use of thinner gauge, lower loss core steel reduces eddy current losses. Larger core adds more steel to the	

Energy Playbook 2.0

CMF/China Score (2022 Vs 2021): 27/28
 JR Score (2022 Vs 2021): 27/28

Category	2021 Average Score	2022 Average Score	Score at Level 4 or below	Score at Level 3 or below
Lighting	27	33	15/30	1
BMS	23	38	12/28	1
Behaviors/Idle Load	13	21	4/30	0
Compressed Air	30	27	7/29	1
HVAC - Motors	28	25	7/28	0
Production Equipment	18	22	2/22	0

Energy Playbook 2.0 Result

Basic: 27/28
 Standard: 27/28
 Advanced: 27/28

Table 2.2 energy efficient motors

Site	Score (2022 Vs 2021)
Amesbury	(27/28) ↑
FT Leadville	(27/28) ↑
Lowville	(14/24) ↑
Midvale	(27/28) ↑
Tullahoma	(26/26) ↑

IR Energy Playbook 2.0 Opportunities for 2023

Energy Category	Opportunities	IR Potential	Lowest	Highest	Tullahoma
LED			WIP		
BMS			WIP		
Behavior			WIP		
Compressed Air			WIP		
HVAC			WIP		
Production Equipment			WIP		
Quality Control			WIP		
Water			WIP		
Waste			WIP		
Quality Control			WIP		
Natural Gas Alternatives			WIP		

Recommendations

- Behaviors - Sustainability walks, treasure hunts etc.
- Quality Control - Solar PV installations