Leveraging Lean manufacturing to support energy management

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Energy management coach

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ieso
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Powering Tomorrow.

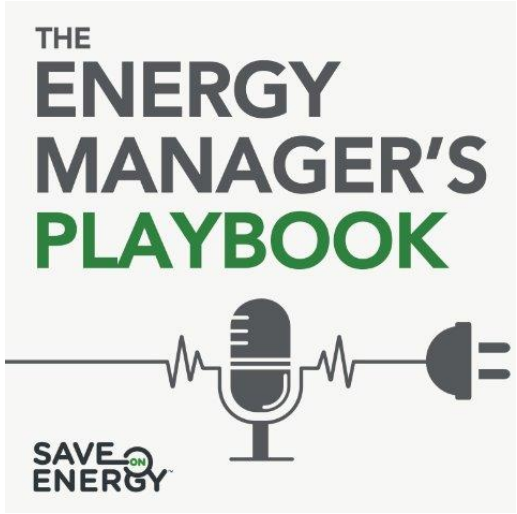
SAVE ON ENERGY
POWER WHAT'S NEXT

Type it in the chat!

When a Lean improvement reduces cycle times or defects in your organization, what usually happens to energy use?

1. It is measured and discussed
2. It changes, but we do not track it
3. It is assumed to improve automatically
4. It is rarely considered
5. Not sure

A Podcast by Save on Energy: The Energy Manager's Playbook



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Presented by IESO's Save on Energy training and support team:

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- Industrial, institutional, commercial and municipal sectors
- Challenges, successes and practical insights
- Bite-sized, high-impact episodes.

XLerate program

Project feasibility study funding

50% cost shared up to $100,000

Incentives of $300/MWh

Up to 75% of eligible costs, up to $15 million

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from initial scoping to measurement and verification

- ❑ Minimum project **electricity savings of 600 MWh per year**
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- ❑ Projects must be completed **within five years of the execution of the participant agreement**
- ❑ Projects must have an IPMVP-adherent **Measurement and Verification (M&V) Plan**

Click here for more details on the XLerate program

Follow along in the participant workbook!

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Watch for this icon to help follow along

Have the workbook open

Find the workbook:

- In the invitation
- In the chat


SAVE ON ENERGY

LEVERAGING LEAN MANUFACTURING TO SUPPORT ENERGY MANAGEMENT

PARTICIPANT WORKBOOK

Many organizations run Lean and energy management in parallel. That separation can hide an important truth: the same "waste" you work to remove in Lean often shows up as avoidable energy use.

In this 60-minute presentation, you'll see how Lean waste categories translate into energy waste, and how leading teams are uncovering "Lean-Energy" wins that improve productivity, reduce costs and support decarbonization without creating a separate program. The session reframes Lean as an energy lens and equips you with a clear next step to apply this approach in your organization.

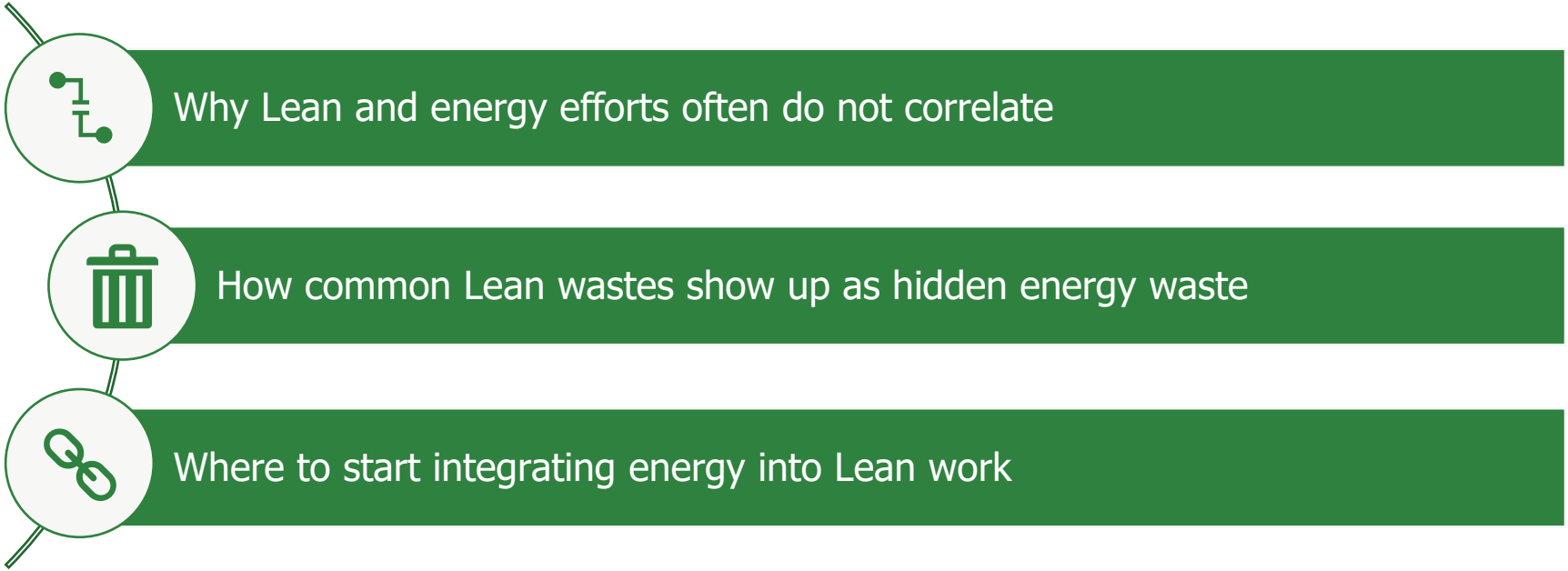
IN THIS WORKSHOP, PARTICIPANTS WILL:

- Understand how the Lean waste categories connect to common energy inefficiencies, and why integrating the two efforts can reveal "hidden" savings.
- Recognize what Lean-Energy opportunities look like in the real world by unpacking a few short, practical case examples (what changed, what shifted, what results followed).
- Identify one high-leverage place to start (a process, meeting or improvement event) and the one conversation to initiate next week to connect Lean and energy management in your organization.

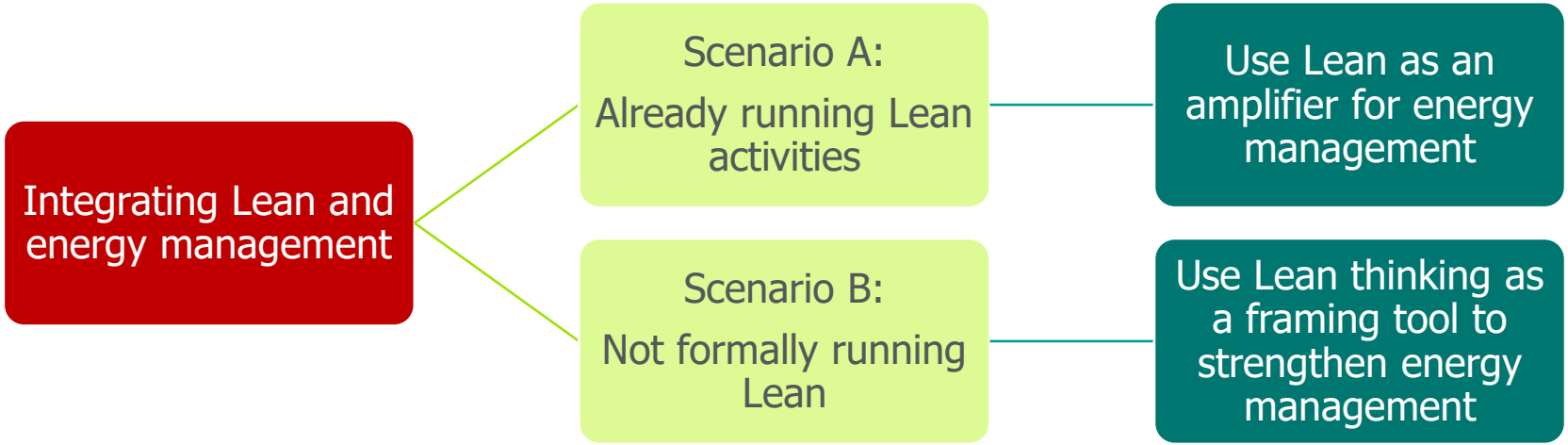
This workshop will be hosted via Microsoft Teams.

For instructions or troubleshooting please see the last page of this workbook.

Finding energy waste through a Lean lens



Our goal


Integrating Lean and energy management
Scenario A:
Already running Lean activities
Use Lean as an amplifier for energy management
Scenario B:
Not formally running Lean
Use Lean thinking as a framing tool to strengthen energy management

Two improvement stories

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Kaizen on bottleneck process:

- Cycle time reduced
- Defects reduced
- Energy impact assumed but not discussed

Lean-only

Equipment efficiency upgrade:

- Major energy user identified
- Equipment upgraded for efficiency
- Process realities and operators not engaged

Energy-only

Same goal but different definitions

Lean defines waste as any activity that does not add customer value

Energy management defines waste as any unnecessary energy use

Type it in the chat!

Where have you seen something like this in your organization? Was it a Lean win that ignored energy or an energy project disconnected from operations?

What gets missed without integration

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- Energy projects that do not stick operationally
- Missed double wins (cost, capacity and emissions)
- Missed opportunities to build stronger project business cases
- Weaker improvement stories for leadership
- Lean projects miss out on incentives as funding sources

Lean tools

Enhancing Lean tools with an energy lens

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Value stream mapping (VSM)
Add energy intensity overlays

Kaizen and Gemba walks
Spot energy waste on the floor

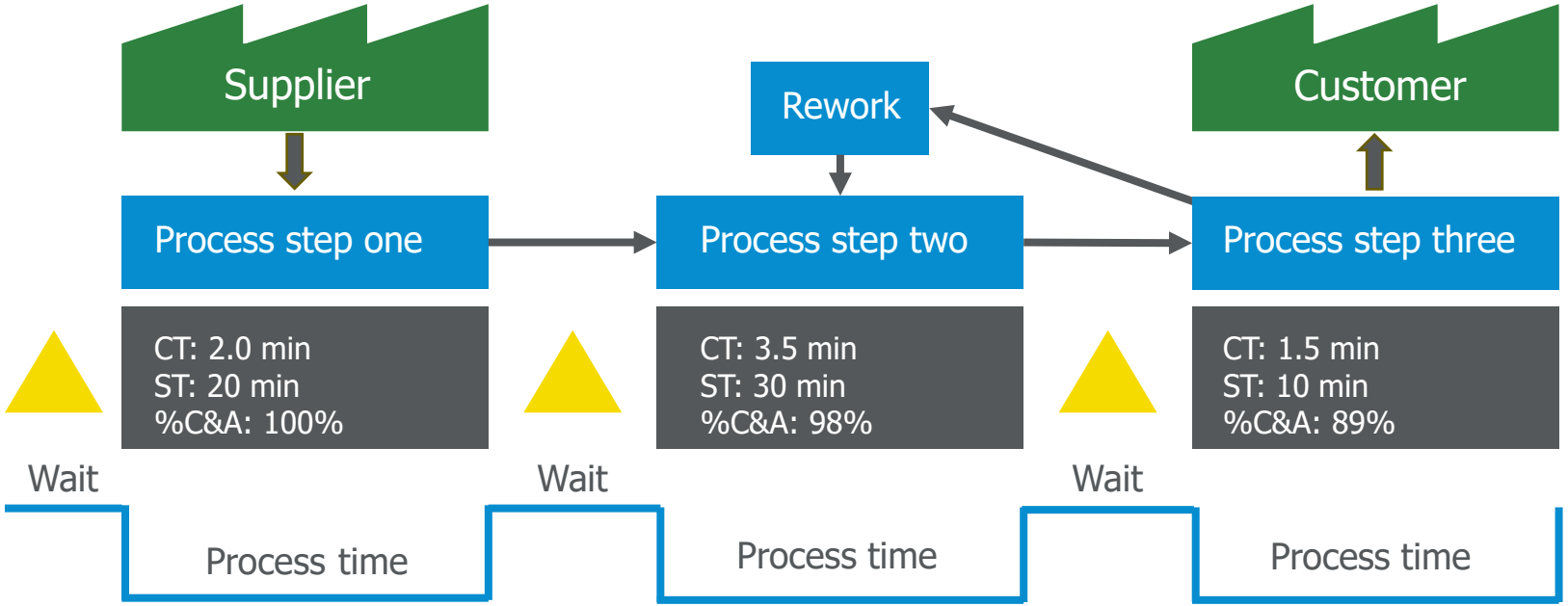
Poka-Yoke
Prevent errors and energy waste

Just-in-Time
Energy only when needed

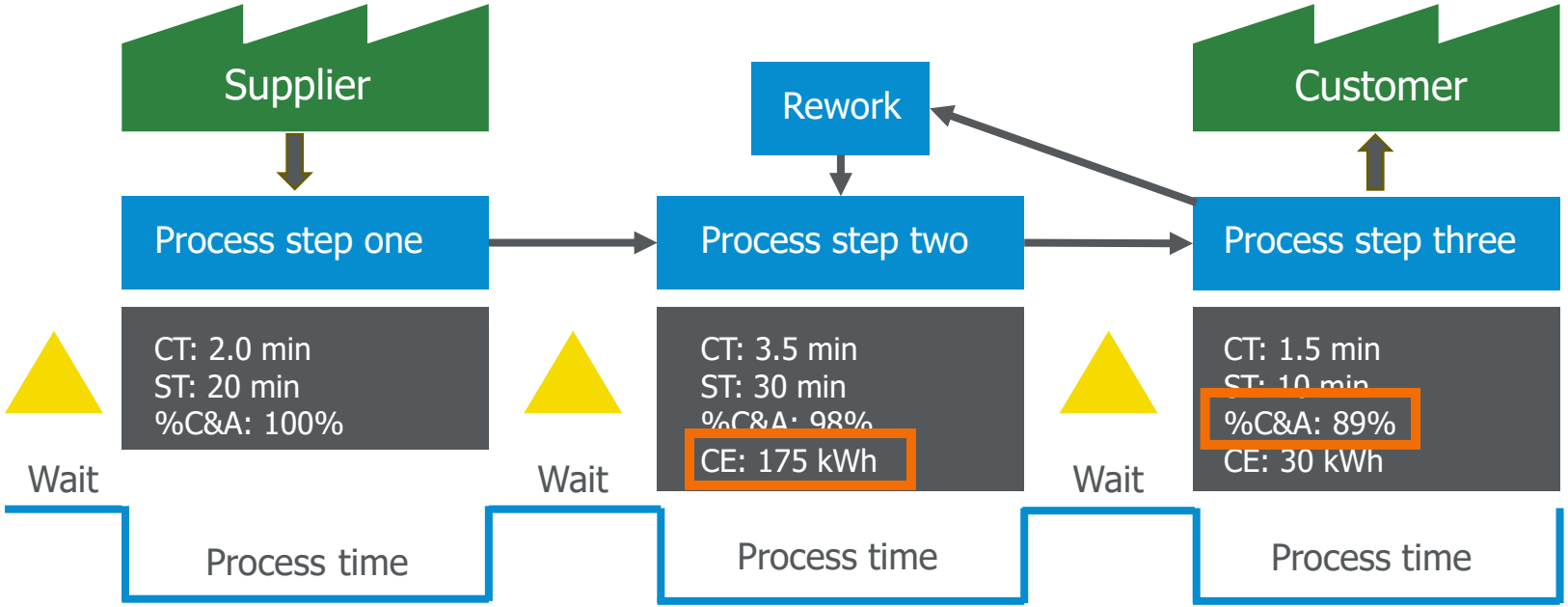
An energy lens does not add new tools.

It enhances the ones you already use.

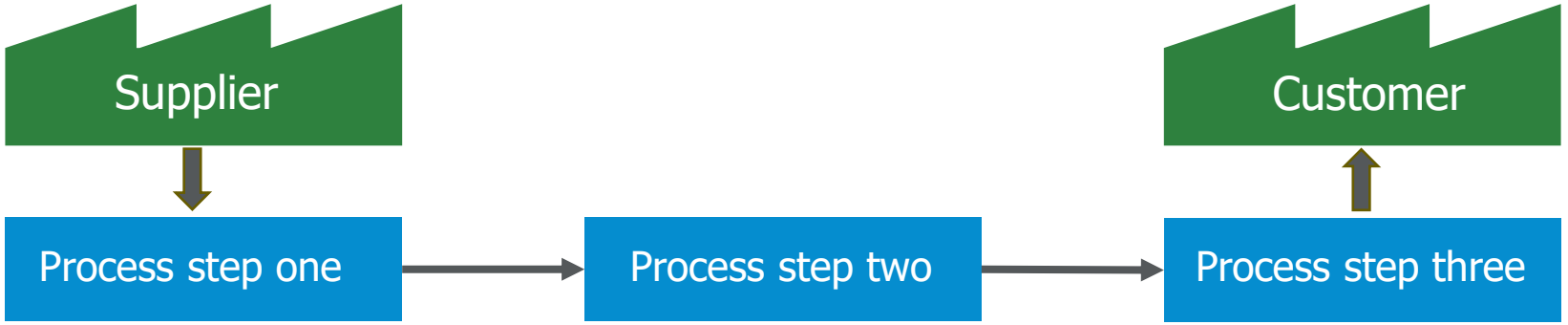
Value stream mapping (VSM) (1)



Value stream mapping (VSM) (2)



Value stream mapping (VSM) (3)



Lean metrics: cycle time, yield

Energy key performance indicators (KPIs): energy per unit, energy per batch

Gemba walks and Kaizen

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Lean Kaizen:

- Flow
- Standardization
- Quality
- Lean wastes

Energy Kaizen:

- Equipment left running
- Leaks, friction losses and malfunctions
- Misapplication or underutilization
- System imbalance

Poka-Yoke means “mistake-proofing”

Lean: Errors often trigger rework, restarts, reheating, remelting or re-running equipment.

Energy: Errors lead to overridden setpoints, data errors or equipment being left on.

Just-in-Time (JIT)

Energy lens adds:

- Use only the energy that is needed, when and where it is needed
- Match energy supply to demand

Case study: A Lean project uncovered more than expected (1)

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Injection moulding

- VSM identified high scrap and rework rates on one machine (8%).
- Root cause analysis determined the issue was the old hydraulic machine that was starting to have trouble maintaining tolerances.
- It was difficult to justify the upgrade based on rework reduction.

Case study: A Lean project uncovered more than expected (2)

Adding an energy lens indicated upgrading to a new servo-driven machine could:

- Reduce scrap rates from 8% to 2%
- Consume 40% less energy
- Reduce grinder energy consumption by 75%

Estimated savings:
655 MWh/yr

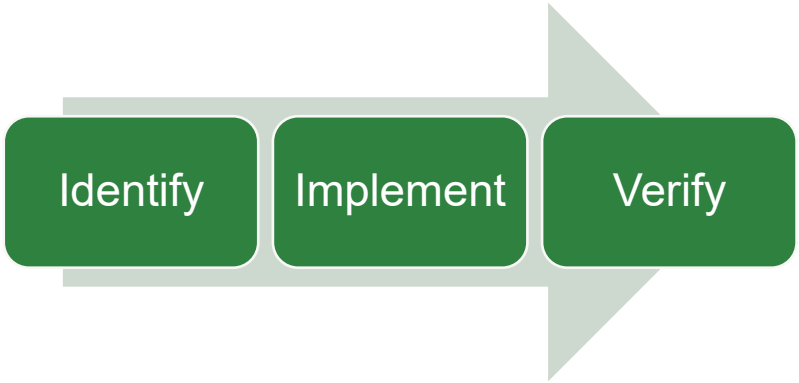
Case study: A Lean project uncovered more than expected (3)

The new perspective revealed:

- Reprocessing parts means duplicated energy consumption
- Machines remained powered during waiting periods
- Auxiliary systems were run continuously
- Hydraulic machine demonstrated declining performance and efficiency

Case study: A Lean project uncovered more than expected (4)

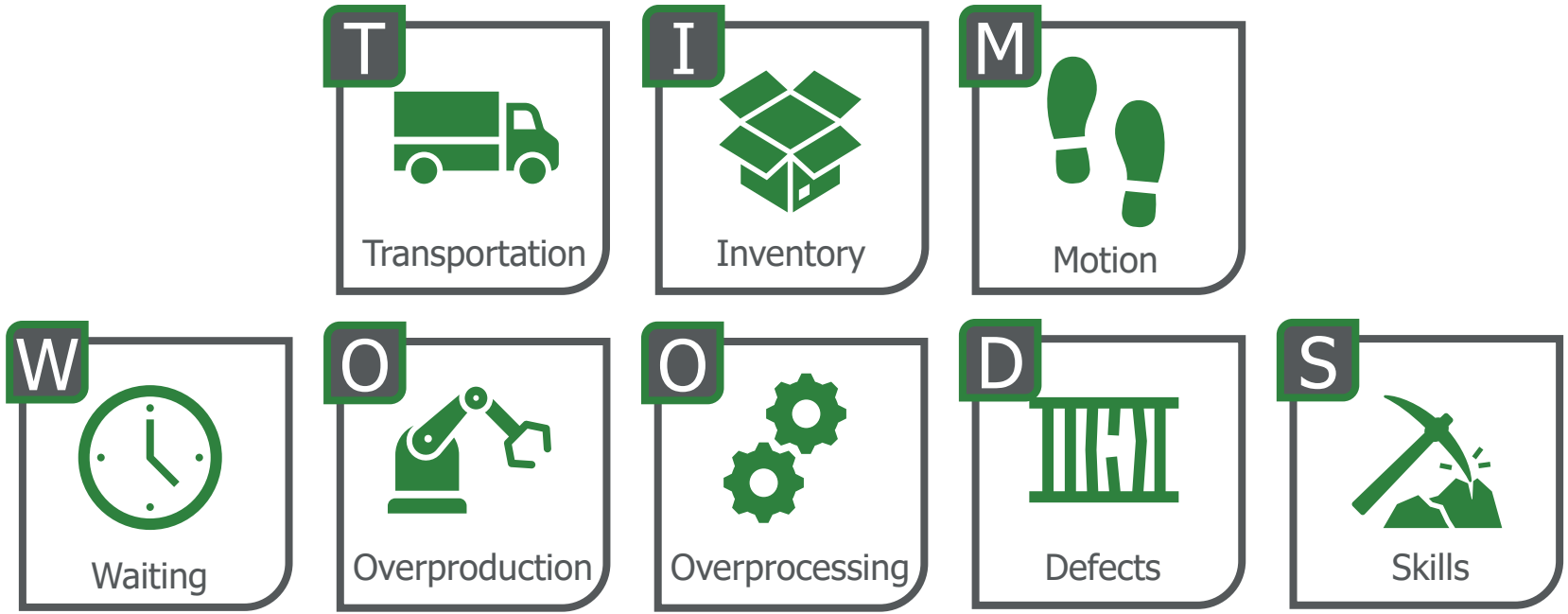
It was a measurable and verifiable energy project tied directly to an industrial process.



With the help of XLerate, a $420,000 equipment upgrade that was not feasible could:

- Qualify for an incentive covering 43% of the capital cost
- Reduce the simple payback period to less than three years based on energy savings
- Become a feasible project when considering production and energy benefits

Every Lean waste has an energy footprint



Transportation

- Moving materials requires powered equipment such as forklifts.
- More transport means longer runtimes and higher energy use.
- Poor layout increases energy consumption.

Inventory

- Excess inventory requires storage and maintenance.
- Storage drives heating, cooling, refrigeration and lighting.
- Energy is consumed over time without adding value.

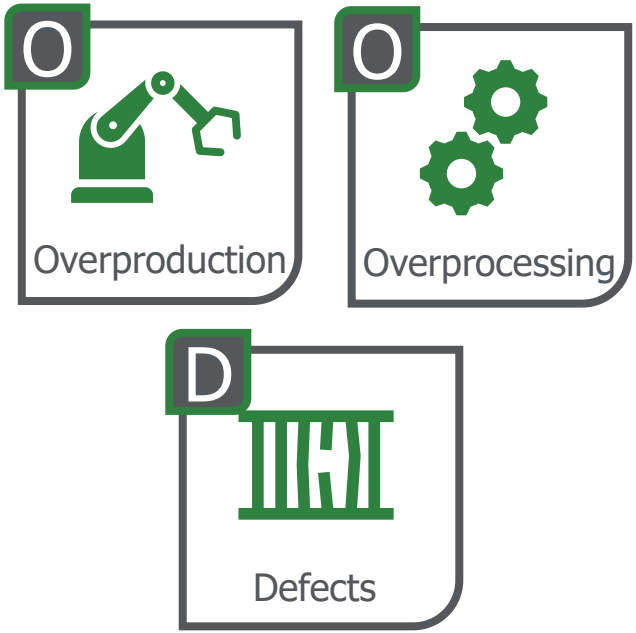
Motion

- Extra motion means machines and systems are run longer.
- Frequent starts and stops increase motor energy use.
- Long cycle times increase energy per unit.

Waiting

- Idle processes are rarely shut down completely.
- Equipment still draws electricity, compressed air and cooling.
- Energy is used without producing output.

Overproduction, overprocessing and defects



- Making more than needed increases runtimes and energy use.
- Extra steps consume energy without adding value.
- Rework requires reheating, remelting and rerunning equipment.

Skills (underutilized)

- Not having useful skills on your energy team
- Not having staff identifying energy-saving opportunities or ideas

What integrating energy into Lean can look like

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- The VSM identified PT and flow distribution issues in the warehouse.
- Kaizen/Gemba walk identified significant unnecessary inventory, transportation and inventory waste as well as the associated energy waste to heat, cool and illuminate the large warehouse.
- Proposed plan to reduce warehouse size and reorganize the space so frequent items were at the front.
- The Just-in-Time approach was applied to both item inventory and to lighting.

Most organizations fall into one of two situations

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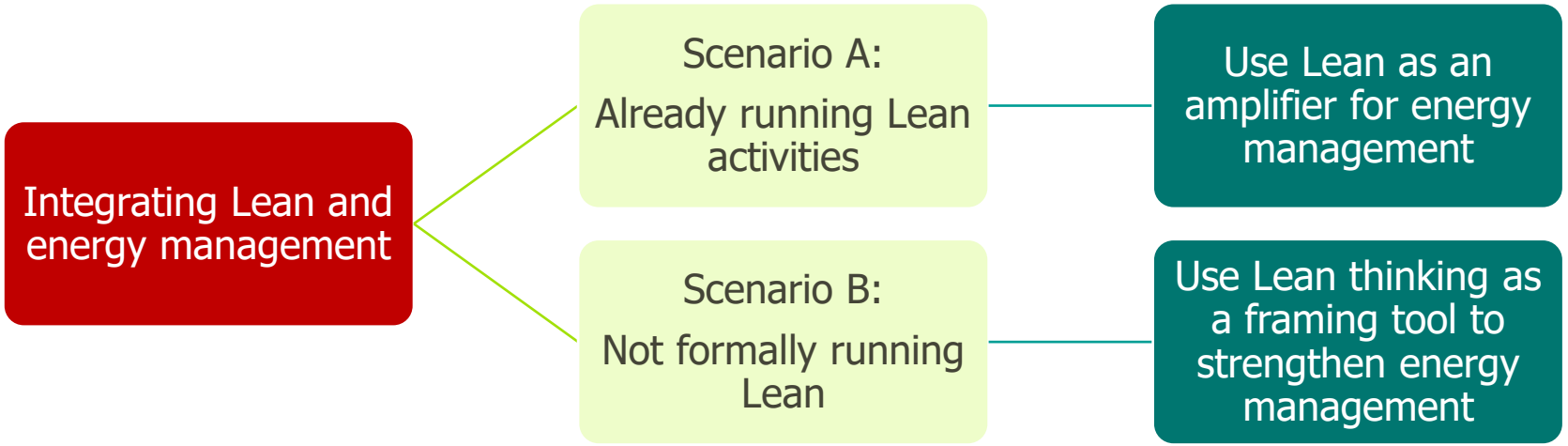

Scenario A: Already running Lean activities

What energy managers can do:

- Embed energy observations into Gemba walks and Kaizen activities
- Prompt teams to consider energy impacts when defining Lean improvements
- Make avoided energy visible alongside core Lean metrics

Why this works:

- Lean teams are already addressing many sources of energy waste.
- Energy savings stick because they are built into processes, not added as extra work.
- A small integration effort leads to long-term, repeatable energy savings.

Scenario B: Not formally running Lean

What energy managers can do:

- Use Lean waste categories to frame energy opportunities in operational terms
- Reposition energy as a form of process waste, not just a utility cost
- Bring energy considerations into process and value stream discussions
- Position energy work as part of continuous improvement, not a standalone project

Why this works:

- Framing energy through Lean is aligned with how operations and finance already think.
- This approach delivers broad business value and builds a foundation for future improvement.

Action checklists for both scenarios

Action items for scenario A (already running lean activities)		Done
Add energy observations to Gemba walks and Kaizen activities	Add 2–3 energy-focused prompts to existing Gemba checklists	☐
	Observe runtime behaviors, not just equipment condition	☐
	Capture notes or photos of energy-related observations during walks	☐
Prompt teams to consider energy impacts in Lean improvements	Add a simple energy prompt to Kaizen charters or A3s	☐
	Encourage teams to flag potential energy effects	☐
	Treat energy impacts as secondary benefits, not extra deliverables	☐
Include avoided energy alongside Lean metrics	Pair energy indicators with existing Lean results	☐
	Use directional or relative indicators if precise data isn't available	☐
	Share energy impacts in the same forums as Lean results	☐

Action items for scenario B (not formally running lean)		Done
Use Lean waste categories to frame energy opportunities in operational terms	Introduce TIM WOODS as a simple way to talk about waste	☐
	Connect energy issues to familiar operational problems	☐
	Use Lean language to identify energy used without added value	☐
	Use real process examples to make the connection concrete	☐
Reposition energy as a form of process waste	Talk about energy in terms of runtime, idle time and rework	☐
	Link energy use to process inefficiencies and operational pain points	☐
	Emphasize that unnecessary energy use signals a process issue	☐
Bring energy into process and value-stream discussions	Raise energy questions during process conversations	☐
	Include energy as a talking point in process discussion	☐
	Keep discussions qualitative and directional at first	☐
	Highlight steps with long runtimes or frequent idle operation	☐
Position energy work as part of continuous improvement	Frame energy initiatives as ways to improve reliability or cost	☐
	Align energy work with existing improvement efforts	☐
	Avoid launching separate energy-only initiatives	☐

Prioritizing Lean-energy opportunities

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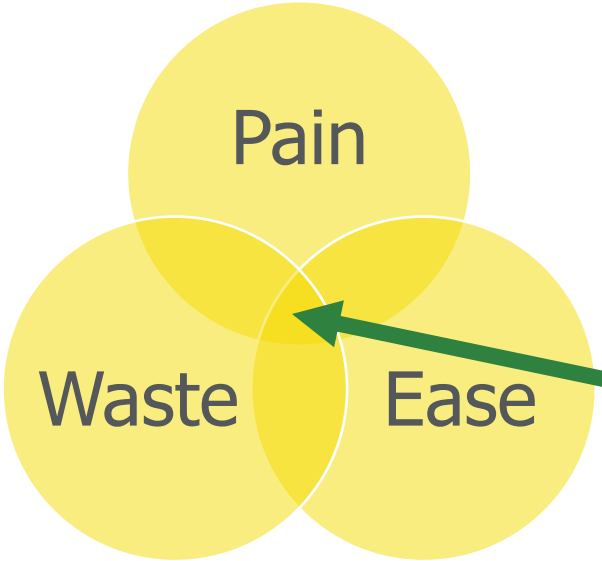

- High operational pain
- Visible energy waste
- Low disruption to production

Start where these overlap

Building momentum

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- Make energy considerations a routine part of team discussions
- Integrate energy observations into ongoing Lean activities
- Include energy in regular assessments and reviews
- Treat Lean-energy integration as an everyday practice

What is your next step?

In chat, share a key takeaway from today that you will apply in the next month.

If your organization identified an opportunity like this, what would be the next step to evaluate it further?

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Post-Webinar Support

One-on-one coaching: tailored support for managing energy resources effectively

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Thank you!

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