



Unlocking the Full Value of Energy Projects Using JUSTIFI Making the Business Case Session 3

Sarah Cooney

National Laboratory of the Rockies

September 29, 2026



U.S. DEPARTMENT
of ENERGY

Presenter for Sessions 2 and 3



- 25+ years in manufacturing
- Six Sigma and Lean practitioner
- Sectors: chemicals, pharmaceutical, and automotive
- Leadership roles:
 - V.P. Operations
 - Plant Manager
 - Operations Manager
 - Production Supervisor
 - Product Chemist

Making the Business Case—Learning Objectives (Sessions 2 and 3)

Session 2—Beyond Energy Cost Savings: Foundation for Multiple Benefits & JUSTIFI

- Understand energy productivity and multiple benefits
- Connect energy productivity to improving business performance
- Identify multiple benefits using continuous improvement
- Use JUSTIFI software to improve payback period
- Review practice assignment for JUSTIFI working session in session 3

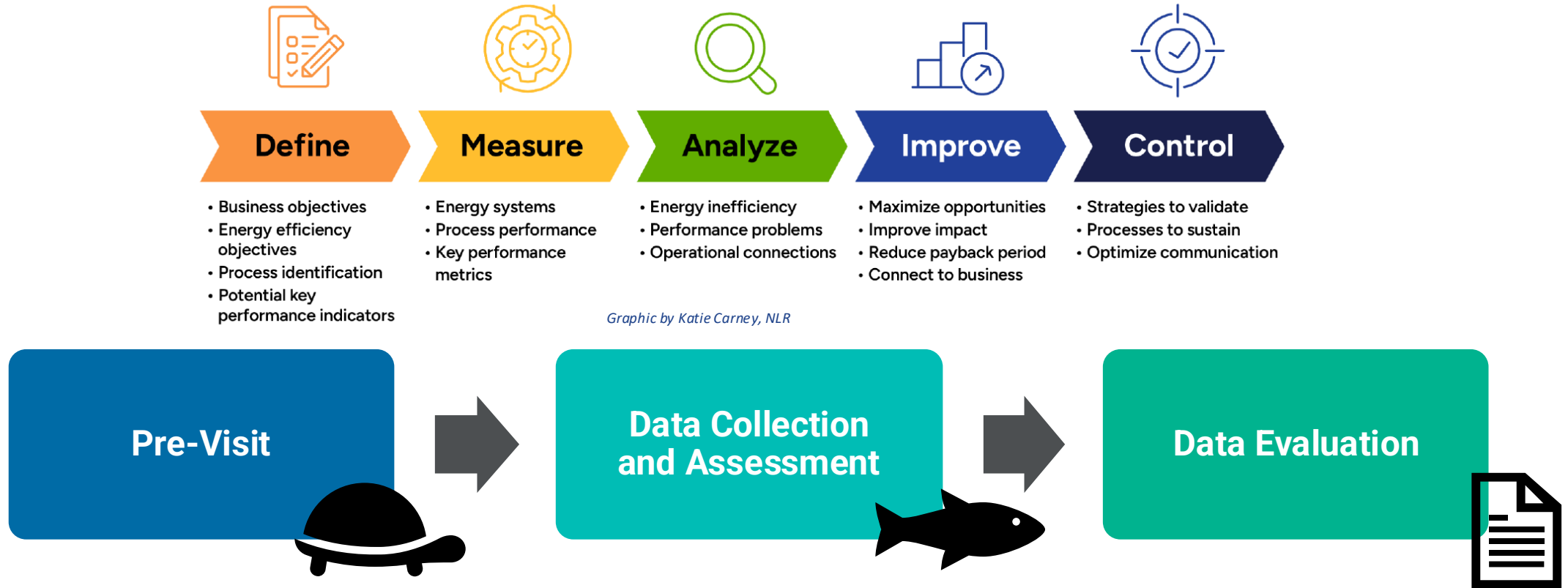
Session 3—Power Up the Business Case: Deep Dive Quantifying Multiple Benefits using JUSTIFI

- Create JUSTIFI practice project
- Generate JUSTIFI results reports
- Know where to find JUSTIFI and resources

Session 3—Power-up the business case: Deep dive quantifying multiple benefits using JUSTIFI

Agenda Topic	Purpose & Key Activities	Time
Getting Started (5 min)	Meeting attendees join. Meeting start.	10:00-10:05 am
Review Assignment (5 min)	Camper Canopies general information and Plant Manager interview	10:05-10:10 am
JUSTIFI Navigation (5 min)	JUSTIFI Splash screen features & load Camper Canopies training example	10:10-10:15 am
Phase 1: Pre visit (20 min)	From the turtle diagram	10:15-10:35 am
Phase 2: Data collection (20 min)	Energy project recommendations, fishbone diagram and multiple benefits	10:35-10:55 am
Phase 3: Data evaluation (20 min)	Executive Summary and other report and presentations capabilities	10:55- 11:15 am
Wrap up (5 min)	Review resources	11:15-11:20 am
Questions (10 min)	Conclude and mention next session 4 date and topic	11:20-11:30 am

Recalling key points



What is entered into JUSTIFI?

- Facility, energy, stakeholders, KPIs/KPMs
- Energy opportunities and multiple benefits
- Reports generated with payback results
- Generate presentations

Power Up the Business Case: Deep Dive Quantifying Multiple Benefits using JUSTIFI

- Three learning options:
 - **Option A:** Use Camper Canopies worksheet to practice JUSTIFI navigation and using tools to answer questions on the worksheet. (1 hour)
 - **Option B:** Read the Camper Canopies worksheet and work through exercises in session 3. (10 min.)
 - **Option C:** For the most industrious students, practice and complete the Camper Canopies worksheet and continue learning by entering a project of your own. (2 hours)

JUSTIFI practice: Camper canopies

Value Proposition: “We Sell Shade.”

Performance Metrics: Safety, Quality, On-Time Delivery, and Cost

Goals: Increase Revenue 20%, Reduce Defects 10%, and Reduce Cost 20%

Details

- Manufacturer makes custom, high-quality camper awnings with offerings including manual or electric, any length, and 15 colored patterns in vinyl or acrylic fabrics
- They have 2 lines: “small” for windows and doors and “large” for patio awnings which are full length of camper.
- Plant manager problems: safety incidents, defect rate on “small” line, unreliable compressor, “small” units market price pressure.

General Information	Annual Energy Information
Location: 15013 Denver W Pkwy, Golden, Co 80401	Electricity Use: 1,680,000 kWh
Building Age: 50 years	Electricity Cost: \$ 0.083/kWh
Building Area: 70,000 ft2	Demand Use: 1,500 kW
# of Employee (This facility/Total): 200	Demand Cost: \$7.00/kW
Annual Operating Hours: 4,160	
Annual Sales: \$20M	

Synthetic for teaching purposes

Interview with plant manager

- Maintenance manager says they have an end-of-life compressor which breaks down frequently 10-12 times per year.
- They only have one repair vendor who has “the guy” who knows how to fix it. Cost \$1,500 each time.
- Repair parts never in stock. Parts have a long lead time. Each service visit is at least \$500 in parts.
- The **Small** awning line uses air to move fabrics and run most of the punching equipment. They use air tools. Operators blow off debris from punches and chop saws.
- The **Small** awning line stops or drastically slows down frequently because of compressor problems. It probably has less than 1% impact on productivity. But when it happens, the supervisors must move operators to other work streams.
- There are many air leaks. Operators use colored duct tape to patch leaks. It looks like a carnival in the plant.
- The air leaks are noisy. Operators complain. They have a hearing conservation program.
- Operators prop open the emergency exit near the compressor room because it is very hot. One time an unknown person walked into the plant through the propped-open emergency exit door. That caused quite a safety risk and distraction from schedule.
- Because it was so hot, operators used too many fans, and they had a small electrical fire.

Completed turtle diagram

Please share in the chat.

Completed turtle diagram

Turtle Diagram for Energy Assessments

Understand Energy Projects Connections to Operational Improvements

Instructions:

Input - Enter energy into the "Input" box (e.g., electricity, natural gas).

Process - Enter basic manufacturing processes and equipment consuming this energy covered in the assessment.

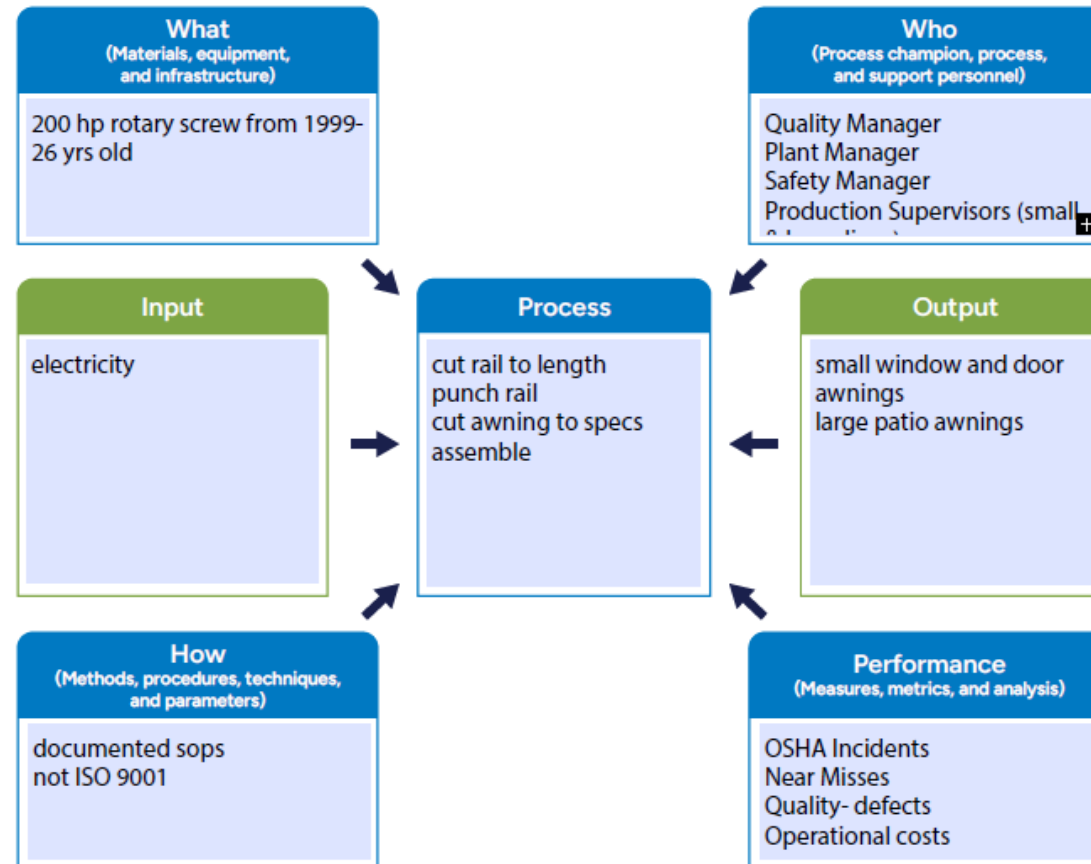
What - List energy equipment (e.g., boilers, compressors, ovens) by industrial systems impacted by the energy assessment.

Who - Enter the process champions and support personnel for those processes.

How - Enter relevant operating procedures or standards guiding operations.

Performance - List performance metrics associated with those processes, such as productivity, yield, defects, and downtime.

Output - Enter basic process outputs, such as what is made or converted.



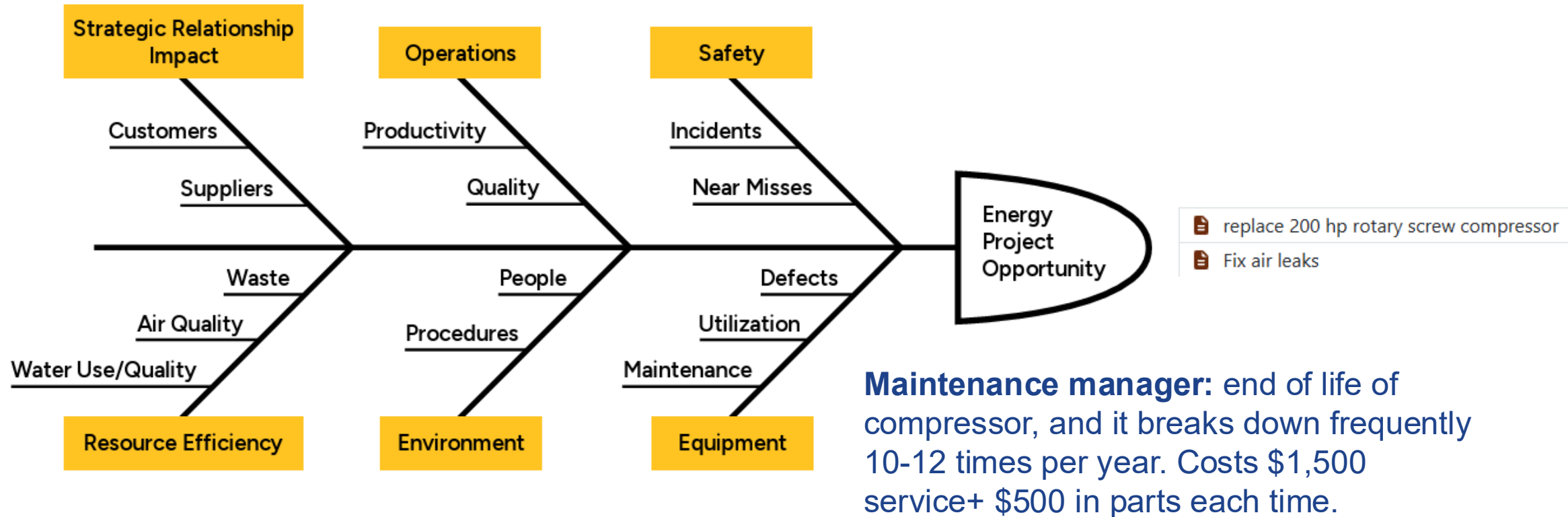
Completed fishbone diagram

Please share in the chat.

Completed fishbone diagram

Small Awning Line Supervisor estimated impact on work stoppage would be 1%. Also, it's less hot in the area and folks are more comfortable; they wouldn't get creative about cooling down. \$1,000

Safety Manager said they could eliminate 20 people from hearing conservation program. Each person costs \$500/year.



JUSTIFI

Basic Navigation

Pre-visit—Phase 1

Data Collection—Phase 2

Data Evaluation—Phase 3

JUSTIFI

Demonstration

Challenge question—Quality benefits

From the worksheet:

- You find out that when the compressor goes down, it messes up the punch press for the small awning rail.
- It not only damages the current rail, but the subsequent rails holes are also not quite aligned, causing assembly defects.
- Talk to production supervisor and quality department and add multiple benefit(s) for quality improvement achieved from installing a new reliable compressor (**hint**: scrap rate and rework costs).

Estimate any data needed.

Does anyone have a result to share?

Wrap up

- Share other practice results?
- Questions?

Review—Learning Objectives

Session 2—Foundation for Multiple Benefits & JUSTIFI

- ✓ Understand energy productivity and multiple benefits
- ✓ Connect energy productivity to improving business performance
- ✓ Identify multiple benefits using continuous improvement

Session 3—Power Up the Business Case: Deep Dive with JUSTIFI

- ✓ Create JUSTIFI practice project
- ✓ Generate JUSTIFI results reports
- ✓ Know where to find JUSTIFI and resources

Resources

JUSTIFI, templates, training presentations, user guide, and case studies.

[ORNL Industrial Resources Website](#)



Explore the Industrial Software Tool Suite



MEASUR

Improve the efficiency of your **industrial systems** and identify ways to save energy and money.

[Learn More](#) [Launch Web Tool](#)



VERIFI

Track and analyze **utility data** to enhance operational performance and resource management.

[Learn More](#) [Launch Web Tool](#)

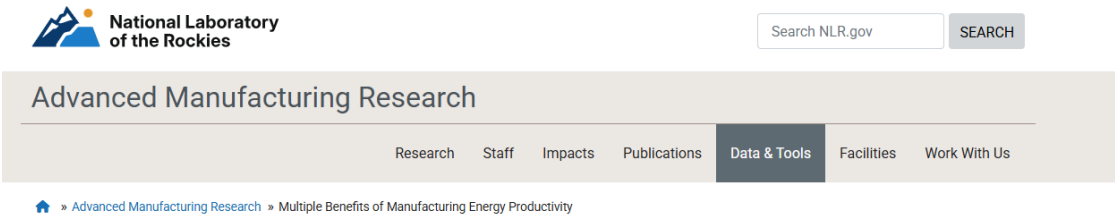


JUSTIFI

Identify and quantify **multiple benefits** from implementing energy improvement projects.

[Learn More](#) [Launch Web Tool](#)

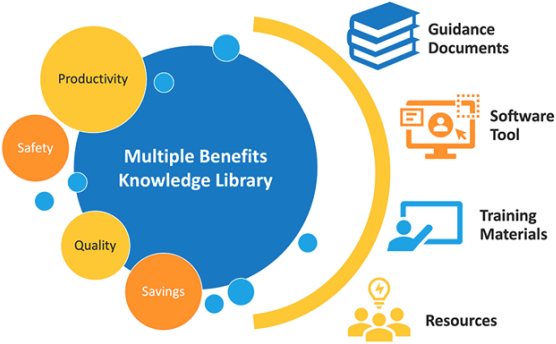
[NLR Multiple Benefits Website](#)



Multiple Benefits of Manufacturing Energy Productivity

NLR supports the identification and capture of operational improvements and cost savings (multiple benefits) associated with manufacturing energy projects.

Dedicated software tools, targeted trainings, practical comprehensive guides, and applied practical case studies can help strengthen the impact of industrial energy assessments and support performance-driven decision making.



Thank you!

Sarah.Cooney@nlr.gov



U.S. DEPARTMENT
of **ENERGY**



**National
Laboratory
of the Rockies**

 **OAK RIDGE**
National Laboratory