



# The Community Approach Minnesota Technical Assistance Program

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UNIVERSITY OF MINNESOTA  
**Driven to Discover**<sup>SM</sup>

# Welcome to the Neighborhood

- **Lincoln Park Neighborhood**
  - Hosted by Ecolibrium3
  - Sponsored by Minnesota Power





# Project Focus

- **Intern Assessment Areas**

- Water use
- Air Compressors
- Lean Manufacturing

- **Ecolibrium3**

- Benchmarking

- **Minnesota Power Assessment Areas**

- Lighting
- Chillers
- Boilers



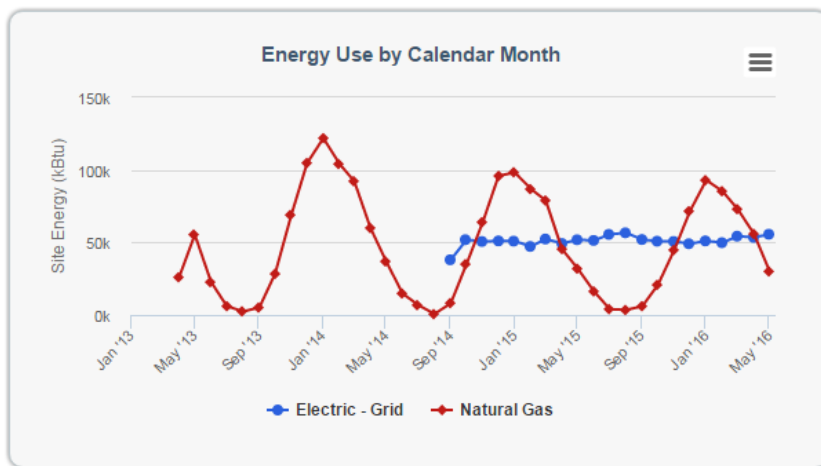
# Benchmarking

- Determine business interest
- ENERGY STAR Portfolio Manager
  - Energy and Water
  - Ecolibrium3
    - Help certify more businesses

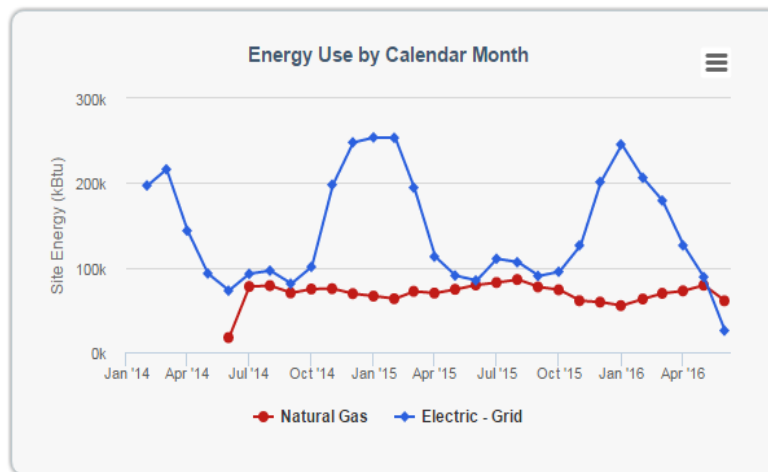


# Benchmarking Continued

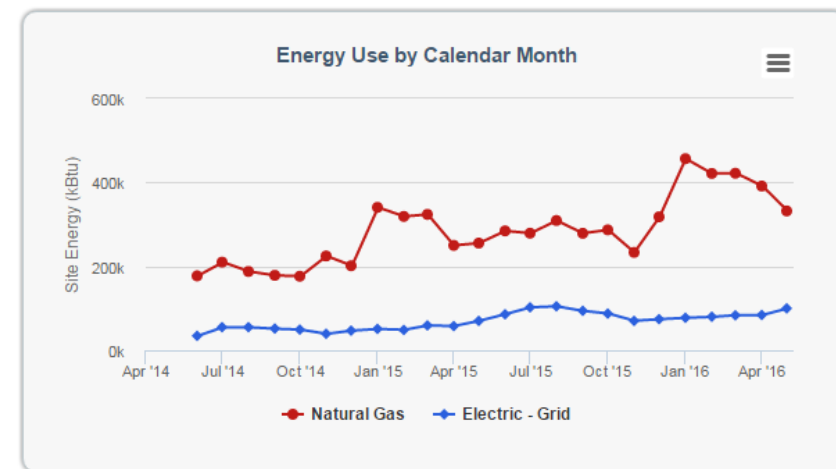
- 7 enrolled in Portfolio Manager
- Trends
  - Energy
  - Waste



Industrial Apparel Manufacturer



Hotel



Brewery

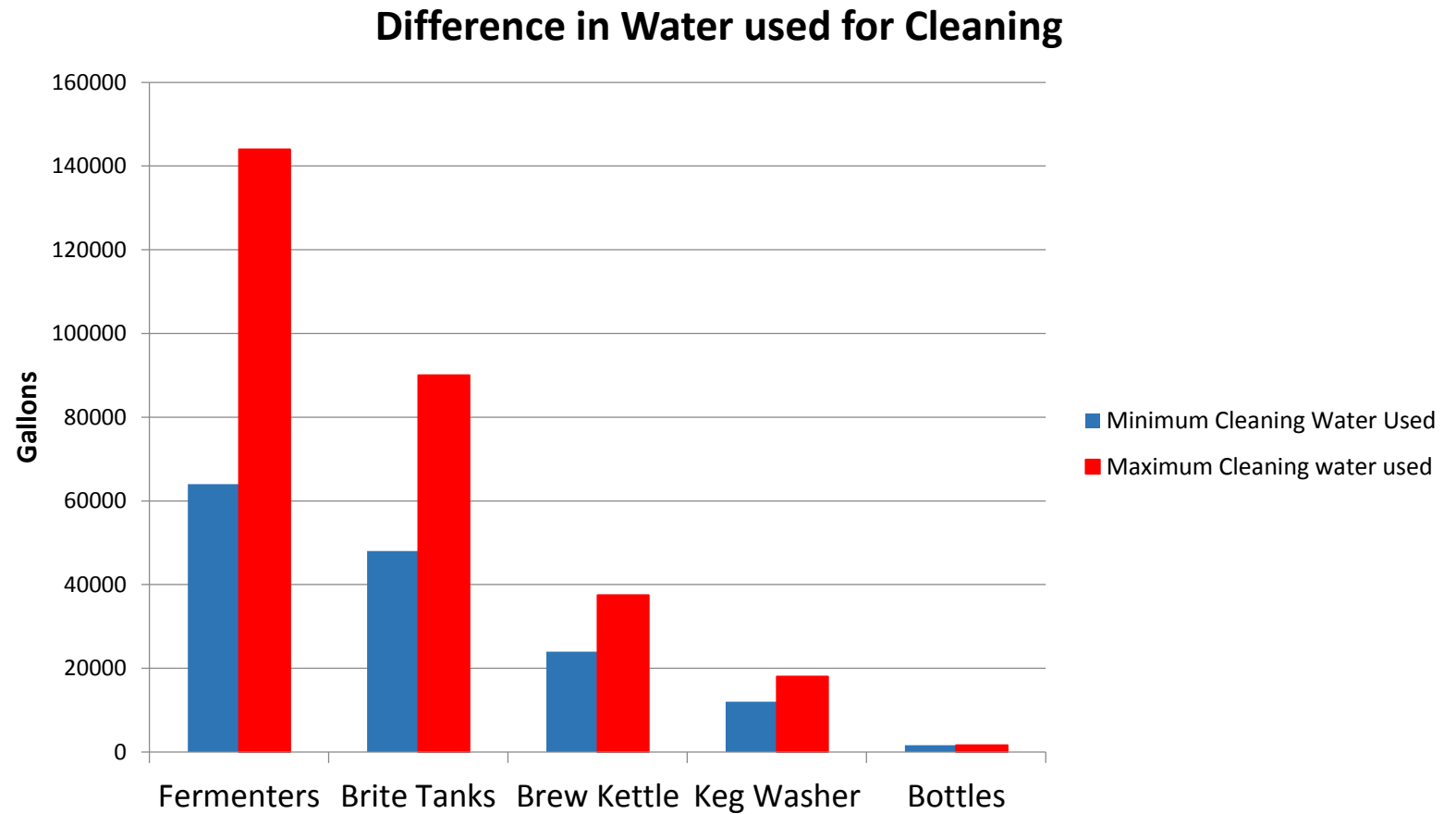
# Company A

- **Brewery**
  - General Cleaning
  - Grain Bags
- **Minnesota Power Assisted**
  - Chillers
  - Lighting



# Company A: Recommendation 1

- **Cleaning Water use**
  - Different water use amounts for cleaning
  - Target of 80 gallons per tank





# Recommendation 1 Continued

- **Water meter hose attachments**
  - Measure water used for cleaning
  - Maximum annual savings:
    - 139,900 gallons
    - \$1,600
    - Payback 1 month





# Company A: Recommendation 2

- **Tank Cleaning**

- Reuse final tank water for pre rinse in next tank
  - 34,000 gallons of water annually
  - \$400 saved annually



# Company A: Recommendation 3

- **Cleaning Nozzles**

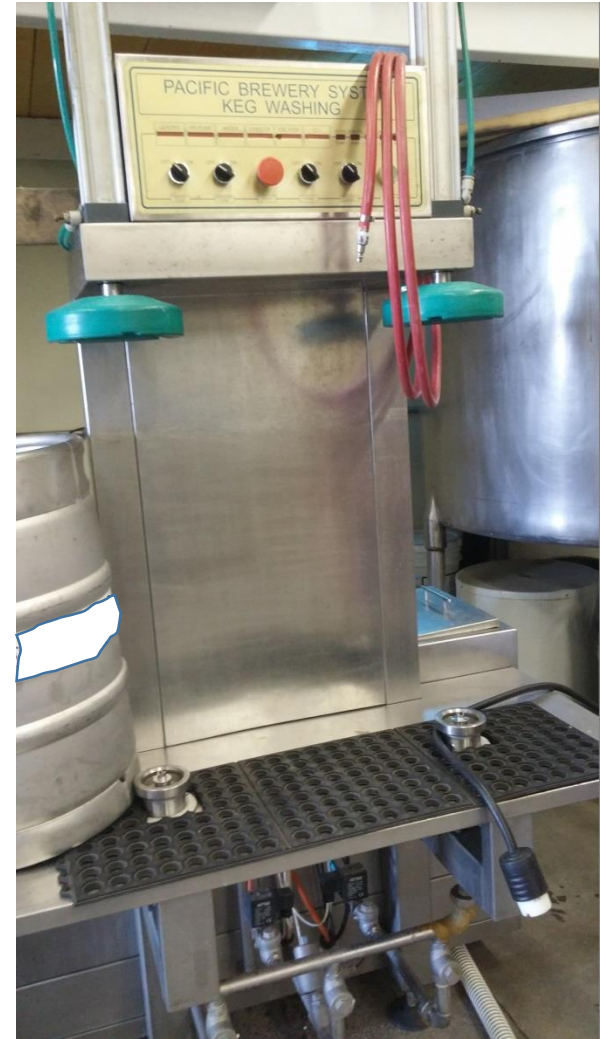
- Switch to a lower flow option
  - 10 gpm to 1 gpm
  - 13,000 gallons of water annually
  - \$150 annually
  - Payback 9 months



# Company A: Recommendation 4

- **Keg Washing**

- Reduce the number of times the kegs are washed
  - 6,000 gallons of water saved annually
  - \$70 saved annually



# Company A: Recommendation 5

- **Grain Bags**

- Around 3,000 lbs a year
  - \$360 / year
- Mn Material Exchange or similar site
- Local Interest





# Company A: Recommendation Summary

Description	Savings (\$/year)	Cost (\$)	Saved Annually	Payback	Status
Use of flow meter	1,600	120	139,900 gallons	1 month	Recommended
Reuse final rinse	400	0	34,000 gallons	Immediately	Recommended
Lower flow cleaning nozzle	150	120	13,000 gallons	9 months	Recommended
Keg Washing	70	0	6,000 gallons	Immediately	Further testing needed
Grain Bags	360	-	3,000 lbs	-	Recommended
MP 1: Remove one Chiller	1,400	3,000	17,000 kWh	1.1 years	Recommended
MP 2: Energy efficient lights	2,400	6,400	16,000 kWh	2.2 years	Recommended

# Company B

- **Industrial Apparel Manufacturer: Motorcycle suits**
  - Compressed Air
  - Taping Machines
  - Scrap Fabric
  - Value Stream Map (VSM)
- **Minnesota Power Assisted**
  - Mini split heat pumps
  - Lighting
- **Ecolibrium3**
  - Lighting Quality



**AEROSTICH**  
SINCE 1982  
*Equipment for Riders*

# Company B: Recommendation 1

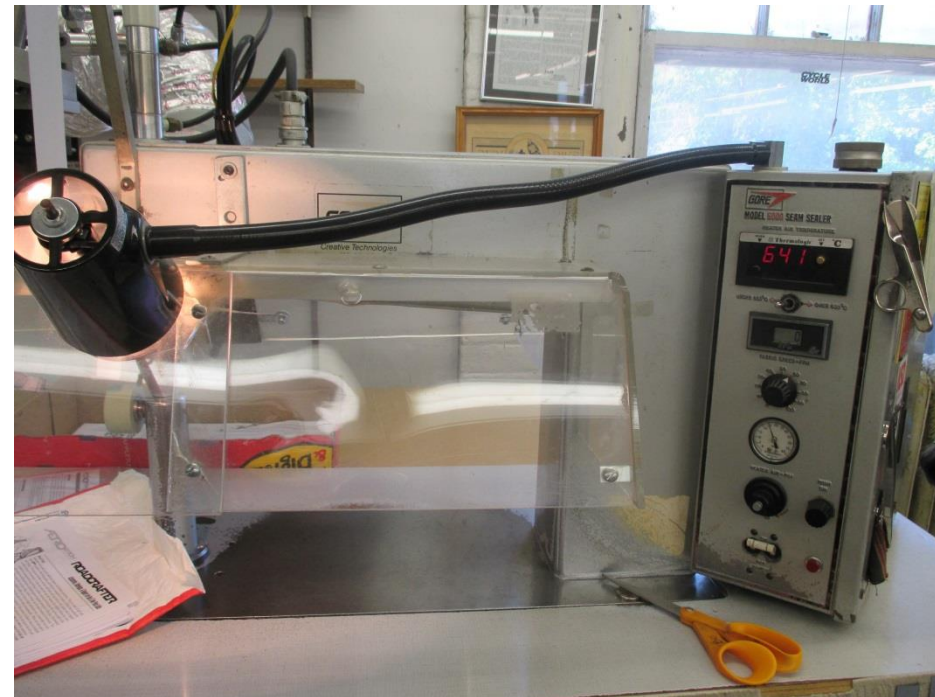
- **Compressed Air**
  - Stop current leaks, and prevent future leaks
  - \$470 annually



# Company B: Recommendation 2

- **Taping Machines**

- Reduce non use run time
- Improved scheduling
- \$1,200





# Company B: Recommendation 3

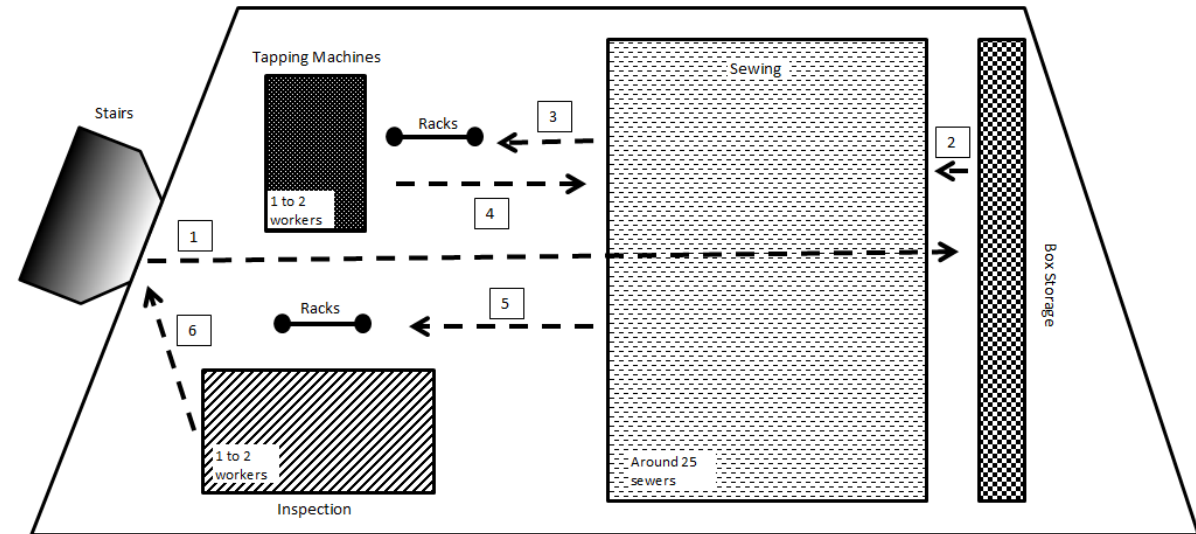
- **Scrap Fabric**

- Just under 1 ton a year
- Mn Material Exchange or similar site
- Local Interest



# Company B: Recommendation 3

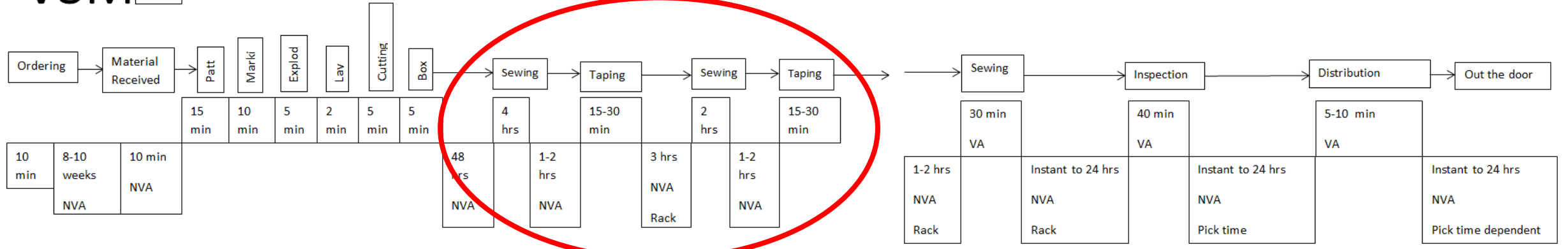
- Introduction to Lean Manufacturing
  - Goal: Increase Process efficiency
    - Value Stream Mapping
      - Increase value added time, decrease non value added time
  - Best Practices



# VSM

527

Cutting & Boxing



Level of Time Variation Increased height = increased



# Company B: Recommendation Summary

Description	Savings (\$/year)	Cost (\$)	Saved Annually	Payback (Months)	Status
Fix current leaks in the air compressor	470	-	3,000 kWh	-	Recommended
Turn off equipment not in use, reduce run time by 50%	1,200	0	-	Immediately	Recommended
Find alternative use for scrap fabric	360	0	1,800 lbs	Immediately	Further activity needed
Value Stream Mapping	New Tools Gained		Improved Productivity	-	Recommended
MP 1: Shades over Minisplit AC	1,100	5,000	13,500 kWh	36	Recommended
MP 2: Energy efficient lights	3,000	21,000	41,000 kWh	74	Recommended



# Company C

- **Industrial Soft Goods Manufacturer**
  - Compressed Air
  - Scrap Materials
  - Value Stream Map (VSM)



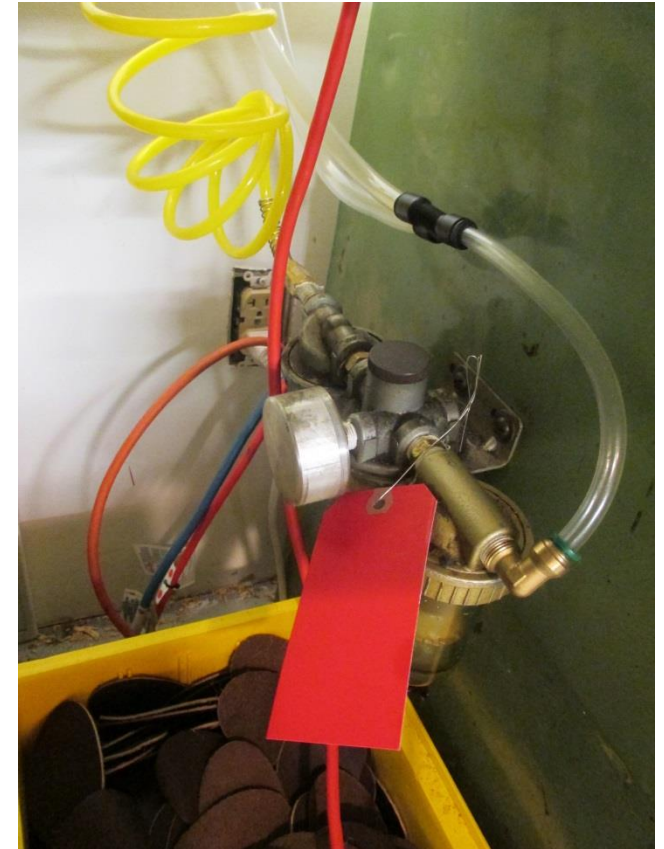
# Company C: Recommendation 1 & 2

- **Compressed Air**

- Stop current leaks, and prevent future leaks
  - \$28 per year
  - Payback 7 months

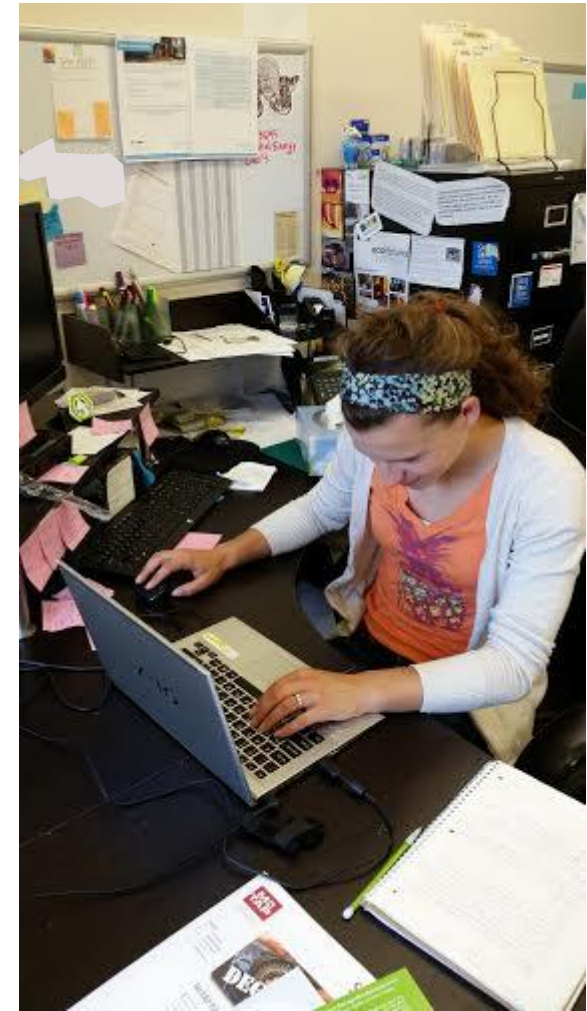
- **Scrap Materials**

- Mn Materials Exchange



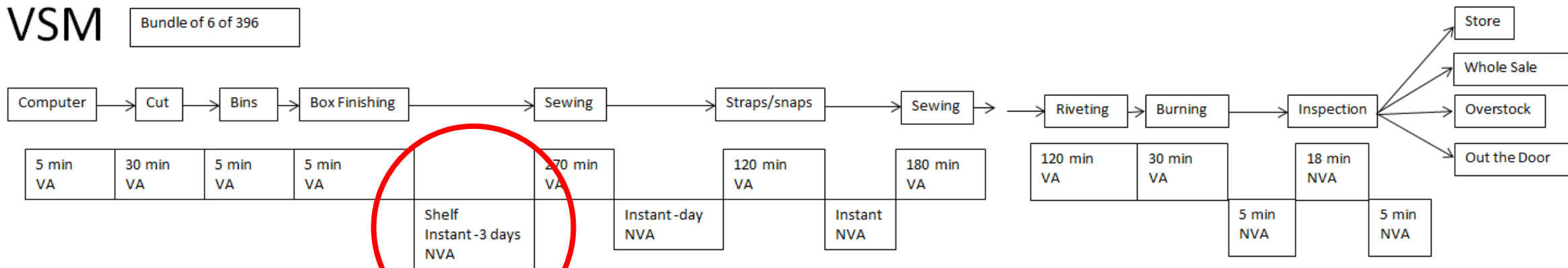
# Company C: Recommendation 3

- Introduction to Lean Manufacturing
  - Goal: Increase Process efficiency
    - Value Stream Mapping
      - Increase value added time, decrease non value added time
  - Best Practices



# VSM

Bundle of 6 of 396



## Level of Time Variation





# Company C: Recommendation Summary

Description	Annual Cost Saved (\$/year)	Est. Project Cost (\$)	Saved	Payback (Months)	Status
Fix current leaks in the air compressor system	28	15	300 kWh	7	Recommended
Find alternative use for scrap fabric	360	0	-	Immediately	Recommended
Value Stream Mapping	New Tools Gained		Increased Productivity	-	Recommended

# Knowledge Gained

- **Improved Communication Skills**
  - Networking
  - Public speaking (like right now)
- **Improved Problem Solving**
  - Real world calculations
  - Creativity -> ideas ideas ideas
    - The love of the chase
  - Time management



# Thank you!

**Ecolibrium3**  
**Minnesota Power**  
**MPC**  
**Deeper Assessment Businesses**  
**Benchmarking Businesses**  
**MnTAP**



# Questions?

This project was sponsored in part by Minnesota Power