Toyota Tier 1 Supplier Support for Energy Reduction

Toyota Engineering & Manufacturing North America (TEMA)

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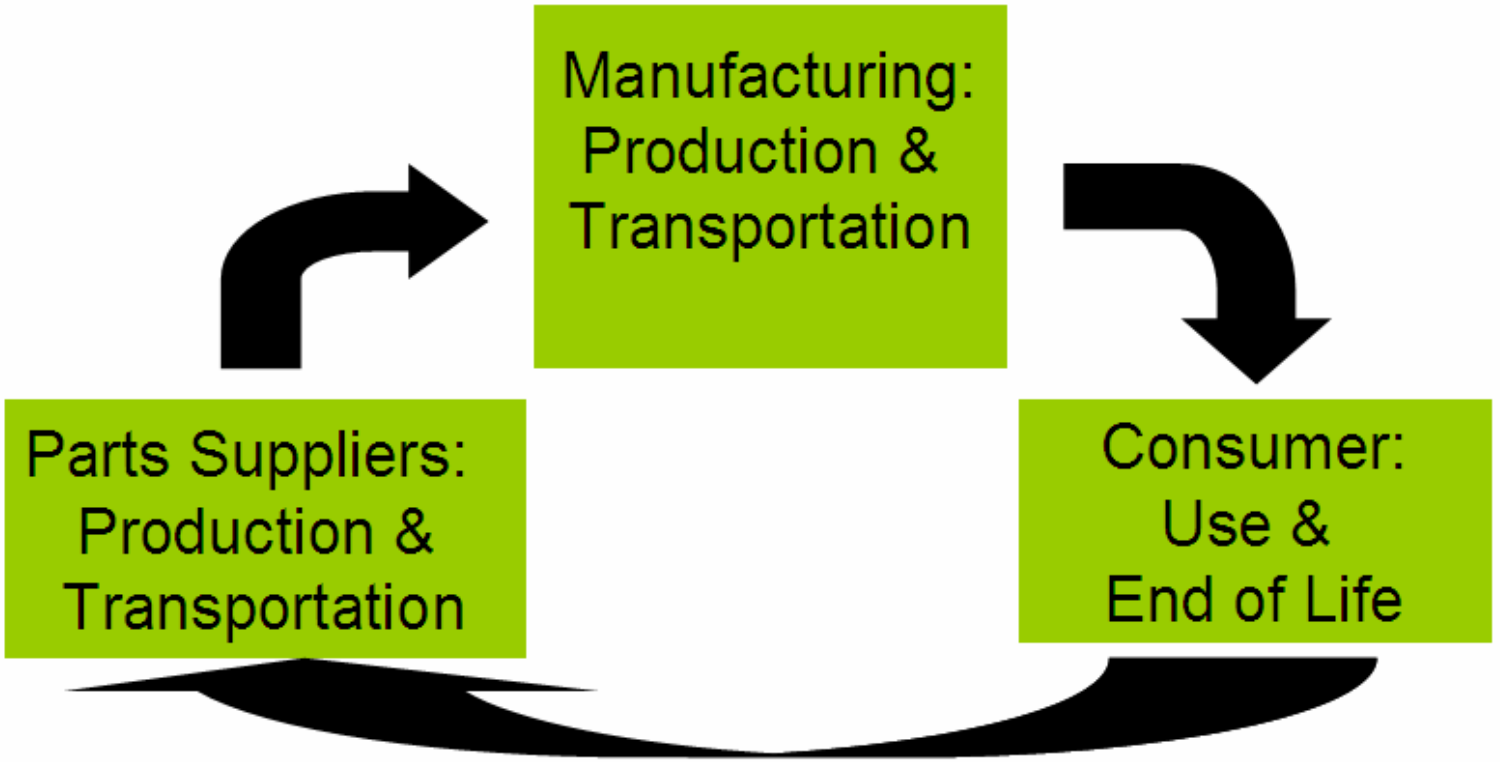
Toyota in North America:
Suppliers

Presentation Preview

- North America Energy Footprint
- Approach to Supplier Energy Reduction
- Supplier Energy Program Goals
- Measurement & Data Collection
- How to Identify Opportunities to Save
- Summary of FY08 activities
- Moving forward, FY09 plan

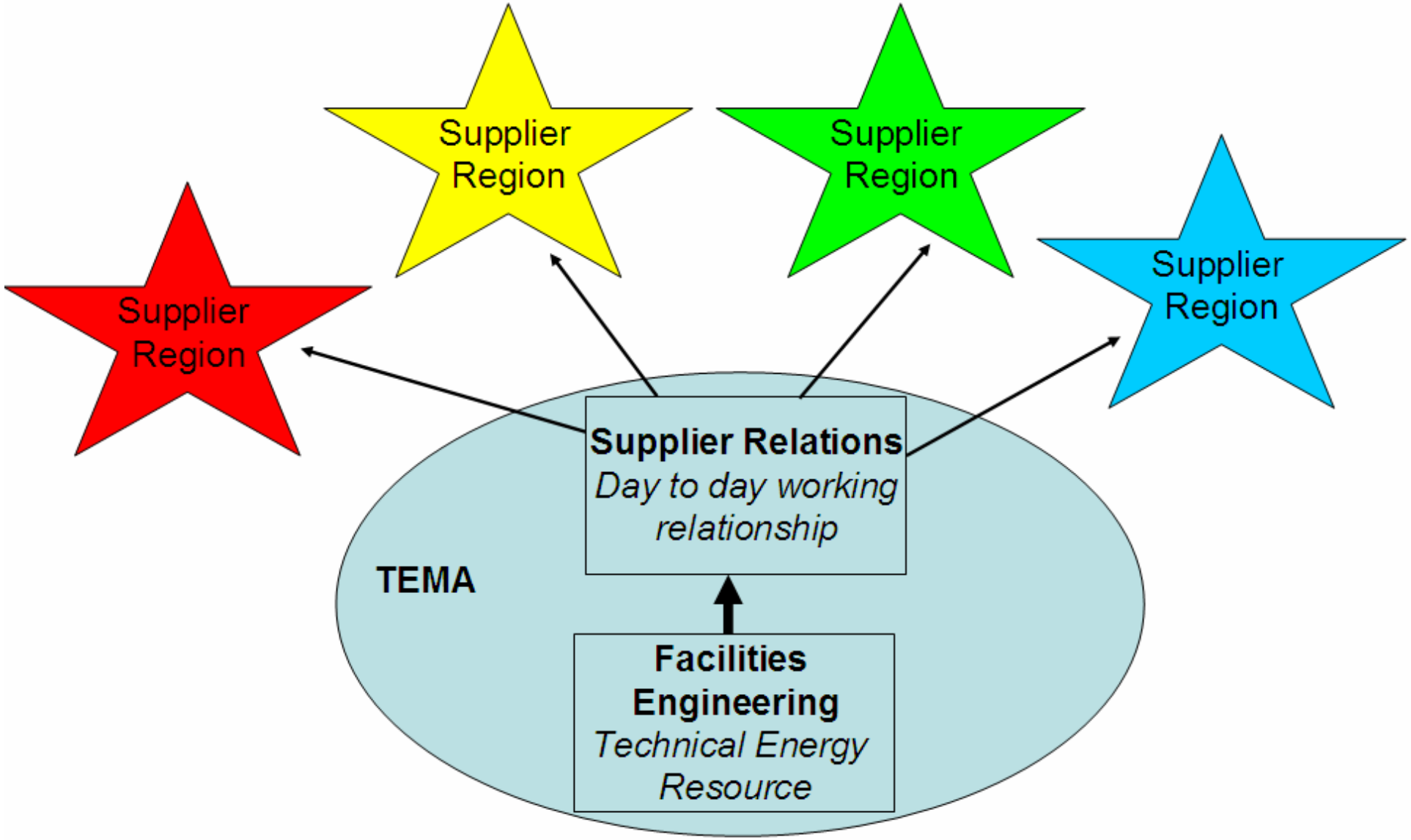
Energy Footprint

What is the Energy Life Cycle of our Product?



Reduce CO_2 in all aspects of our Product

Initial Supplier Approach



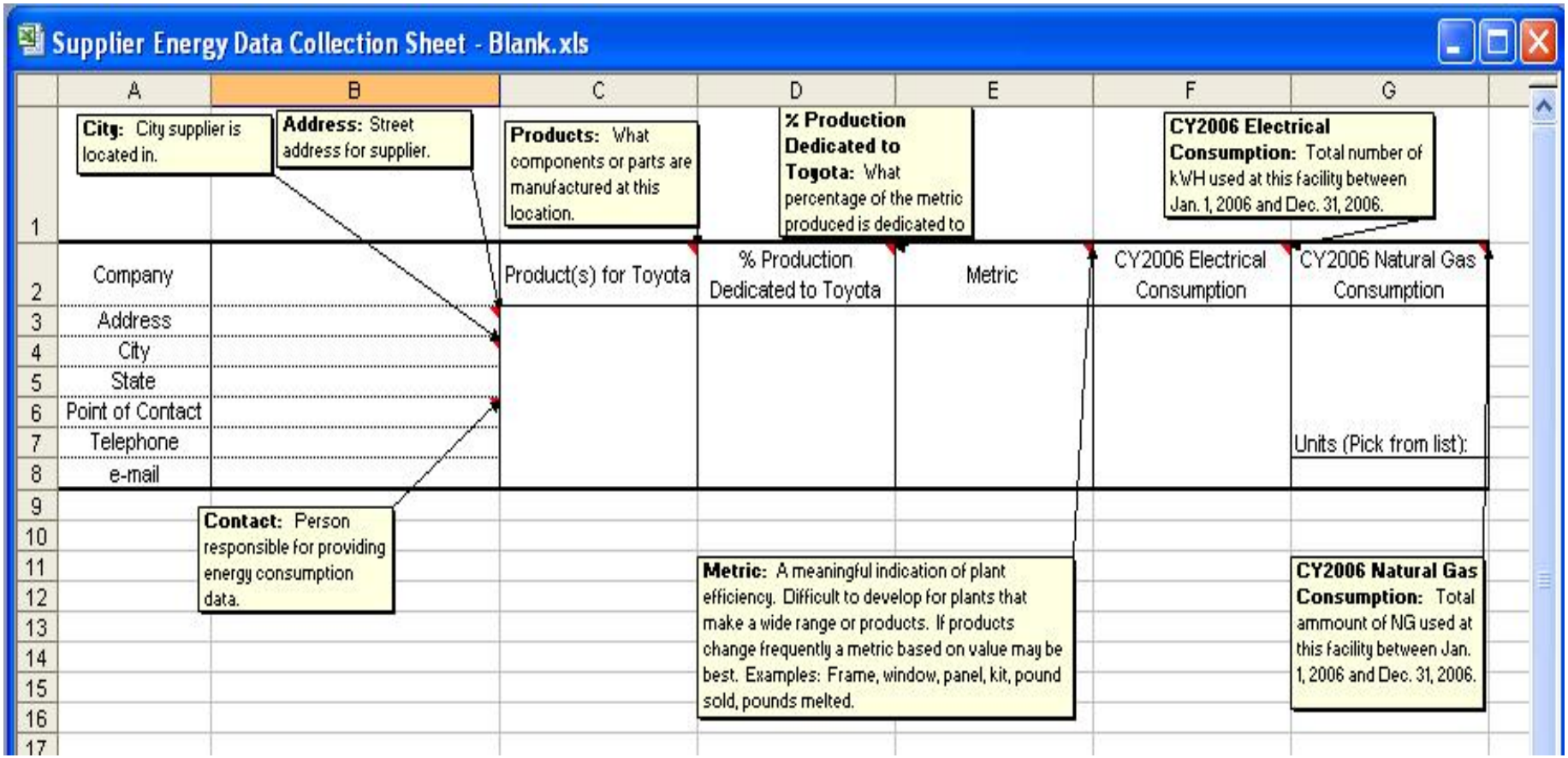
Program Goals

- Understand CO2 footprint contribution by Tier 1 suppliers in North America
- Promote energy awareness and benefit of energy reduction
- Share technical resources to conserve energy
- Maintain strong Supplier-Manufacturer relationship

Data Collection

- You can’t reduce what you can’t measure
- How do we obtain data from Suppliers?
- Interact by helping them identify ways to save energy in their facilities
- Perform Treasure Hunts with our suppliers

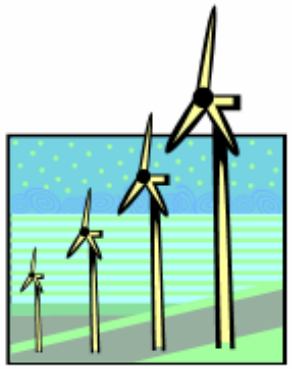
Example Data Collection Sheet



Purpose of a Treasure Hunt?

Combine knowledge of T/Ms (TEMA-FAC, NAMCs-FAC, Prod & Maintenance)

Go and see



Identify energy use in the workplace

Conceive new ideas and yokoten existing ones to

Find ways to save

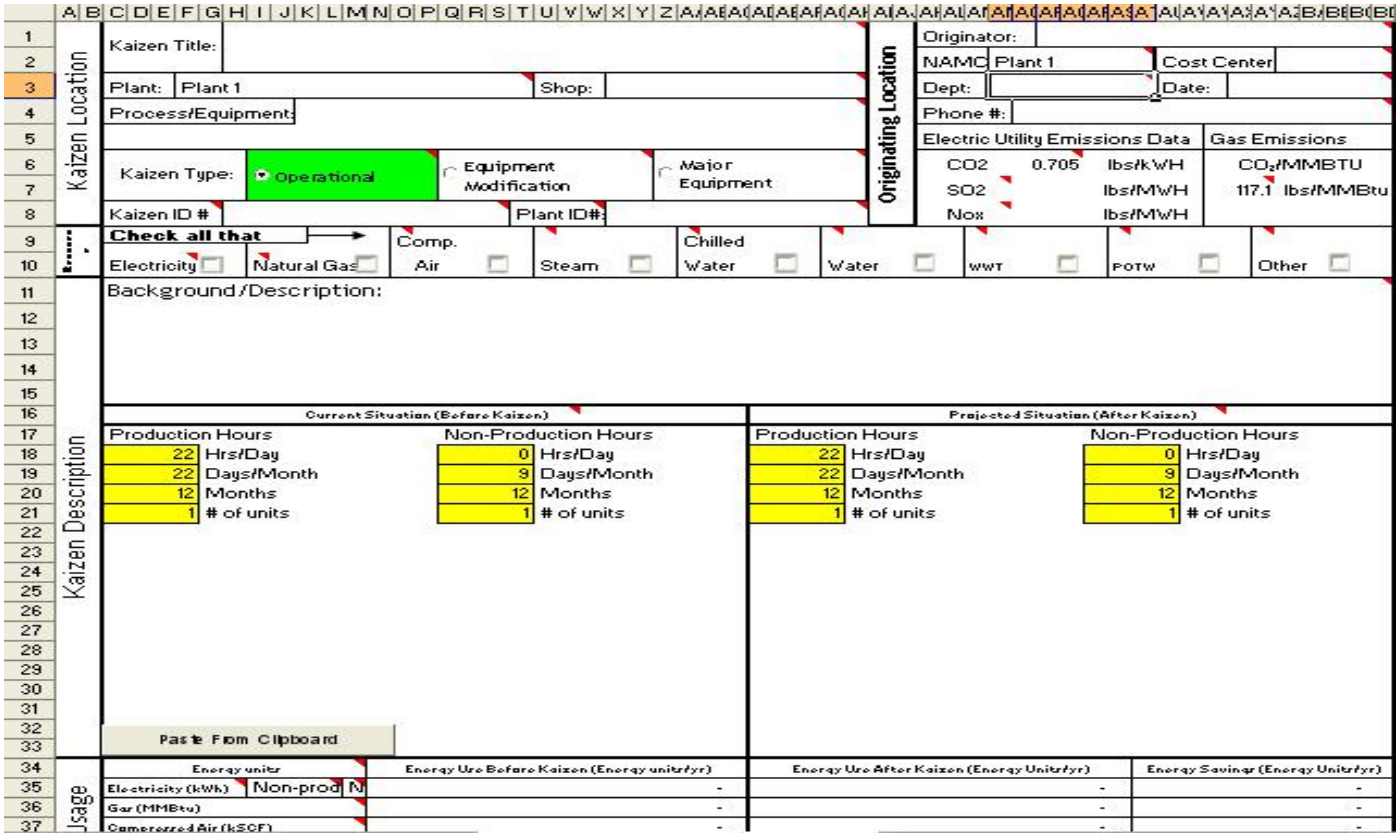
Increase energy awareness

Typical Treasure Hunt Format

Day	Steps	Function	Responsibility
Sun.	Kick Off Meeting Create Audit Teams Audit Facility	Instruct members in roles and resp. Assign t/m's to work group by shop. ID non-production kaizens, i.e. use of energy that is not required.	TMMNA PEFAC Lead: NAFAC -Support: NA PE shops, NAMC Host Shops, NAMC Support Shops Audit Teams (9-10 members)
Mon.	Audit Facility Create detail sheets	ID kaizen opportunities, i.e. the use of energy that is not required at start up, during production, lunch and breaks. Kaizen the process(es). Calculate energy and cost savings reductions	Audit Teams Audit teams
Tue. AM	Create detail sheets Discuss kaizens with other Audit Teams Revisit shops	Kaizen the process(es). Calculate energy and cost savings reductions Yokoten ideas from one shop to another Verify values and operational conditions. ID yokoten opportunities	Audit teams Audit teams Audit Teams
Tue. PM	Presentation	Present findings to shop and senior management	Shop Level - Audit Teams Overall – NA PEFAC

Kaizen Detail Sheet

- Our internal tool to evaluate an energy saving idea



Kaizen Location

Kaizen Title:

Plant: Plant 1 Shop:

Process/Equipment:

Kaizen Type: Operational | Equipment Modification | Major Equipment

Kaizen ID # Plant ID#:

Originating Location

Originator:

NAMC Plant 1 Cost Center

Dept: Date:

Phone #:

Electric Utility Emissions Data

CO2 0.705 lbs/kWH

SO2 lbs/MWH

Nox lbs/MWH

Gas Emissions

CO_2/MMBTU

117.1 lbs/MMBtu

Check all that →

Electricity | Natural Gas | Comp. Air | Steam | Chilled Water | Water | WWT | POTW | Other

Kaizen Description

Background/Description:

Current Situation (Before Kaizen)				Projected Situation (After Kaizen)			
Production Hours		Non-Production Hours		Production Hours		Non-Production Hours	
22	Hrs/Day	0	Hrs/Day	22	Hrs/Day	0	Hrs/Day
22	Days/Month	9	Days/Month	22	Days/Month	9	Days/Month
12	Months	12	Months	12	Months	12	Months
1	# of units	1	# of units	1	# of units	1	# of units

Paste From Clipboard

Usage

Energy units		Energy Use Before Kaizen (Energy units/yr)	Energy Use After Kaizen (Energy Units/yr)	Energy Savings (Energy Units/yr)
Electricity (kWh)	Non-prod	-	-	-
Gas (MMBtu)		-	-	-
Compressed Air (kSCF)		-	-	-

Presentation to Management

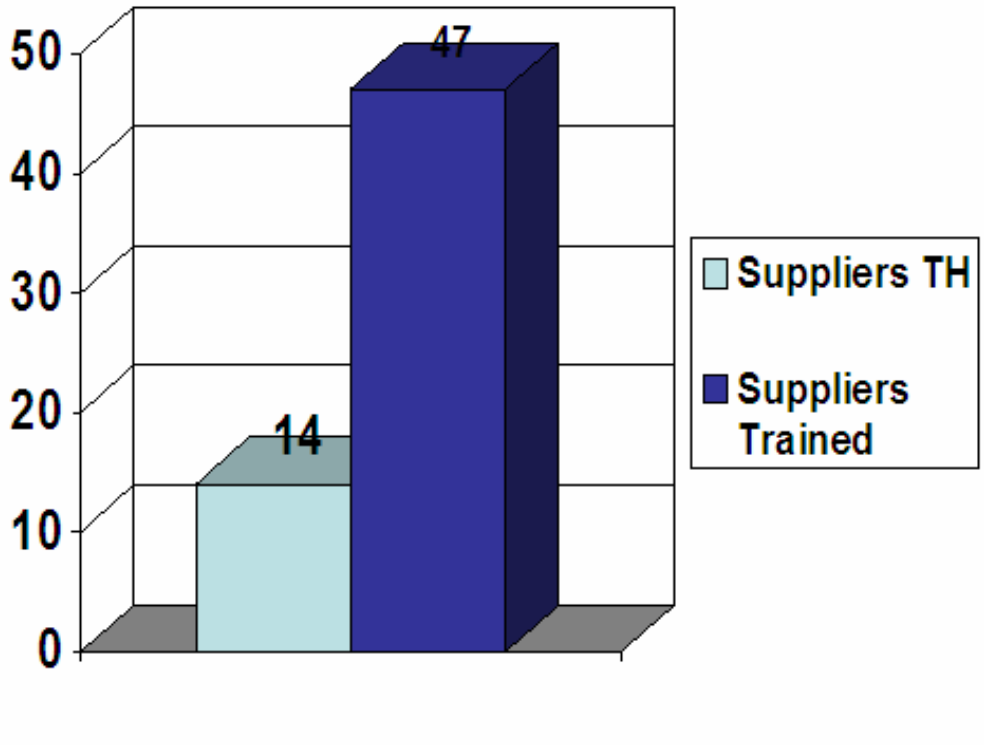
- Focus on top 3-5 kaizens
- Refine detail sheets for top kaizens (pictures, diagrams, review for accuracy)
- Highlight investment required and payback
- Start small, realize savings quickly
- Develop overall summary to capture full potential
- Keep all ideas for future use (equipment replacement, next budget, etc.)

FY08 Activities

1) Energy “Treasure Hunts”:
   - 3 events held at off site supplier facilities
   - Train the trainer event a manufacturing facility
   - Texas Tundra Plant on site supplier event
2) Supplier Learning Conference Workshop

FY08 Results

- 14 Supplier facilities treasure hunted
- Concept shared with a grand total of 47 Suppliers
- Combined savings of 55,000 MMBTU
- Approximate annual CO2 offset of 900 vehicles each driving 12,500 miles per year



1) TMMK Train the Trainer Event

- Toyota Motor Manufacturing Kentucky (TMMK) hosted 11 local area suppliers for a 2 day event
- Suppliers learned the treasure hunt process by investigating the paint, plastics, assembly shops as well as utility areas
- 88 Kaizens identified by suppliers
- Very positive feedback

2) Supplier Learning Conference Workshop

- Over 100 suppliers in attendance for conference
- Each region presents a theme
- Two regions of suppliers teamed up to present the treasure hunt concept learned from TEMA during 2007
- Presentation included results from internal treasure hunts, energy savings quiz, and an identify the energy consumption video

FY09 Activities

- Participation in Energy Star© Supply Chain Initiative
- Working with TEMA supplier relations to organize region wide supplier treasure hunt events
- On going technical support for supplier energy related questions

FY09 Planned Activities

- 4 Regional supplier treasure hunts:
  - 15-20 Suppliers in attendance at each event (voluntary)
  - Split into groups to visit 6-8 facilities
  - Groups will reconvene on final day to share findings at each facility
- Continue collecting CO2 data sheets
- Assist in energy KPI tracking and kaizen implementation updates
- Introduce energy procurement via an outside energy consultant used at TEMA

Conclusion

Questions?

Thank You!

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