



Enterprise Utility Management Process

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Agenda

About Us

Challenges

Solution

Benefits/Results

Questions



About Tyson

FISCAL 2014 SALES

\$37.6 Billion

TEAM MEMBERS

 **113,000**

NUMBER OF FACILITIES



*Includes 3 case-ready beef and pork plants

MARKET SHARE

Tyson Foods produces approximately
1 in 5 pounds
of chicken, beef, and pork in the U.S.

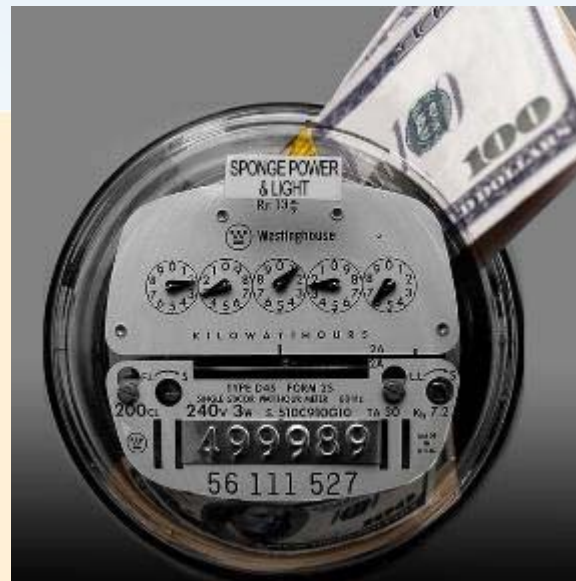
INDEPENDENT FAMILY FARMS

More than
11,000



Challenges

- Top Quartile Performance Driving Continuous Improvement
- Increasing Utility Demand / Cost (\$590MM Annual Spend)
- Water Restrictions / Scarcity

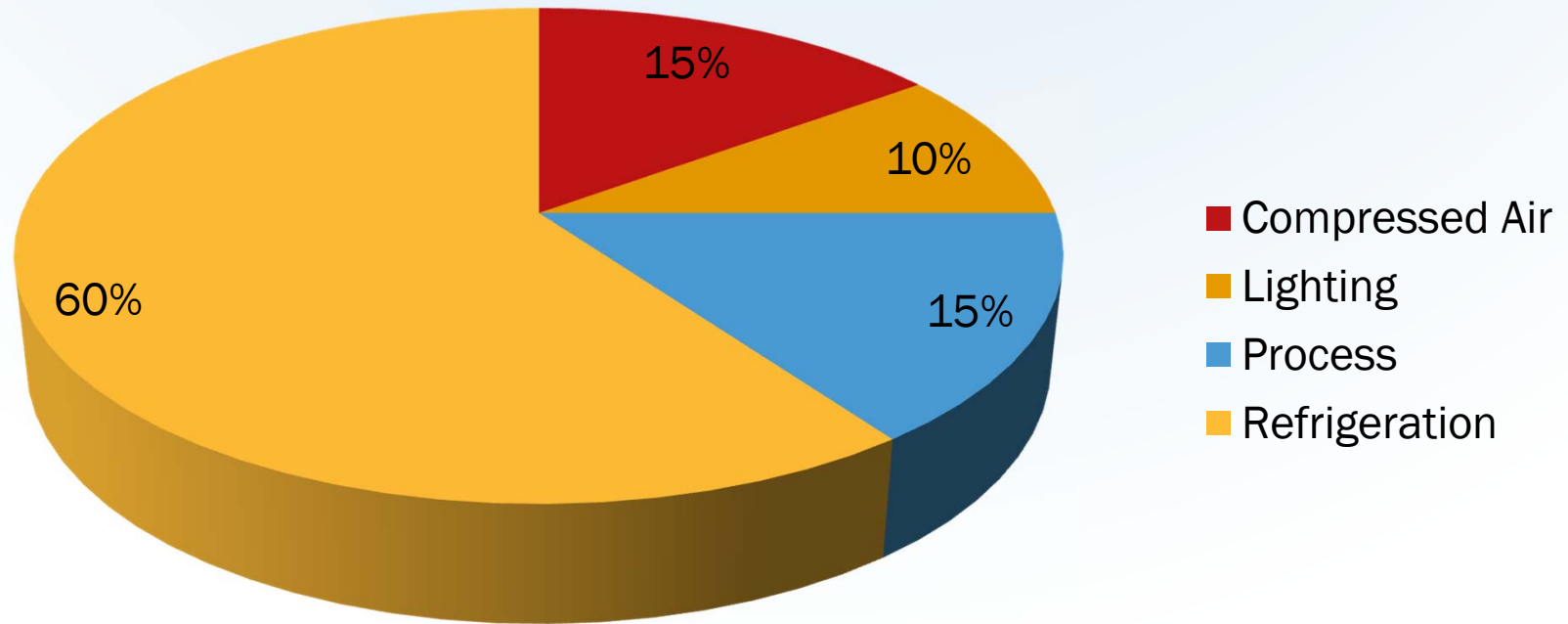


Tyson's Energy Engineering Challenge



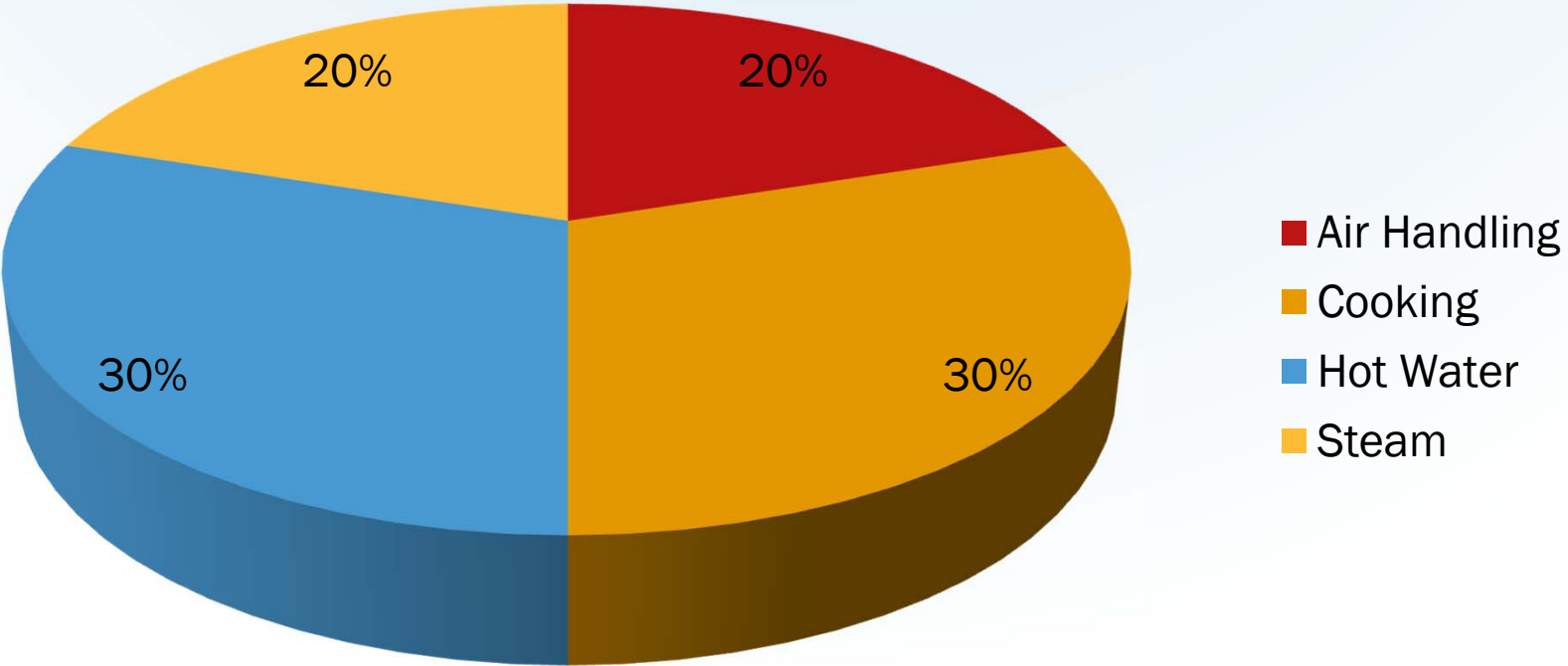
Processing Usage

Typical Electrical Usages (30% Cost Related To Demand)



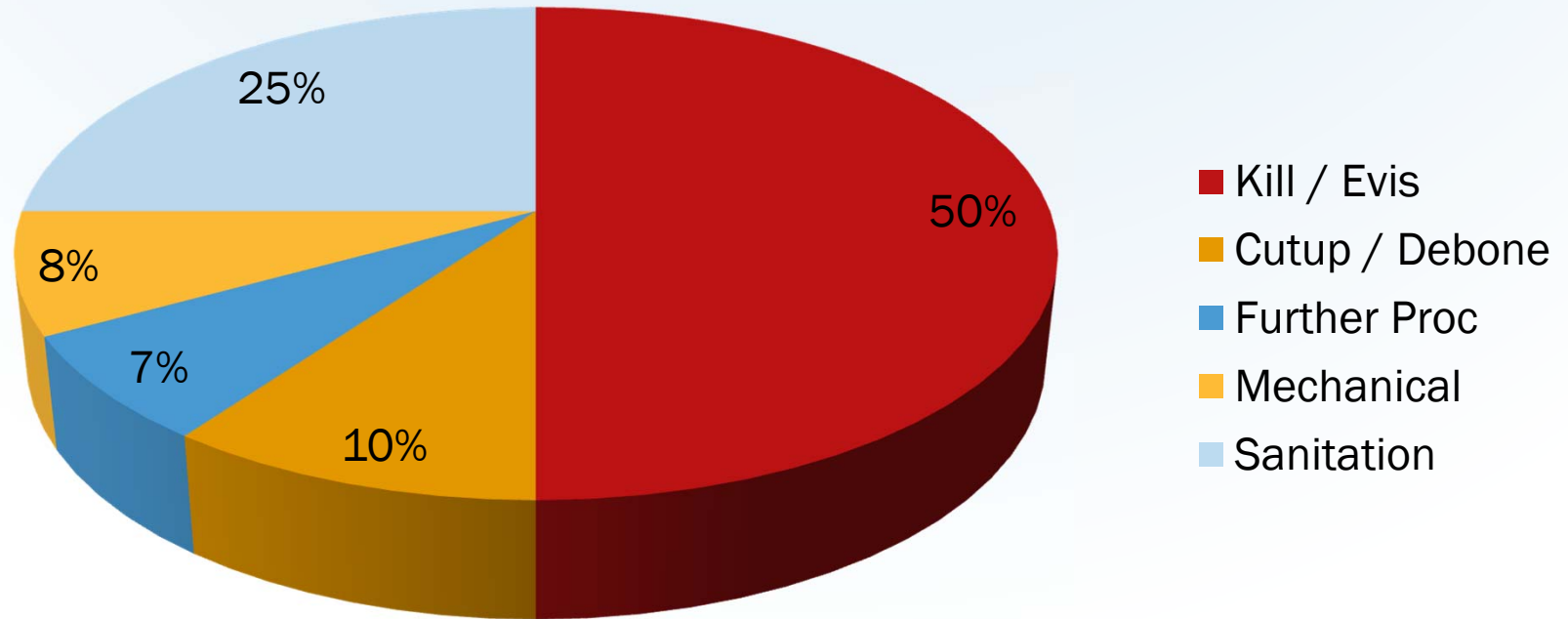
Processing Usage

Typical Fuel Usages



Processing Usage

Typical Water Usages



Primary Focus Areas

Based On 25 Facility Energy Audits

Accounts For Approx. 10% Of Overall Utility Cost

No.	Category	Opportunity	Savings (est)
1.1.1	Refrigeration	Fix purger and remove air from ammonia system	1.94%
1.1.2	Refrigeration	Raise suction pressure on freezers and intermediate systems	1.66%
2.3.1	Electrical	Air Compressor Leaks	1.31%
2.1.1	Electrical	Reduce plant lighting energy consumption (Manually)	1.08%
1.1.3	Refrigeration	Sequence compressors to more closely match with plant load	0.88%
1.1.4	Refrigeration	Reduce head pressure during winter months	0.79%
3.1.1	Water/Fuel	Hot Water Leaks	0.59%
4.1.1	Fuel	Steam Leaks	0.56%
3.1.2	Water/Fuel	Open ended high pressure hot water hoses	0.50%
2.2.1	Electrical	Hydraulic systems	0.46%



Primary Focus Areas

70% - 80% Of Utility Usage

- Cooking
- Compressed Air
- Refrigeration
- Steam
- Tempered Water

Turn Off Devices When Not Needed

Replace Lighting Through Planned Attrition



Where are you at?

Stage of Maturity	Enterprise		Human			Information
	Energy and Water Management Objective	Systems	Skills Applied	Sponsorship	Culture	Data Systems
Best In Class	Continuous improvement & deep strategic insight	Enterprise wide systems, grasp variables related to KPI's	Highly skilled, w/ leveraged, strategic partnerships	CEO passion, part of company commitments	Deeply rooted in the culture, executing best practices	Enterprise wide data systems, feedback & alerts, sub-monitoring
Executing a Program	Have a plan & executing against the plan	Bill pay, 3rd party assist, performance tracking	More sophisticated data driving	Broad C-level commitment	Change mgmt. process & communication	Good - hand full of metrics being tracked
Planning stage	Setting goals, organizing a program	Bill data collected by plant	Teams formed	Discovery stage, no firm goals yet	Anticipatory	Setting up basic KPI's trying to formulate
Goals but no organized & defined program	Reduce costs to meet mgmt. directives	None or simple spreadsheets	May have energy mgr, or limited 3rd party	Mgmt. wants to reduce costs but no plan or guidelines	Meeting goals = no action, if not, call vendors or push employees	Ues by plant, not real-time, no sub-metering
Aware but uncoordinated	Autonomous activity or inactivity at the plant level	None or simple spreadsheets	Almost none	Almost none	Very low on priority list	Data may or may not exist, some metrics at corp. level
Unaware	None	None	None	None	Cost of doing business	Little or none, just pay bills



Proposed Utility Management System

Current State

- Disparate / Disconnected Utility Bill Tracking Systems
- Daily Manual Meter Data Input
- Limited Visibility / Reporting
- Limited Tracking of Energy Opportunities
- Manual Accrual Process
- Manual Budgeting / Procurement Process
- Labor Intensive Greenhouse Gas Emissions Monitoring / Reporting
- Limited Collaboration with Strategic Partners

Future State

- Single Source Integrated Utility Bill Data Entry
- Continuous Metering / Historical Data Capture
- Real Time Dashboards / Variance Reporting
- Integrated Opportunity Tracking
- Integrated Accrual Process with SAP
- Integrated Budgeting / Procurement Process
- Integrated Greenhouse Gas Emissions Monitoring / Reporting
- Integrated Collaboration with Strategic Partners

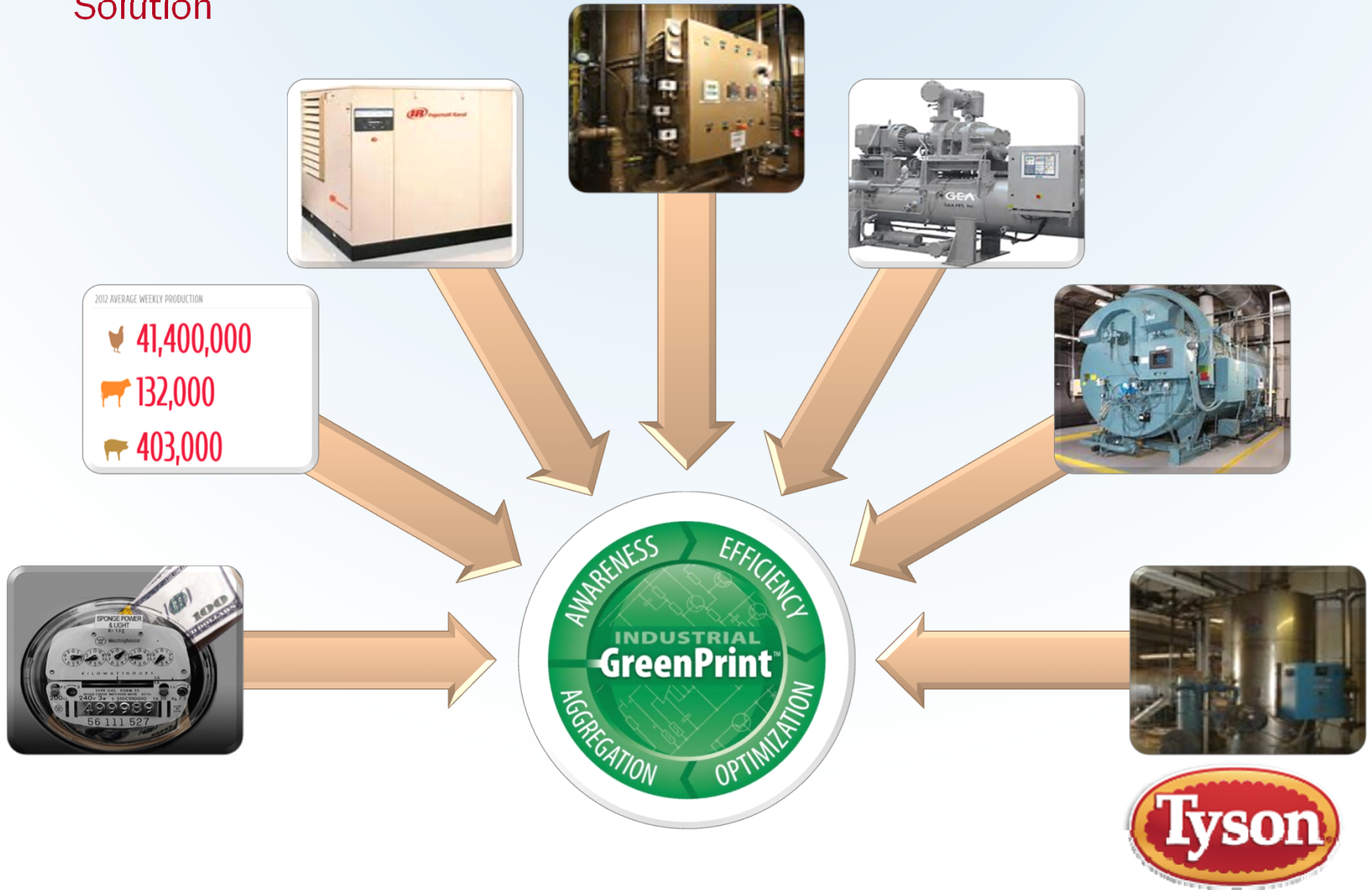


Solution

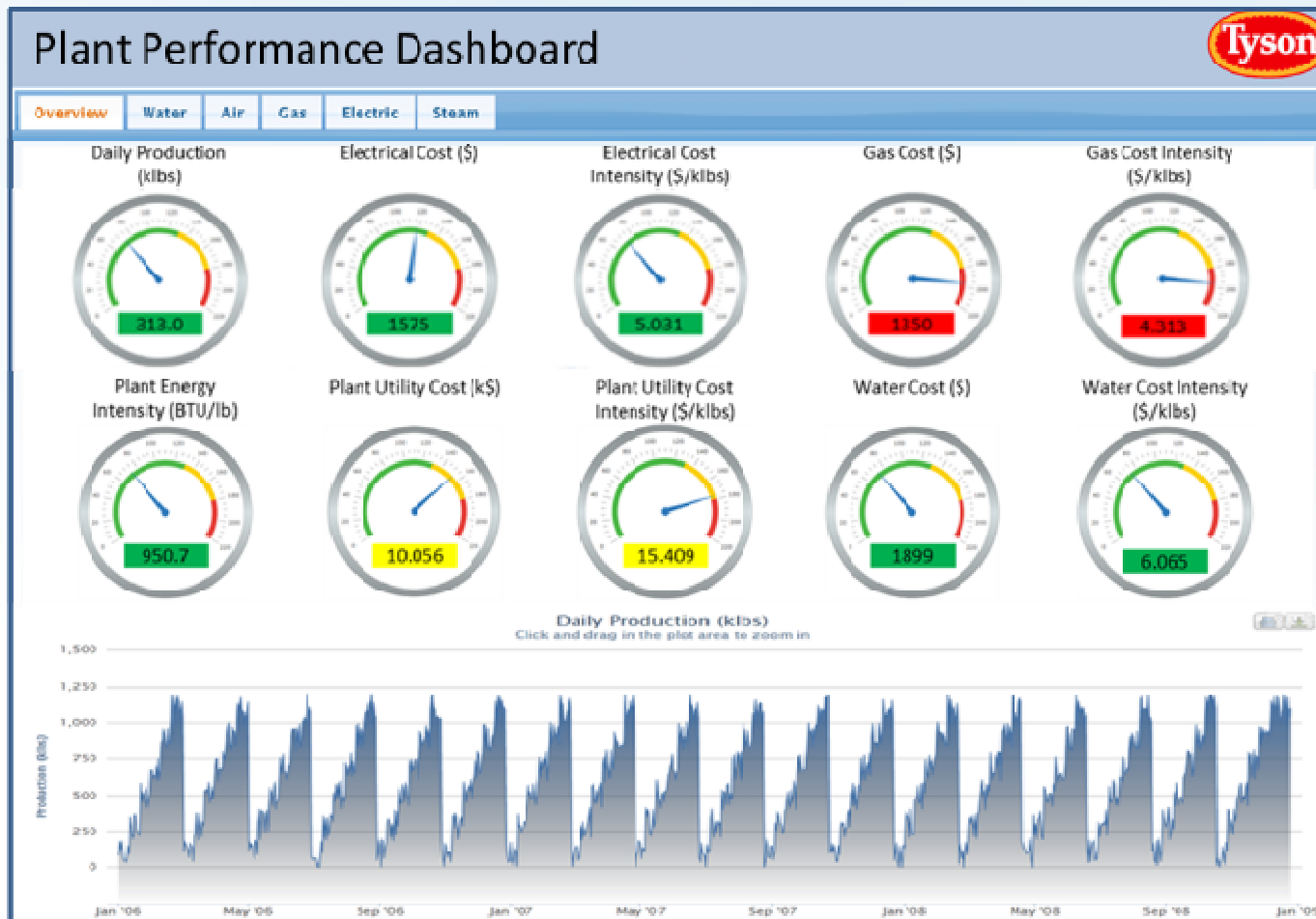
- Scope Definition
 - Payback Less Than Two Years
 - Energy Audits Identify Top Opportunities (80% of consumption)
 - Compressed Air, Cooking, Refrigeration, Steam, Tempered Water
- Why Partner with a Third Party?
 - Flexible, Scalable, and Customizable Solution (this is Tyson's energy management system, not a one size-fits all product)
 - Integration with Various Databases / ERP Systems
 - Energy Management Expertise
 - Experienced Delivering These Solutions To Other Companies
- Leverage Third Party for Project Management Services



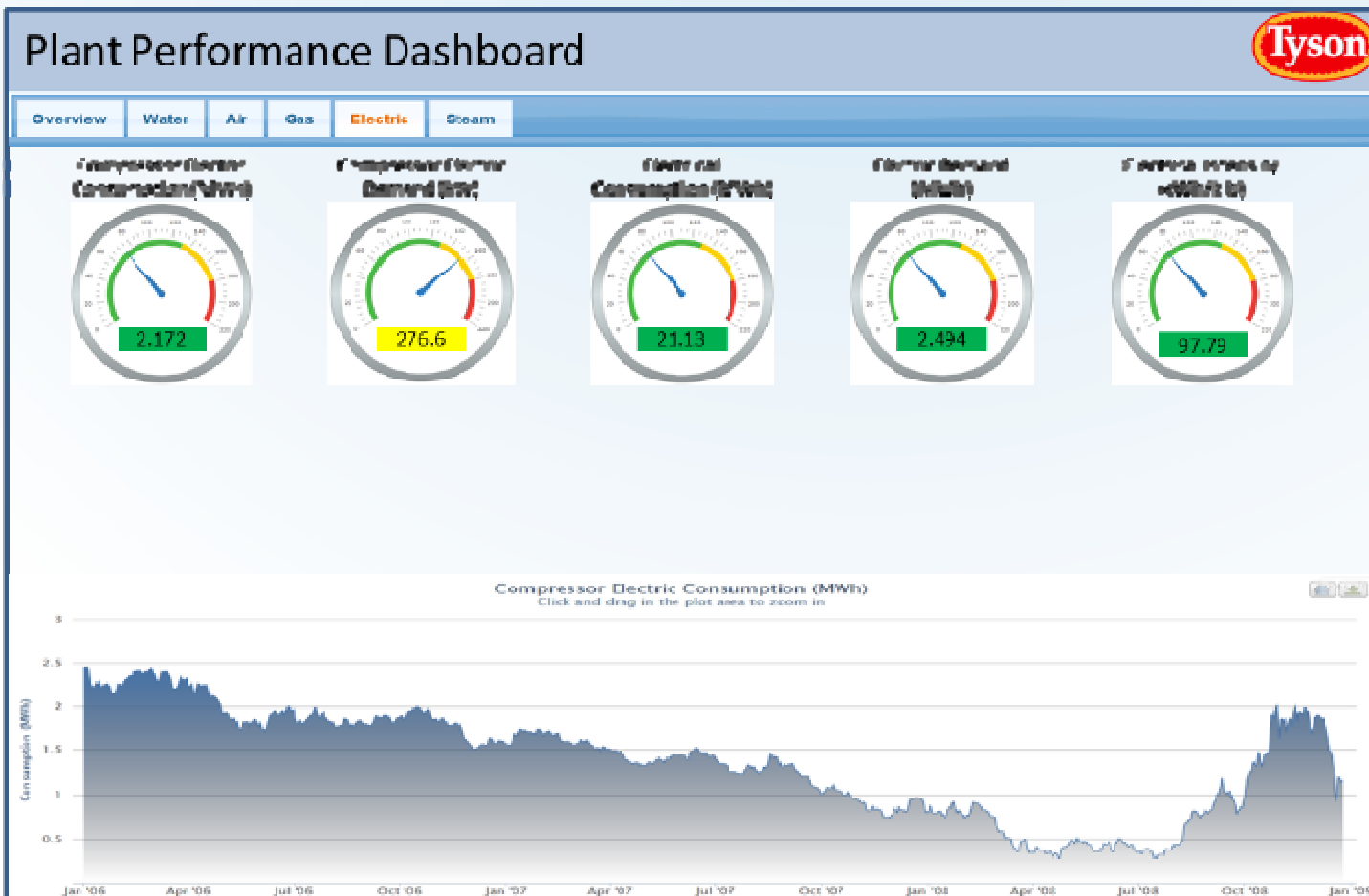
Solution



Solution



Solution



Solution

Tyson Foods Variance Report

██████████ Processing

Report Generated: 8/21/2013 9:30:00 AM

Reporting Period: 8/11/2013 to 8/17/2013

Executive Summary

Total Consumption

Total Cost

	Units	Current	Target	Variance	Prev. Per.	% Chg	Prev. Yr.	% Chg
Electricity	\$	15,052.56	15,500	-447	16,554.53	-9.07%	13,651.92	10.26%
Fuel	\$	43,423.45	43,000	423	42,946.62	1.11%	30,703.14	41.43%
Water	\$	3,962.73	4,500	-537	4,911.89	-19.32%	4,423.09	-10.41%
Overall	\$	62,438.73	63,000	-561	64,413.04	-3.07%	48,778.15	28.01%

Total Cost Intensity

Intensity Unit: Ton

	Units	Current	Target	% Dev	Prev. Per.	% Chg	Prev. Yr.	% Chg
Electricity	\$/Ton	12.40	12.50	-0.81%	11.92	4.01%	9.98	24.23%
Fuel	\$/Ton	35.77	35.00	2.19%	30.93	15.64%	22.46	59.25%
Water	\$/Ton	3.26	3.30	-1.09%	3.54	-7.80%	3.23	1.05%
Overall	\$/Ton	51.43	52.00	-1.10%	46.39	10.86%	35.68	44.14%

Feather Meal	lbs	548,380	625,000	-12.26%	635,200	-13.67%	485,620	12.92%
Meal and Fat	lbs	1,879,751	2,000,000	-6.01%	2,141,815	-12.24%	2,248,909	-16.41%

Blended Cost

	Units	Current	Prev. Per.	% Chg	Prev. Yr.	% Chg
Electricity	\$/kWh	██████████	██████████	0.00%	██████████	0.00%
Fuel	\$/MMBTU	██████████	██████████	0.00%	██████████	20.41%
Water	\$/Mgal	██████████	██████████	0.00%	██████████	0.00%



In Summary

- Allocate Resources / Time To Clearly Define Process / Objectives
 - Current State vs. Future State
 - Establish Overall Goals
 - Define Top Opportunities
- Implement A Continuous Improvement Process To Drive Change
 - Customized Solution with Diverse Connectivity
 - Continuous Monitoring / Real-Time Dashboards
 - Closed Loop Feedback / Opportunity Tracking
 - Leverage Experienced Resources
- Requires Capital Spending
 - Up To 20% Of Annual Utility Spend Depending On Complexity



Benefits/Results

- Piloted Energy and Water Management Process To Validate Concept / Payback
 - Implemented On Primary Utility Consuming Systems
 - Compressed Air
 - Steam
 - Thermal Fluid
 - Tempered Water
 - Refrigeration
 - Focused On Low Cost Efficiency Improvements and Justifiable Capital Projects
- Identified efficiency gains of eight percent, large enough to power almost 1,300 homes for one year
- Identified water usage reductions of nine percent, enough to supply almost 375 million 16.9 oz. bottles of water to consumers



Questions?

Thank You.

