

# ***DENSO***

Crafting the Core

## **Maintaining Stewardship**

Danny Yount & Maika Khang

DENSO Manufacturing North Carolina,  
Inc. – Statesville Plant



# DENSO Motor BU Company in North America

## Michigan Plant

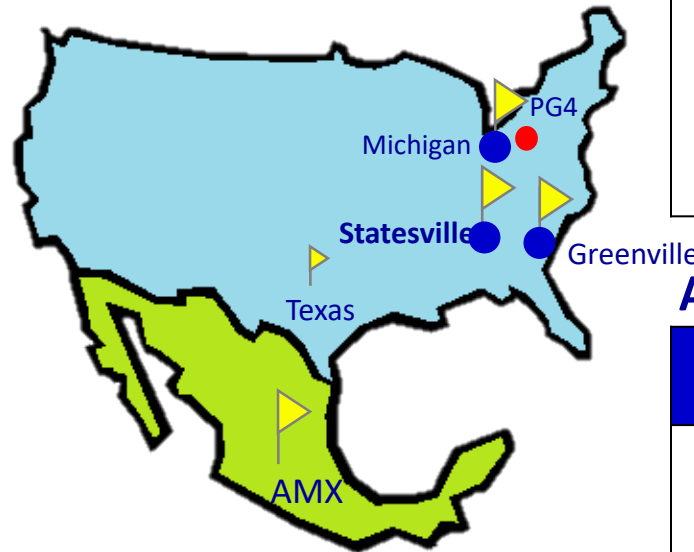
### Michigan Plant

- LOCATION  
500 Fritz Keiper. Battle Creek, MI
- ESTABLISHED 1986
- PRODUCTS Servo Motors  
Washer Systems
- TOTAL AREA  
Land 21 acres (84,984m<sup>2</sup>)  
Building 165,820sft. (15,405m<sup>2</sup>)
- CAPITAL 12.45 million USD

## Greenville Plant

### Greenville Plant

- LOCATION  
1125 Sugg Pkwy. Greenville, NC
- ESTABLISHED 1994
- PRODUCTS Radiator Fan Motor  
Wiper System
- TOTAL AREA  
Land 37.33 acres (151,069m<sup>2</sup>)  
Building 283,791sft (26,365m<sup>2</sup>)  
Warehouse 230,000sft (21,368m<sup>2</sup>)
- CAPITAL 42.5 million USD



## Statesville Plant

### Statesville Plant

- LOCATION  
470 Crawford Road Statesville, NC
- ESTABLISHED 1988
- PRODUCTS Blower Motor  
Power Window Motor  
Pinch Sensor  
Power Seat Motor  
EPS
- TOTAL AREA  
Land 64 acres (258,999m<sup>2</sup>)  
Building 483,863ft (44,952m<sup>2</sup>)
- CAPITAL 42.0million USD

## AMX

### ASMO MANUFACTURING de MEXICO S.A. de C.V.

- LOCATION  
Irapuato, Guanajuato, MX
- ESTABLISHED 2014
- PRODUCTS Wiper System  
Wiper Arm  
Washer System
- TOTAL AREA  
Land 99,000 m<sup>2</sup>  
Building 22,700 m<sup>2</sup>
- CAPITAL 22.0 million USD
- SHAREHOLDERS  
ASMO North America LLC (50%)  
DENSO Corporation (50%)  
\*Subsidiary Company 2/\*\*

# Products made in North America

Servo Motor <Michigan>

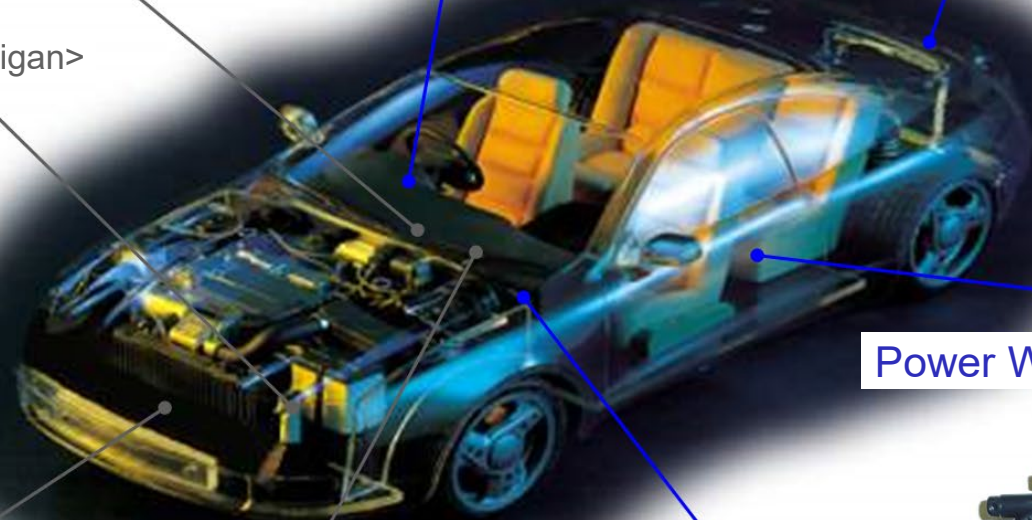


EPS Motor <Statesville>

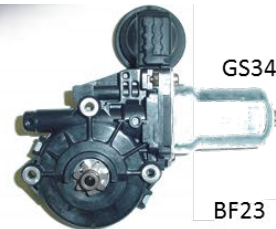


Pinch Sensor <Statesville>  
<Michigan>

Washer System <Michigan>



Power Window Motor <Statesville>



Radiator Fan Motor <Greenville>



Wiper Motor <Greenville>



SJ66(BLM)

Blower Motor <Statesville>



K62/K70



# 1. Mature EMS

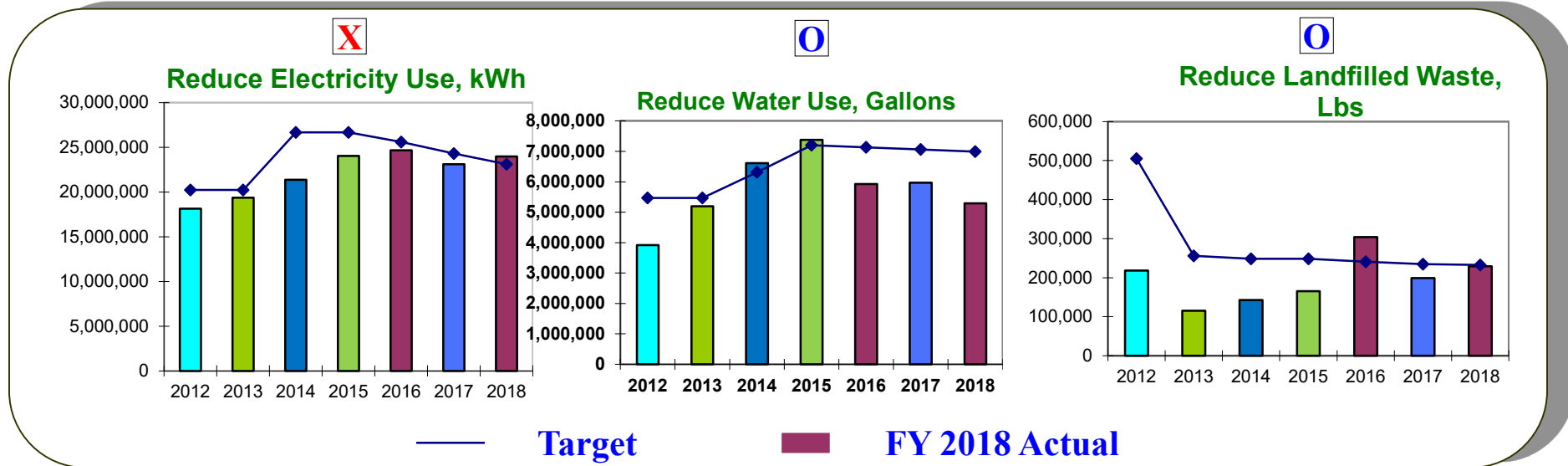
- ISO14001 certified since January 1998
- Challenges
  - Starting up:
    - Finding **alternatives** for environmental impacting processes
    - Initially, copied the same Quality Program Procedures that were required by ISO14001.
  - Current:
    - Continuous **growth** of company = resetting environmental goals
    - Integrating with Business, Quality, and Engineering

# 1. Mature EMS (cont)

- Starting Up
  - **Rest room** Improvements (water saving toilets & sinks, high speed hand dryers)
  - **Machine/Process/Design** Improvements
    - Product painting to non-painted metal with plastic housings
    - Parts powder coating to plastic insulators
    - Positive balancing to negative balancing on armatures
- Current
  - **Company expansion** = more energy & water usage, more waste generation, etc.
  - Achieving Zero Waste Landfill

# 2. Aggressive Goals

## EcoFactory / EcoProduct Goals Status



<b>EVALUATION</b>	<b>X</b> =BAD > 2%	<b>▲</b> =OK ? 2%	<b>O</b> =GOOD	<b>NR</b> =NOT REPORTED
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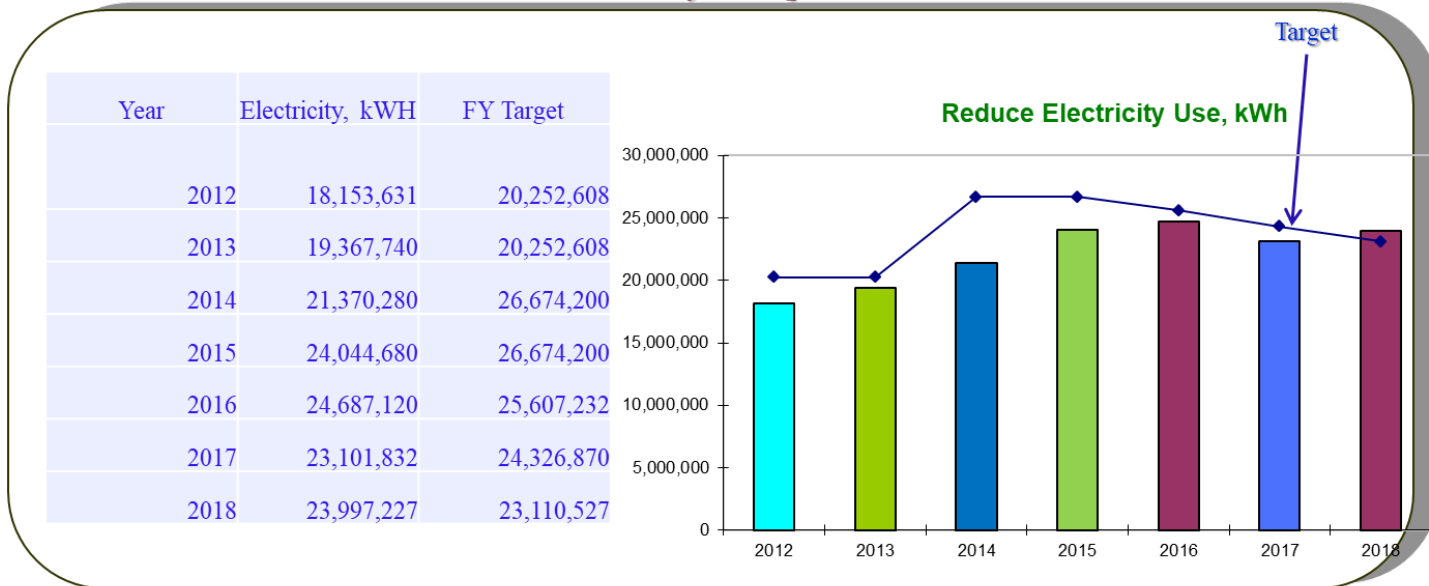
DMNC has reduced electricity usage by 2% from 2015  
 DMNC has reduced water usage by 25% from 2015.  
 DMNC has reduced Total waste usage by 18.9% from 2015.  
 DMNC has increased Landfill Waste by 29.6% from 2015.



# 2. Aggressive Goals

## Electricity Use - FY 2018

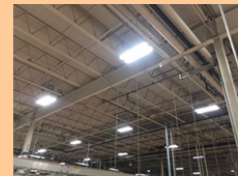
FY17: Goal was Reduced by 5% per Ecovision Guidelines



### Activities to Achieve Goal

- 2010\_11 Completed - Replaced Metal Halide Fixtures with Fluorescent Lighting
- 2011\_12 Completed - Added a Variable Electric Speed drive to blowers at Waste Water Treatment.
- 2014 - Installed New Zone Computer Controlled Lighting System in New Warehouse
- (Actual) 2016\_17 - Changed all Outside Pole Lamps & Bldg. Perimeter Lamps to LED Lamps.
- (Actual) 2016\_17 - Changed to LED lighting in parking lot & changed to LED Lights in Press Dept.
- (Actual) 2016\_17 - Installed LED Lights in all Production Areas
- (Actual) 2017\_18 - Installed 19 New RTU (Roof Top Units)
- (Actual) 2018-19 - Changed to LED Lights in Office, Meeting Rooms, Jig Shop, Holder Molding, and BLM line 3.

### New LED Lamps



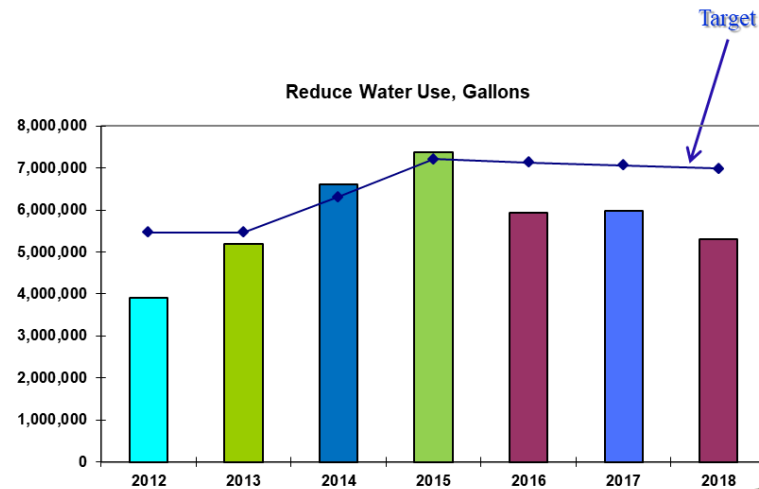
We did not achieve target for electricity reduction due to production demand due to increased sales volumes and hotter than normal July.

# 2. Aggressive Goals

## Water Use - FY 2018

FY18: Goal was Reduced by 1% per Ecovision Guidelines.

Year	Water, Gals	FY Target
2012	3,916,035	5,471,992
2013	5,193,346	5,471,992
2014	6,613,113	6,314,679
2015	7,377,995	7,206,614
2016	5,929,732	7,134,548
2017	5,968,764	7,063,202
2018	5,296,004	6,992,570



### Activities to Achieve Goal

- 2006 - Installed waterless urinals and faucet sensors & Installed 44 low flow toilets
- 2008 Reduction in painting operations, VFD on cooling tower
- 2010 Install - Piping / Equipment to allow condensate to be sent into Process Water.
- 2011 Completed project on using Process Water instead of city water in Thermoshock Unit located at Reliability. Save 50,000 gal./mo.
- 2013 Maintain - Low Usage of City Water by continuing use of Well Water
- 2014 - Install in New Expansion Area Bathrooms- Sensors on Sinks-In Men & Women bathrooms, Low Flush Toilets-in Men & Women bathrooms, and Waterless Urinals in Men's Bathrooms.
- Oct. 2015 - Installed BLM Parts Washer, thus eliminating use of Paint Line, which used much more water.
- Feb. 2017 - Install 400 Ton - Yoke Parts Washer, thus will eliminate the use of Paint Line, which estimates shows it uses more water
- Dec. 2018 -Jan. 2019 - Removed Paint Line, a large generator of waste water when used.

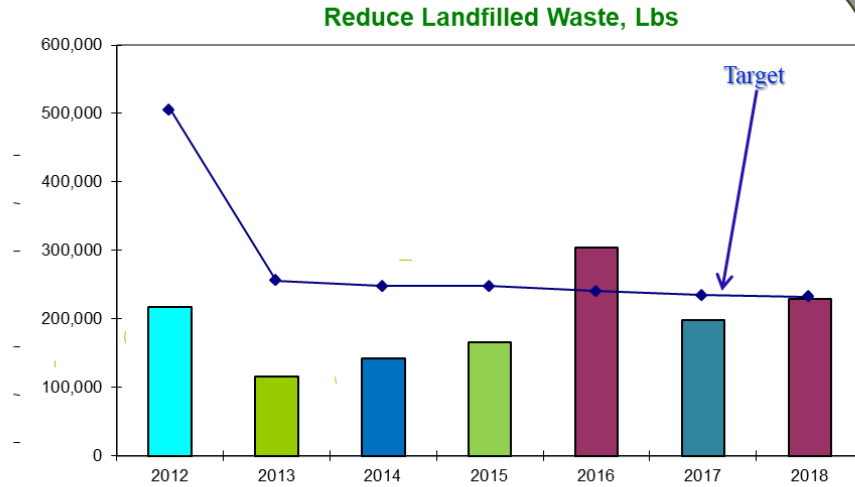


# 2. Aggressive Goals

## Waste - FY 2018

FY18: Reduced Landfill Goal by 1.0 % per Ecovision Guidelines

Year	Landfill, Lbs	FY Target
2012	218,136	505,219
2013	115,600	255,852
2014	143,020	248,176
2015	165,300	248,176
2016	303,820	240,731
2017	198,760	234,712
2018	228,907	232,365



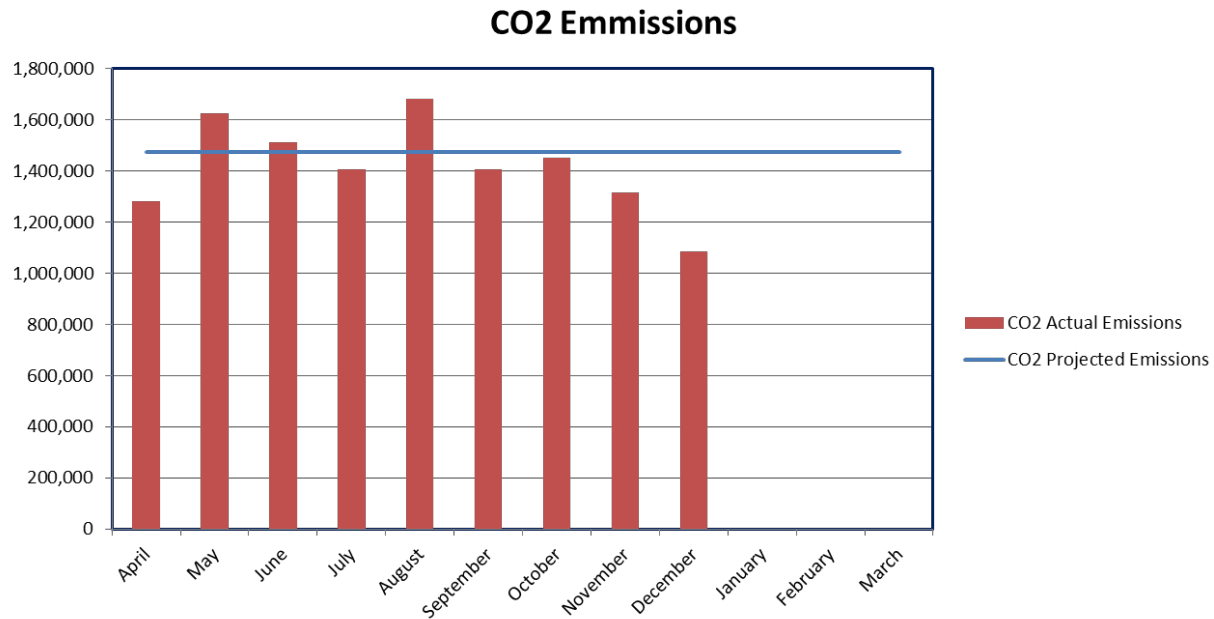
### Activities to Achieve Goal

- FY08 Re-established markets for thermoplastic sprues ~150,000 lbs/yr, employee education program
- FY10 Added K Blower Holders & Re grind – PP Being recycled or reused
- FY11 Started Recycling Styrofoam – Brushes are shipped on Styrofoam and is used by K Bl.PI.Housing.
- FY13 Reduce usage of DE (Diatomaceous Earth)
- FY12 Thermoset – Started Sending to Customer – Waste to Burn. Avg./ Mo dropped from 42,000/mo to 20,000/mo. – 1<sup>st</sup> 6 mos of sending Thermoset to Customer.- Waste to Energy
- FY13 Continued shipping Thermoset to Waste to Energy Company./ Started shipping 3 Trailer loads per week to 1 Recycle Company Feb.
- FY16 Started sending food waste to compost facility. In CY2017, ANC sent 4.05 tons of food waste to become compost.
- FY16 Requested and received okay to Start sending GS & BF23 (PBT) Sprues & Plastic Parts to Waste to Energy.
- FY17 Recycler company found buyer for Circuit Board Anti-Static Trays but asked EHS to stop recycling reels –both items from clean rooms.
- FY18 Landfill Waste is estimated to be less than 3,458 lbs of target.

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# 2. Aggressive Goals

## CO2 Production Emissions and Goal (Required Ecofactory Goal)



Co2 emissions are calculated from actual kw usage.

- 1- Emissions were over target for May and June due to production requirements due to increased sales.
- 2- Emissions were over target in August due to extreme hot month in July causing AC units to run. Average daily high was 89 degrees. (South #1 which supplies AC units was over 138,380 kw used)

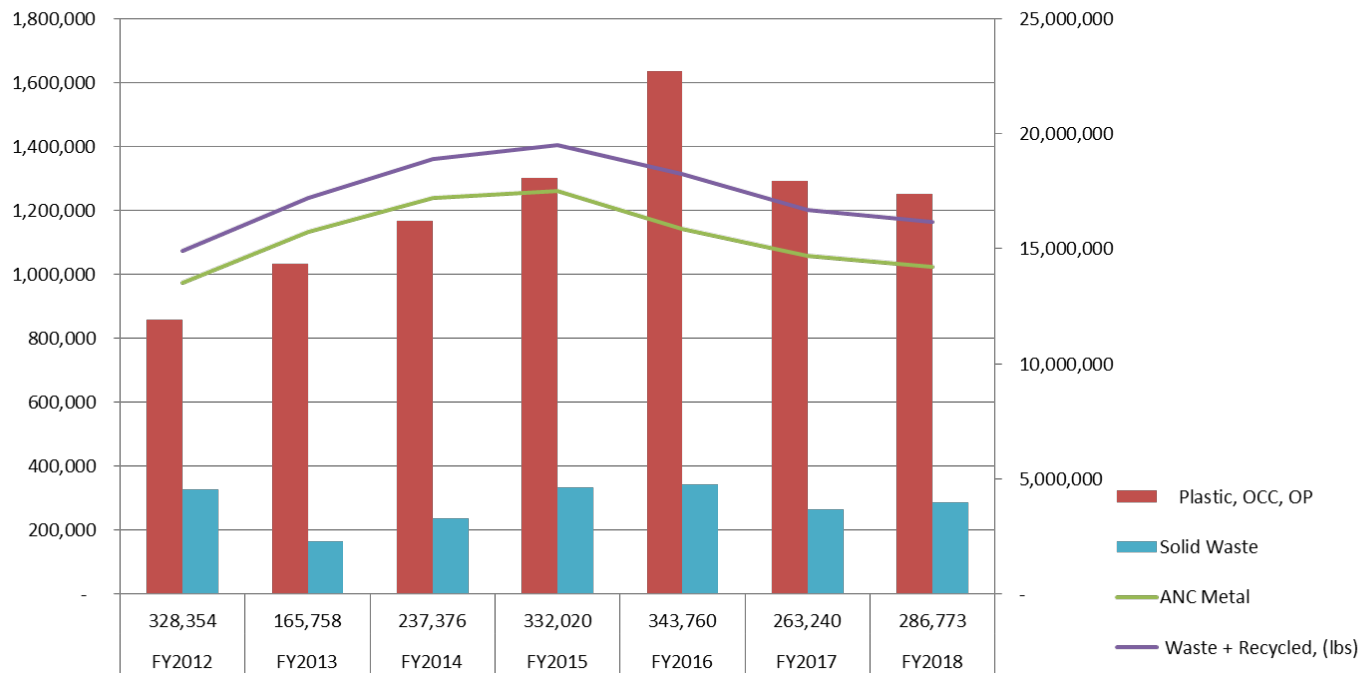
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# 2. Aggressive Goals

## Recycling - FY 2018

EHS Audited Plastics Recycle Company to verify Plastics that are Non-Recyclable are being sent to Waste to Energy Companies

	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
Solid Waste	328,354	165,758	237,376	332,020	343,760	263,240	286,773
Plastic, OCC, OP	858,330	1,031,113	1,168,094	1,299,613	1,633,843	1,292,775	1,250,549
ANC Metal	13,509,196	15,741,125	17,181,933	17,516,761	15,878,437	14,680,923	14,191,772
Waste + Recycled, (lbs)	14,903,508	17,216,129	18,910,916	19,480,493	18,231,027	16,672,289	16,143,968

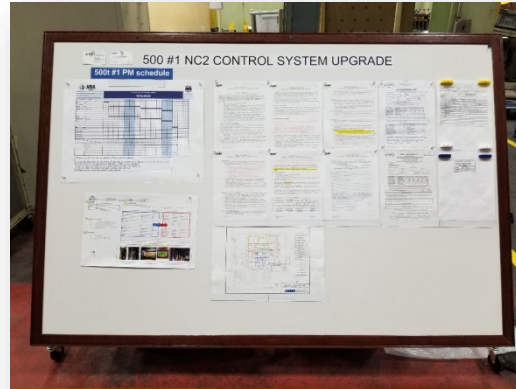


# 3. Beyond Compliance

- Take advantage of the ESI resources
  - Peer learning was great learning experience to mature your EMS
    - Gastonia Waste Water – Government Department Obtaining ISO Certification
    - Engineered Sinter Products – Great Employee Enthusiasm with EMS
    - Military Helicopter Re-Painting- Control of Chemicals Usage
  - Trainings offered through ESI really help grow your knowledge and learn new ideas to achieve your goals
    - Assisted in transition to ISO14001:2015 standard: Conducted management training, gave training to EHS Associates, and gave POC for document review & resulted in 0 findings as a result of New Standard. Note: We did receive 3 minor findings.

# 4. Integration into Core Business Functions

- From design phase, Production Engineering must consider environmental aspects & impacts
  - These environmental items are communicated to contractors through Contractor Safety & Environmental Training



- Monthly environmental Key Performance Indicator (KPI) review at management level

# 5. Community Involvement

- Keep America Beautiful, Keep Iredell Clean Organization
  - Big Sweep
  - Earth/Arbor Day
  - Household Hazardous Waste Day



**Toxic.Free.Home.**



**Iredell County Solid Waste**

**Fall Household Hazardous Waste  
Collection Event**

**SATURDAY, SEPTEMBER 29TH | 12:30—5 PM**

**Iredell County Solid Waste—Statesville | 354 Twin Oaks Road**

Common items accepted: batteries, paint, cleaners, oils, pesticides,  
fluorescent light bulbs, acids, mercury thermostats and  
thermometers, stains and thinners

**Call 704-878-5430 for information.**





***DENSO***

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