



**PAG-ASA  
STEEL**  
FIRST IN QUALITY



CERTIFICATION  
INTERNATIONAL  
ISO 9001:2008  
ISO 14001:2004  
OHSAS 18001:2007

**Energy Efficiency and Conservation**  
**Asia Clean Energy Forum 2015**  
**Asian Development Bank | June 15, 2015**

PAG-ASA STEEL WORKS, INC. produces *concrete reinforcing steel bars* for the construction industry. For *quality materials*, these builders trust Pag-asa Steel



D.M. CONSUNJI, INC.  
ENGINEERS • CONTRACTORS



ROBINSONS LAND CORPORATION



ETON PROPERTIES PHILIPPINES, INC.



MEGAWORLD



ROCKWELL LAND



Our energy efficiency and conservation (EEC) program centers on our *people*, *systems*, and *equipment*, with the full commitment of our senior leadership team



- **Recruitment of subject matter experts** from different industries
- **Training of engineers and managers**
  - Participation in programs by **UNIDO** and **JETRO** in conjunction with the Philippine government

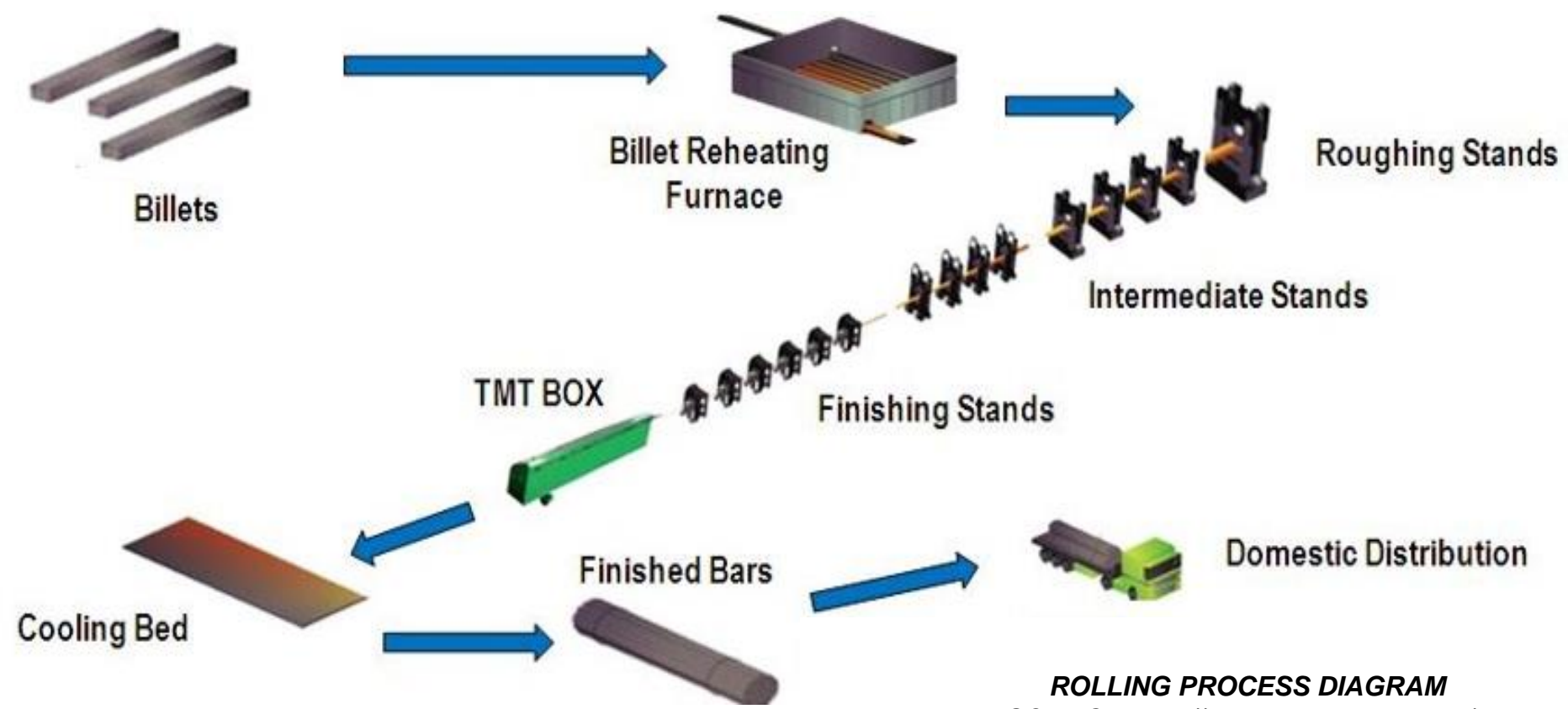


People

Equipment

Systems

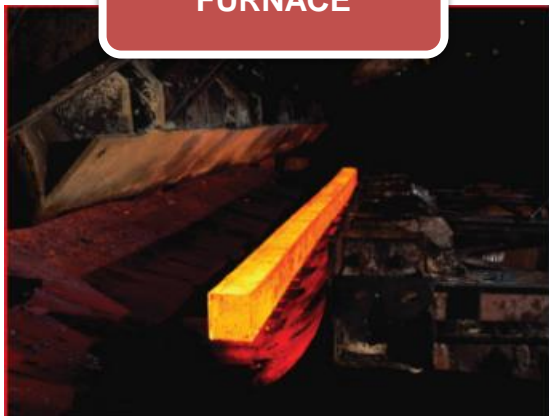
Given the power-intensive process of rolling steel, we strategically invest in *energy-efficient equipment*



**ROLLING PROCESS DIAGRAM**  
SOURCE: <http://www.geosteel.com.ge/>

To reduce our power consumption, we explore new technology in *upgrading our current facilities* as well as in *selecting equipment and controls for our new plant*

### FURNACE



- Took measures to **reduce heat loss** (e.g., maintenance, bunking, pressure control)
- **Designed furnace in new mill** to improve recovery and reduce waste gas

### AIR COMPRESSOR SYSTEM

- Took measures to **repair air leakage** (e.g. maintenance, re-piping, closed loop system)
- Studying use of **variable speed drives** and **inverter controls** for AC equipment to ensure better efficiency

### MOTOR SYSTEM

- Procured **drive motors / DC motors** for the mill to reduce power consumption

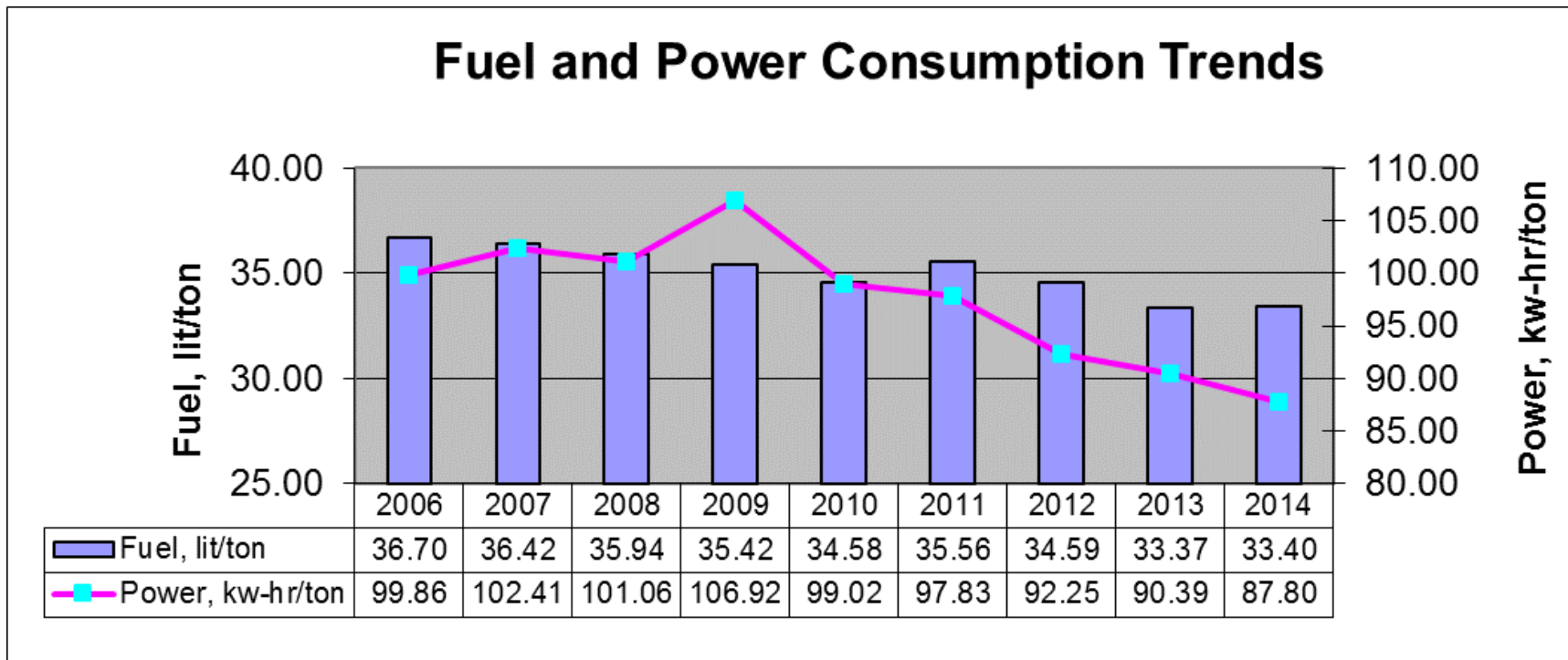
### LIGHTING SYSTEM



- Use of **LED and induction lamps** instead of metal halide or mercury lamps
- Use of **T5 fluorescent / compact fluorescent lamps** in offices

Overall, enforcing proper *monitoring systems* for energy consumption, *maintenance management*, and *administrative controls* are key to realizing the gains of any EEC program

*Regular data monitoring and energy audits ensure that program objectives are met*



Our EEC program has led to *reduced resource consumption, increased cost savings, and recognition from the DOE.* We look forward to further enhancing and expanding this program

### The Department of Energy (DOE)'s Don Emilio Abello Energy Efficiency Award



### Integrated Management System



**ISO 9001:2008**  
Quality Management Systems



**ISO 14001:2004**  
Environmental Management Systems

**OHSAS 18001:2007**  
Occupational Health & Safety Management Systems



**ISO 50001:2011**  
Energy Management Systems



People

Equipment

Systems



**PAG-ASA  
STEEL**



**50**

**FIRST IN QUALITY  
SINCE 1964**

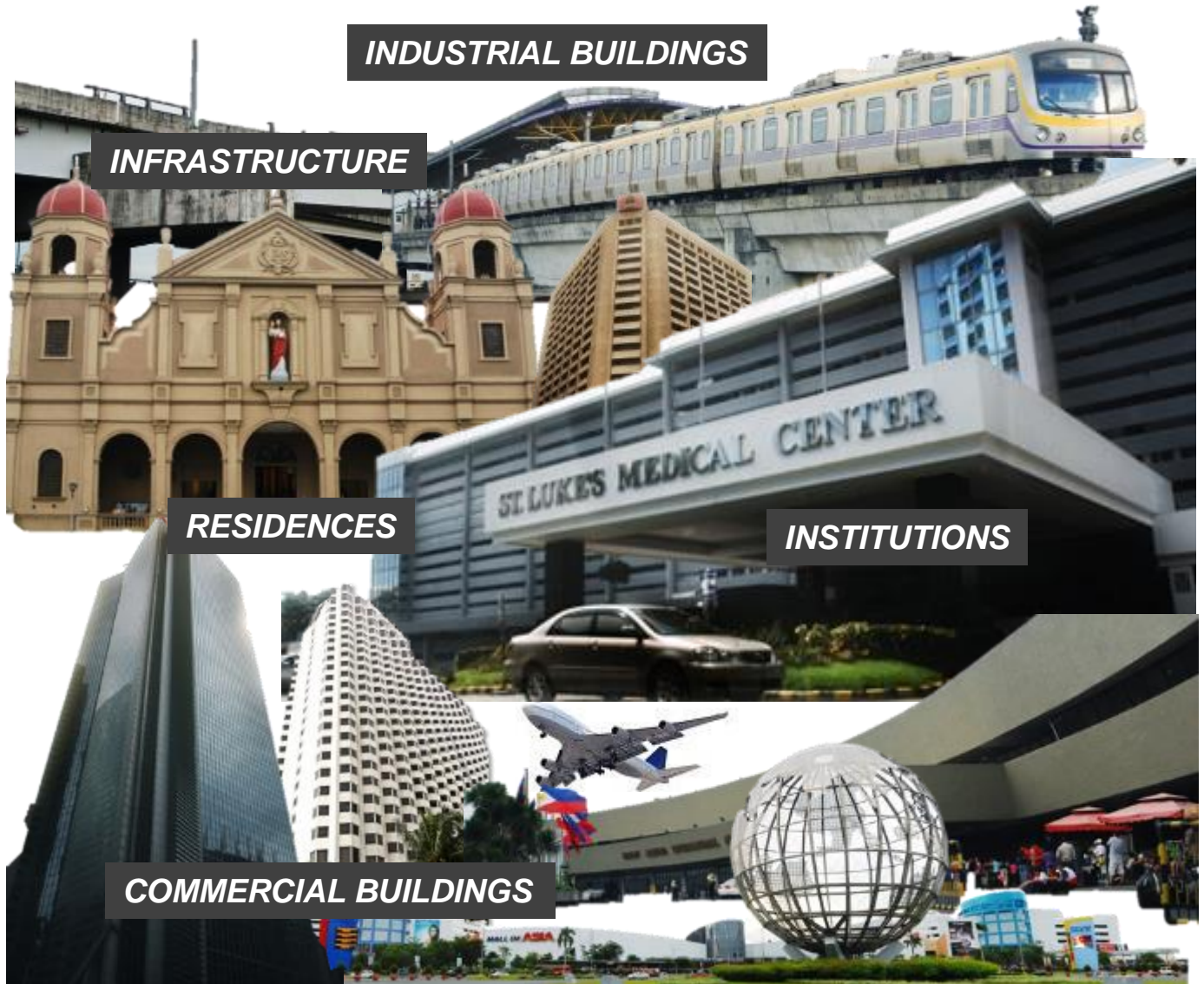
**INDUSTRIAL BUILDINGS**

**INFRASTRUCTURE**

**RESIDENCES**

**INSTITUTIONS**

**COMMERCIAL BUILDINGS**



**Howard.Tong@pagasasteel.com**

408 Amang Rodriguez Ave., Pasig | +632 646-2196 to 99