



December 2018

Natural Gas Electricity

Volume 35
Number 5

THE MONTHLY JOURNAL FOR PRODUCERS, MARKETERS, PIPELINES, DISTRIBUTORS, AND END-USERS

Rare Earth Metals From Fly Ash Are Major Opportunity

Joseph P. Laurino

Rare earth elements (REEs), also called rare earth “metals,” include 17 chemical elements: the 15 lanthanides plus scandium and yttrium. These elements are critical to national security, the development of green energy, and advances in several high-technology fields. These elements are required by products we use daily, from computers to smartphones, from cars to airplanes, and from turbines to sophisticated military hardware.

These elements are critical to national security, the development of green energy, and advances in several high-technology fields.

Currently, the United States' primary REE resource is China

Despite their relative abundance, most REEs are not found in sufficient concentrations to make them economically exploitable. The United States—once able to domestically produce REEs in sufficient quantities—has become totally reliant on imports with the closing of the Mountain

Joseph P. Laurino (jlaurino@periodicproducts.com), Ph.D., MBA, is president and CEO of Periodic Products Inc.

Other Features

Focus: Promising and Profitable Coal Ash Techniques

Environment

Cogeneration for Industrial Wastewater
Evaporation Has Rapid Payback
Mark Macaulay and Casey Cammann..... 7

Management Science

How to Leverage Risk and Operational Discipline
for Consistent, Predictable Performance
Peter V. Bridle..... 13

Environment

A Paradigm Shift in Water Treatment
Aaron Morrison..... 18

Columns

International Energy

After NAFTA: New Risks to North American
Gas Trade?
Jeff D. Makholm..... 23

Natural Gas Matters

Few Workable Solutions for High Winter
Spot Prices in Northeast
Richard G. Smead..... 28