

## Turn Key Consulting:

A 3-phase Approach to Consulting

### Turn Key Consulting:

- Phase 1 - Online Assessment
- Phase 2 - Offline Investigation
- Phase 3 - Analyses & Recommendations

### EPSCO Can Help You!

- ✓ Analyze and define your PM emission problems and alternatives for ESPs, FFs, & Scrubbers
- ✓ Inspect and report on the condition of your existing equipment
- ✓ Engineer, specify equipment, evaluate suppliers; manage your project through startup

With **300+** completed projects  
**25+** years of experience  
**10+** expert consultants

### 3-Phase Approach

- ◆ **Online Assessment:** EPSCO gathers data on allowable emissions, operation of boiler, ESP, FF, FGD, material balances, fuel/ash sources, ash removal systems, historical operation, inspection & test data, etc... to compare real-time performance of APC equipment against design or theoretical performance expected.
- ◆ **Offline Assessment:** EPSCO, whenever outage time allows, will perform mechanical, electrical and structural inspections of the ESP, to evaluate its physical condition, and identify whether there are any obvious flaws in the component hardware which are responsible for any deviations from design or “theoretical” performance.
- ◆ **Analyses & Recommendations:** EPSCO will then analyze all data collected, identify, evaluate, cost, and make recommendations to upgrade the ESP to meet the users’ particulate emissions objectives.

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# EPSCO Senior Consultants

## Thomas Keeler

President of EPSCO International & TRK Engineering Services. EE with over 30 years experience in APC equipment and editor & co-author of EPRI's ESP Maintenance Guide.

## Tapan Mukherjee

General Manager of EPSCO International. 40+ years experience in APC equipment. Designed air pollution control systems with GE Power & Alstom Power.

## Keith Bradburn

48 years experience in APC equipment with 21 years at Lodge-Cottrell in England & USA and 27 years with Flakt/ALSTOM.

## Charles Barranger

40+ years in turnkey design, supply and installation of EPSs, FFs, FGD systems, and SO<sub>3</sub>, NO<sub>X</sub>, & HG control systems.

## Tim Mallory

25+ years experience with fabric filters, wet and dry ESPs, dry scrubbers, mercury controls and materials handling systems.

## Turn Key EPSCO Project List

### Arkansas P & L

Hot/cold conversions at White Bluff 1 & 2, Independence 1 & 2

### Dupont

Delisle Plant Unit 1 & 2  
ESP Rebuild & Upgrade

### IPALCO

Phase I, II, III work at Perry K, Stout 5, 6, 7

### Pacificorp

Phase I, II, III studies at Hunter 1 & 2, Huntington 1 & 2, Naughton 3, and Phase I and II at Carbon 2

### San Antonio P.S.

Hot/cold conversion of ESP at J.T. Deely 1 & 2

### TVA

Colbert 1-4, coal switching with Phase I, II, III projects

### Duke Energy

Structural inspections and evaluations of ESPs at Belews Creek, Cliffside, Marshall, and Riverbend

### Entergy

White Bluff Units 1 & 2  
ESP Performance Upgrades

### Niagara Mohawk

Phase I, II, III studied for upgrade of Huntley #66

### Wisconsin Public Service

Phase I, II, III upgrades of ESPs with FLS panel plates and RDEs at Pulliam 5 and Pulliam 8

### Progress Energy

Crystal River Units 4 & 5  
ESP Rebuild & Upgrade

### Transalta Centralia

ESP Units 1 & 2 Upgrades (AVC, rapper, gas flow modifications)