



# Wind Effects and Mitigation for Air-Cooled Condensers

*This is a proposal for the Advanced Cooling Technologies supplemental project. Final project tasks will be selected through prioritization by the project funders.*

## Issue

Air-cooled condensers (ACCs) can be dramatically impacted by meteorological conditions, especially from strong and/or gusty winds. Strong winds can cause recirculation of hot air, which impacts unit efficiency and can cause load drops. Gusty winds can cause air separation from the intakes of the leading-edge fans, resulting in lost efficiency and capacity, and also has been known to cause unit trips.

## Description

EPRI proposes to document wind mitigation techniques (wind screens, baffles, etc.) and pilot-test a new technique for minimizing inlet air separation. CFD modeling has demonstrated that the latter technique is effective in preventing sudden back-pressure changes, but full-scale ACC testing is needed to validate.

## Value

- Improved performance of existing ACCs that suffer wind-related operational difficulties
- Specifications for designing wind mitigation in new ACC installations
- Improved efficiency and reduced capacity reductions
- Elimination of wind-related trips

## Approach

EPRI will document current wind-related retrofits on existing ACCs. EPRI will secure a demonstration site with current wind-related operational difficulties and build and install new baffling based on CFD modeling. Pre- and post-installation testing will be used to verify mitigation performance as compared to modeling results. Final report will provide details of design that will support specification of new ACCs that could experience wind issues.

## Project Deliverables

Deliverable Title	Planned Completion Date	Deliverable Type
Wind Effects and Mitigation for Air-Cooled Condensers	12/31/2010	Technical Report

## How to Apply the Results

The results of this project will provide the technical results and design specifications to allow members to apply appropriate wind mitigation techniques for particular performance issues.

## Cost Estimate

This project is expected to cost \$250,000  
 Year 1: Documentation of current state of the art for wind mitigation (\$75,000)  
 Year 2: Field installation and testing of new wind baffling (\$175,000)

## For More Information

For more information, contact the EPRI Customer Assistance Center at 800.313.3774 (askpri@epri.com).

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July 2008

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