Viability and Impacts of Implementing Various Power Plant Cooling Technologies in Texas

EPRI | ELECTRIC POWER RESEARCH INSTITUTE

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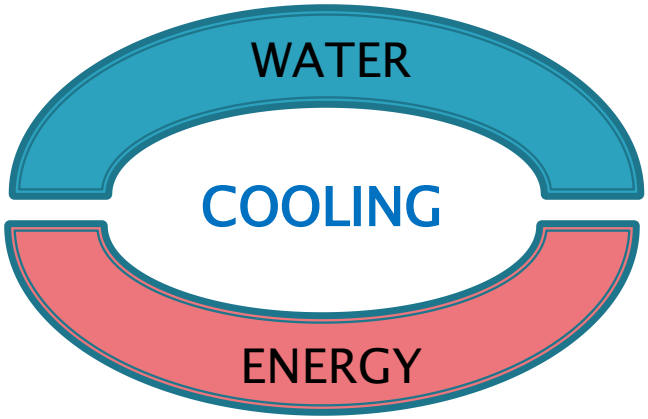
WATER CONSERVATION & TECHNOLOGY CENTER
Securing Our Water Future

Texas Water Resources Institute
make every drop count

TCAT Texas Center for Applied Technology
Designed to make a difference

THE ISSUES

- CONFUSION



- RETRO-FIT

  REPERCUSSIONS ?

- USE VS CONSUMPTION

OBJECTIVES OF THE STUDY

- CLARIFY
  - *ONCE-THROUGH*
  - *WET TOWERS*
  - *AIR COOLED CONDENSERS*

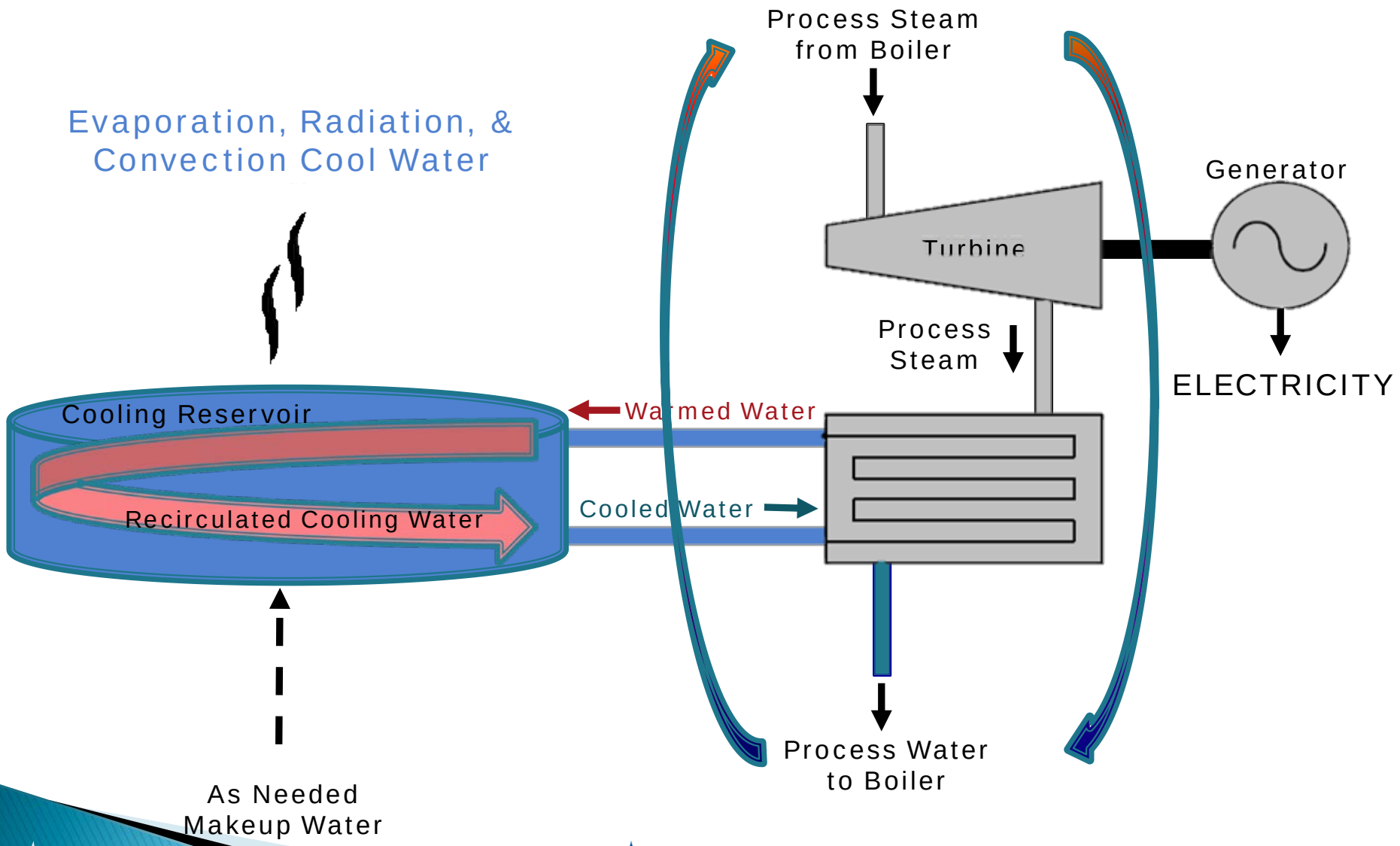
USE

CONSUMPTION

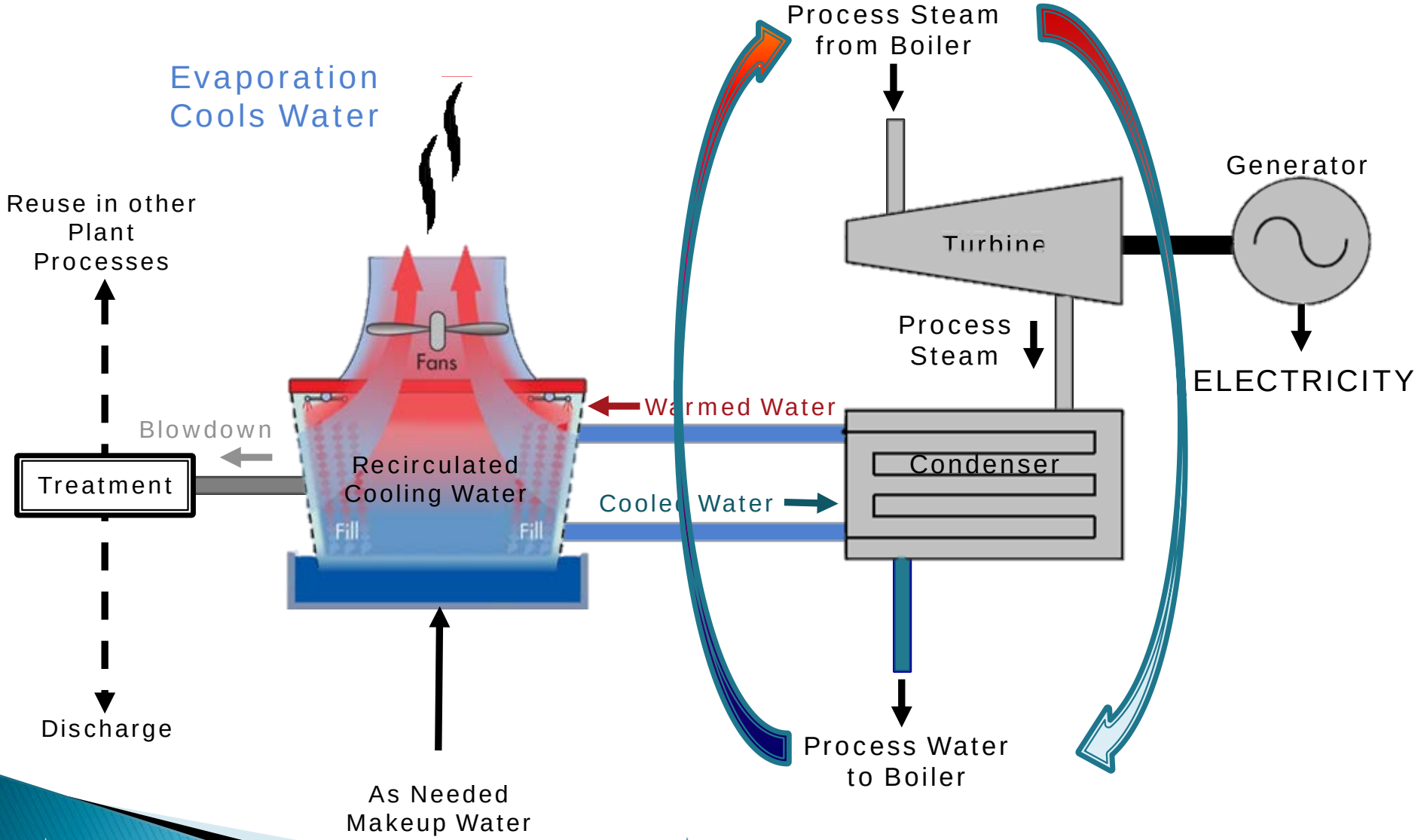
- ECONOMIC IMPACTS OF MANDATING A SINGLE COOLING TECHNOLOGY

- CONTEXT

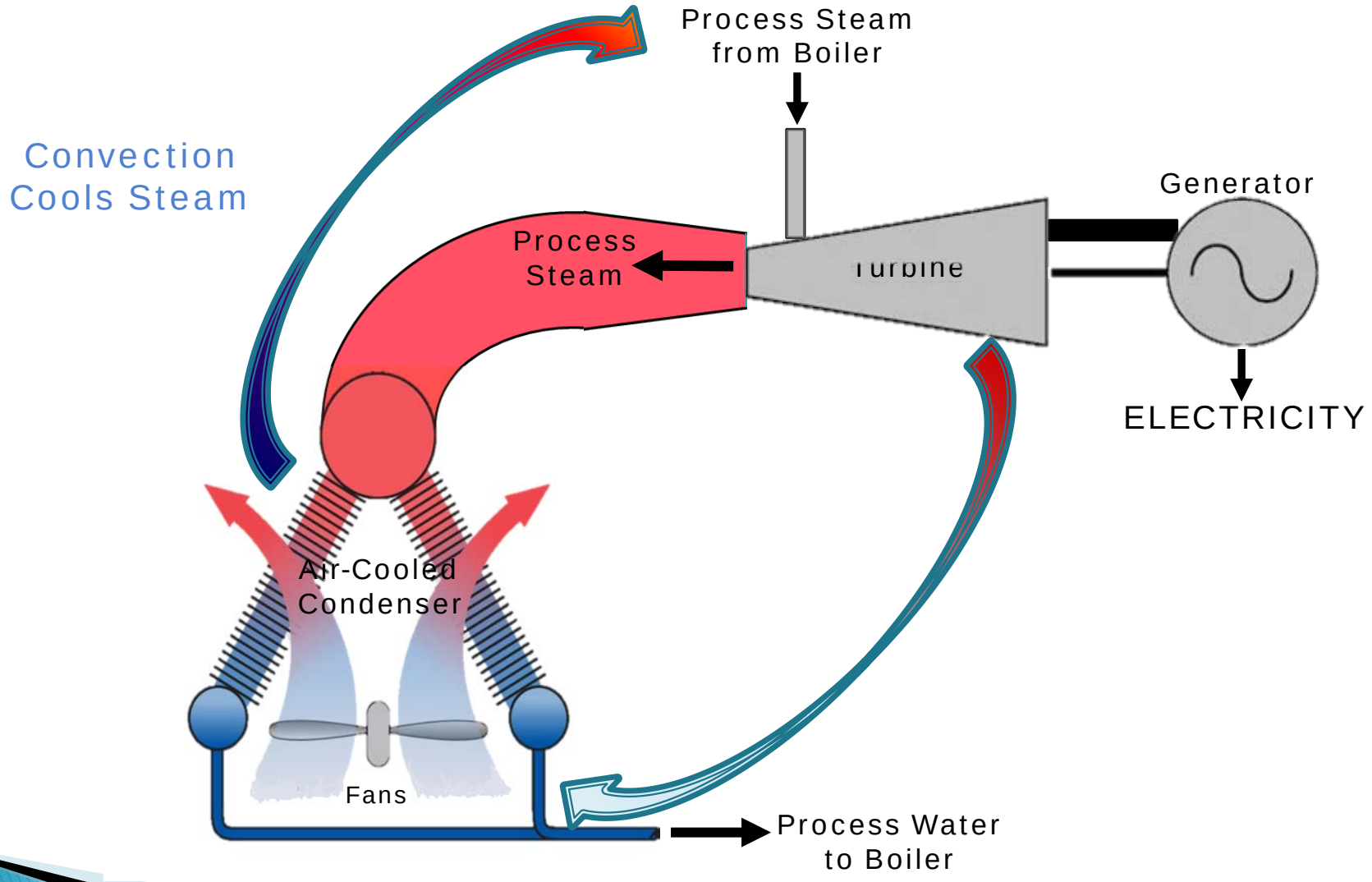
“Once-Through” Reservoir Cooling System



EVAPORATIVE COOLING TOWER SYSTEM



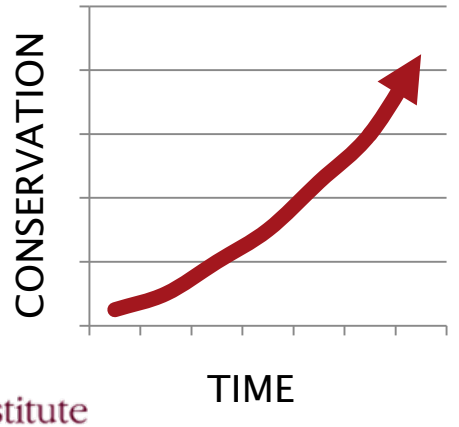
TYPICAL DRY COOLING SYSTEM



RESULTS

- MANDATING ONE TECHNOLOGY HAS CONSEQUENCES
  - RETURN ON INVESTMENT ?
  - PREMATURE RETIREMENT
  - SUPPLY ≠ DEMAND
  - RIPPLE EFFECT
- WATER CONSERVATION IS **SOP** IN TEXAS

  < 10 gal (consumed) water = 1 day of electricity/household



CONCLUSIONS

- TEXAS IS THE LEADER

- POWER PRODUCERS NEED FLEXIBILITY
  - INVEST IN TEXAS $
  - LOW RATES
  - SUPPLY = DEMANDS

- CONSERVATION + CULTURE = RESULTS