

# High Capacity High Efficiency Conductors

Emissions  
Reduction



## High Capacity High Efficiency Conductors offer many advantages

- Allow for load growth
- Allow for the integration of renewables over time
- Offer added capacity for emergency “N-1” conditions
- Substantially reduce thermal sag to improve reliability
- Offer improved resistance to corrosion and fatigue
- Offer improved strength and resiliency.



*Equally Important – the High Efficiency and Capacity offers substantial reductions in transmission line losses and CO2 emissions*

# A simple but real example

## 100 mile - 345 kV line – replaced ACSR with ACCC



### Notes:

Doubled bundled conductor

No structural modifications

Load factor = 62%

US National Average CO<sub>2</sub> = 1.372# /

kWh

1 car = 4.75 MT CO<sub>2</sub> / year

Cost of conductor ~ \$12.7M

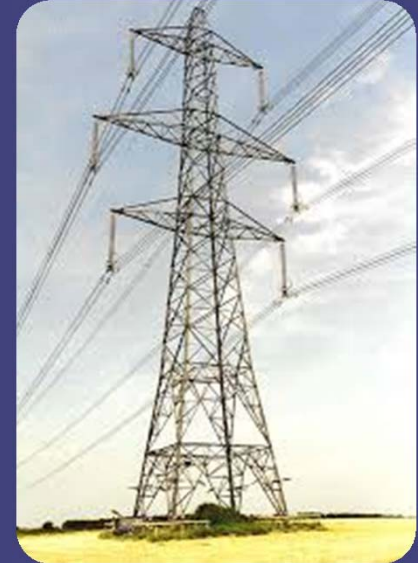
### Project Results

- Increased line capacity by 57% with 700 amp emergency reserve
- Reduced line losses by 30%
- Saves ~ 300,000 MWh / year = \$19M @ \$0.06 / kWh
- 200,000 Metric Tons CO<sub>2</sub> / year
- Removing 42,000 cars from the road
- Frees up ~ 50 MW of generation (\$50M+)

The World spends Billions of \$\$ per year on



Power Generation Efficiency  
Renewable Energy  
High Efficiency Appliances  
Efficient HVAC Systems  
Electric and Hybrid Automobiles  
Clean Emissions Technology



The US Clean Power Plan challenge will require significant spending to meet CO2 emissions reductions - >32% relative to 2005 levels

# *Can the Transmission Grid offer opportunities to facilitate the Clean Power Plan objectives*

What would be the result of replacing your ten most congested transmission lines with High Capacity – High Efficiency Conductors

*Line Loss Savings*

*CO2 Reduction*

*Generation and Transmission Capital Reduction*

CTC Global can help!