WELCOME
BOMA EAST BAY

FRANK LEDDA

AGENDA

WHAT IS ELECTRIFICATION

DECARBONIZATION

HOW TO GO ELECTRIC

IDENTIFY ELECTRIFICATION PROJECTS

Target 7. a: By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology.

PARIS ACT

- Limit temperature rise 'well below' 2 C. ...
- First universal climate agreement. ...
- Helping poorer nations. ...
- Publishing greenhouse gas reduction targets. ...
- Carbon neutral by 2050?

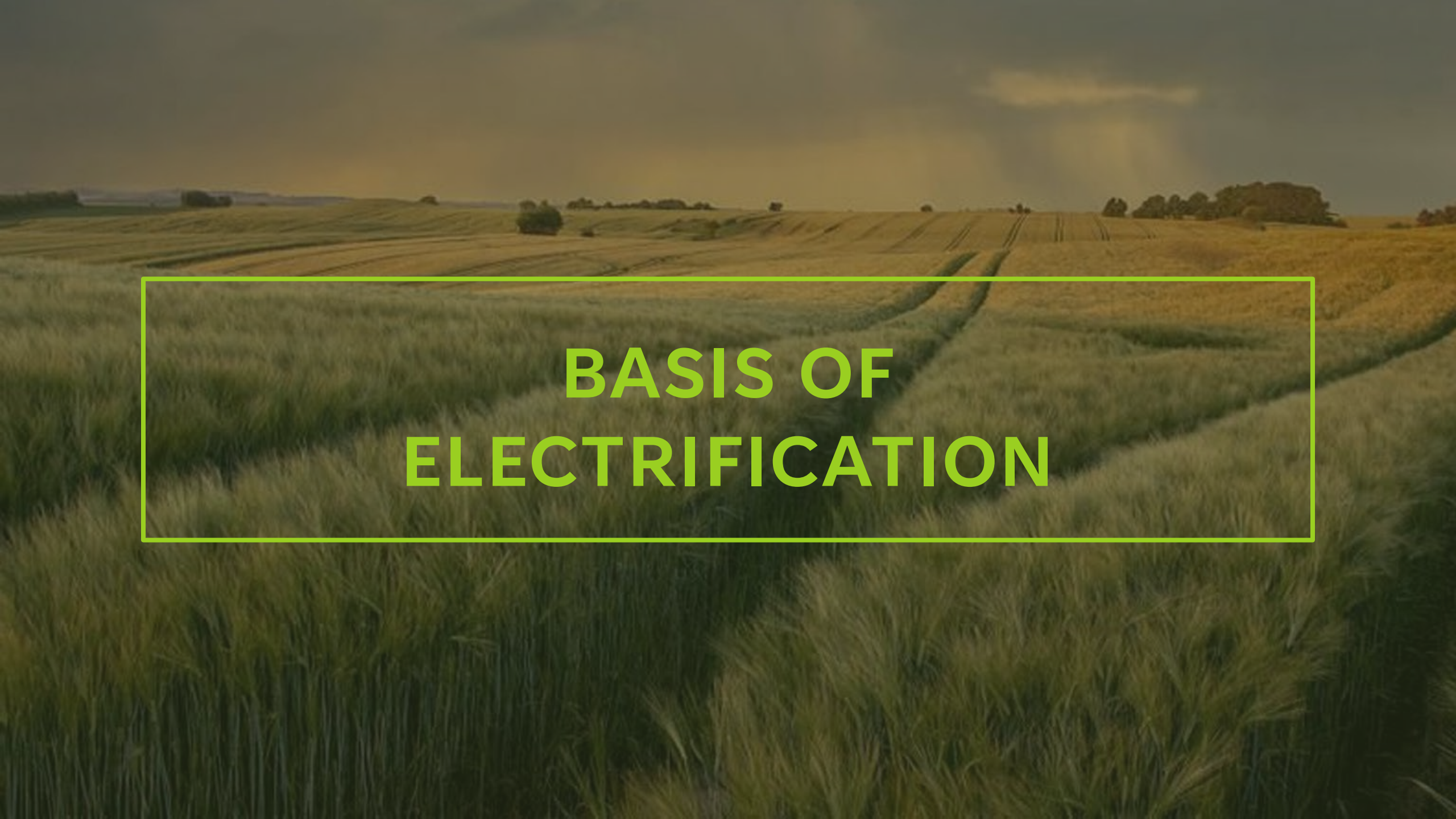
The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.

THE WHY
REDUCE CARBON

BOILER FLUE TEMPS

- OLD ATMOSPHERIC BOILER FLUE TEMPS
- 473 DEGREES F

NEWER BOILER FLUE 245 DEGREES F


BASIS OF
ELECTRIFICATION

FIRST STEPS

- SPACE PLANNING
- IDENTIFY SPACE FOR THERMAL STORAGE
- THE HEAT LOAD IS THE DIFFICULT PART OF MEETING THE LOAD CAPACITY
- SIMULATANEOUS HEATING AND COOLING EQUIPMENT

MOTIVATORS

- EXISTING CHILLER CONDITIONS
- TYPES OF EXISTING REFRIGERANT
- EXISTING BOILER CONDITIONS
- COOLING TOWER CONDITIONS
- IDENTIFY CONTROLS

IDENTIFYING POTENTIAL OPPORTUNITIES

BUILDING UNDER SIX STORIES

ONE OR TWO BOILERS

OLDER BUILDINGS WITH CHILLERS (banned refrigerants)

OLDER BUIDLINGS WITH COOLING TOWERS

COMPLETED JOBS

1255 BATTERY

1160 BATTERY WEST

WORK IN ROGRESS

1160 BATTERY EAST

POTENTIAL PROJECTS

160 FRANKLIN

CITY OF EMERYVILLE

WATER COOLED
AIR COOLED

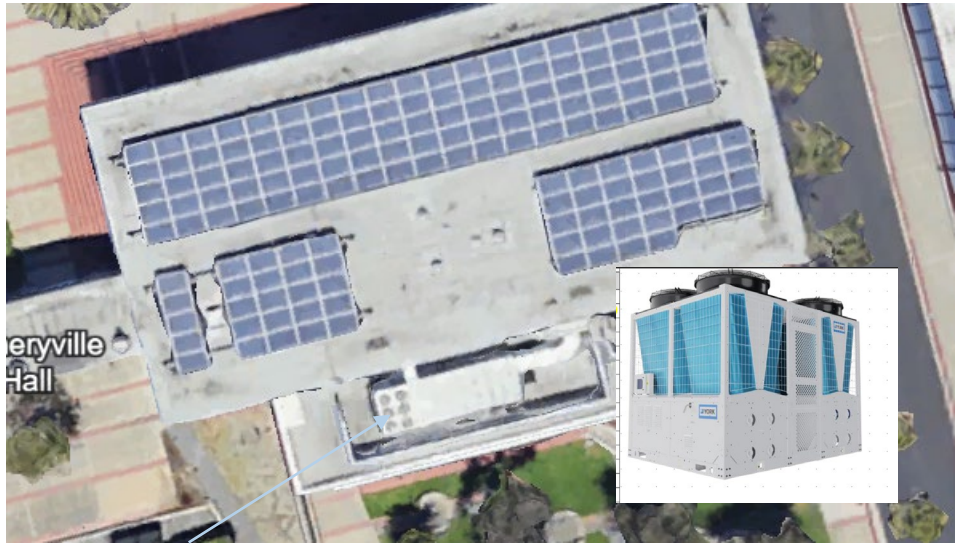
AIR COOLED SAMPLE

HOW TO MOVE FORWARD

1. REMOVE THE BOILER AND REPLACE WITH SIMULTANEOUS HEATING AND COOLING UNIT
2. REMOVE THE BOXCAR AND REPLACE WITH AN AIR HANDLER WITH A COOLING COIL AND PRE-HEAT HOT WATER COIL

HOW TO MOVE FORWARD

1. INSTALL AIR COOLED SIMULTANEOUS CHILLER AND HEATING UNIT
2. INSTALL HEATING AND COOLING THERMAL STORAGE.
3. MAY NEED TO IMPROVE ROOF STRUCTURE



143 amps / 70 TONS

140 amps / 70 TONS

HOT AND COLD WATER DELIVERED

HOT AIR DELIVERY I25-140 AIR COOLED DEG F

COLD AIR DELIVERY 42-46 DEG F

CONDITIONS	DESIGN	TARGET	ACTUAL
AIR COOLED HEATING	125-140 DEG F	HOT	125-140
AIR COOLED COOLING	42-46	TYPICAL	TYPICAL
VAV ZONES	ROWS OF COILS	2-3	1-2
PUMPS	GALLONS PER MINUTE	2.5-3.0 GPM PER TON	INTEGRATED VFD
DIRECT DIGITAL CONTROLS	REQUIRED	INPUT VARIABLES	UPGRADE

WATER COOLED CHALLENGES

SPACE

ELECTRICITY

WATER COOLED OPTIONS

RETROFIT OPTIONS

EXISTING CHILLER

SIMULTANEOUS HEATNG AND COOLING

- EXISTING 200 TON CHILLER ELECTRICAL LOAD 181 AMPS, 11,000 POUNDS
- SIMULTANEOUS HEATING AND COOLING ELECTRICAL LOAD 369 AMPS, 15,000 POUNDS
- SPACE ISSUES-STRUCTRAL

- NO BUENO

PROCESS HEATING

HEALTHCARE

FOOD PROCESSING

STEAM GENERATION

- SYSTEMS WILL REQUIRE MORE WATER USAGE
- WINE
- STERILIZATION
- STEEL FABRICATION

THANK YOU

FRANK LEDDA

510-701-5940