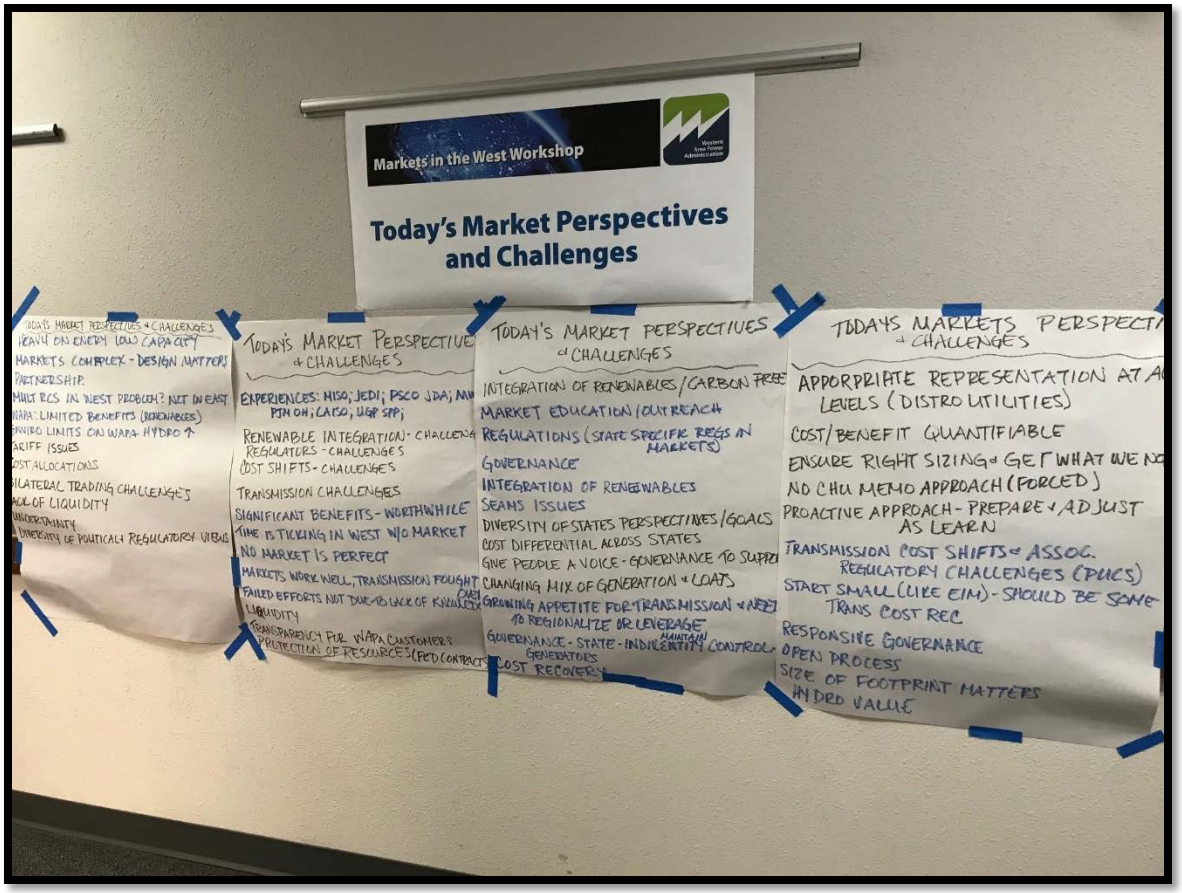
Markets in the West Workshop Pictures of Report-out Notes

April 9-10, 2019 | Phoenix, AZ

Western Area Power Administration

Western Area Power Administration

Today's Market Perspectives and Challenges


Markets in the West Workshop
Today's Market Perspectives and Challenges
TODAY'S MARKET PERSPECTIVES & CHALLENGES
HEAVY ON ENERY LOW CAPACITY
MARKETS COMPLEX - DESIGN MATTERS
PARTNERSHIP
MULT RCS IN WEST PROBLEM? NOT IN EAST
WAPA: LIMITED BENEFITS (RENEWABLES)
ENVIRO LIMITS ON WAPA HYDRO ↑
TARIFF ISSUES
COST ALLOCATIONS
BILATERAL TRADING CHALLENGES
LACK OF LIQUIDITY
UNCERTAINTY
UNCERTAINTY OF POLITICAL & REGULATORY VIEWS
TODAY'S MARKET PERSPECTIVES & CHALLENGES
EXPERIENCES: MISO; JEDI; PSCO JDA; MW
PJM OH; CAISO; UGP SPP;
RENEWABLE INTEGRATION - CHALLENGES
REGULATORS - CHALLENGES
COST SHIFTS - CHALLENGES
TRANSMISSION CHALLENGES
SIGNIFICANT BENEFITS - WORTHWHILE
TIME IS TICKING IN WEST W/O MARKET
NO MARKET IS PERFECT
MARKETS WORK WELL; TRANSMISSION FOUGHT
FAILED EFFORTS NOT DUE TO LACK OF KNOWLEDGE
LIQUIDITY
TRANSPARENCY FOR WAPA CUSTOMERS
PROTECTION OF RESOURCES (FED CONTRACTS)
TODAY'S MARKET PERSPECTIVES & CHALLENGES
INTEGRATION OF RENEWABLES/CARBON FREE
MARKET EDUCATION/OUTREACH
REGULATIONS (STATE SPECIFIC REGS IN MARKETS)
GOVERNANCE
INTEGRATION OF RENEWABLES
SEAMS ISSUES
DIVERSITY OF STATES PERSPECTIVES/GOALS
COST DIFFERENTIAL ACROSS STATES
GIVE PEOPLE A VOICE - GOVERNANCE TO SUPPO
CHANGING MIX OF GENERATION & LOADS
GROWING APPETITE FOR TRANSMISSION & NEED TO REGIONALIZE OR LEVERAGE
GOVERNANCE - STATE - INDIVIDUALITY MAINTAIN CONTROL
GENERATORS
COST RECOVERY
TODAYS MARKETS PERSPECTIVES & CHALLENGES
APPORPRIATE REPRESENTATION AT A LEVELS (DISTRO UTILITIES)
COST/BENEFIT QUANTIFIABLE
ENSURE RIGHT SIZING & GET WHAT WE NE
NO CHU MEMO APPROACH (FORCED)
PROACTIVE APPROACH - PREPARE & ADJUST AS LEARN
TRANSMISSION COST SHIFTS & ASSOC. REGULATORY CHALLENGES (PUCS)
START SMALL (LIKE EIM) - SHOULD BE SOME TRANS COST REC
RESPONSIVE GOVERNANCE
OPEN PROCESS
SIZE OF FOOTPRINT MATTERS
HYDRO VALUE

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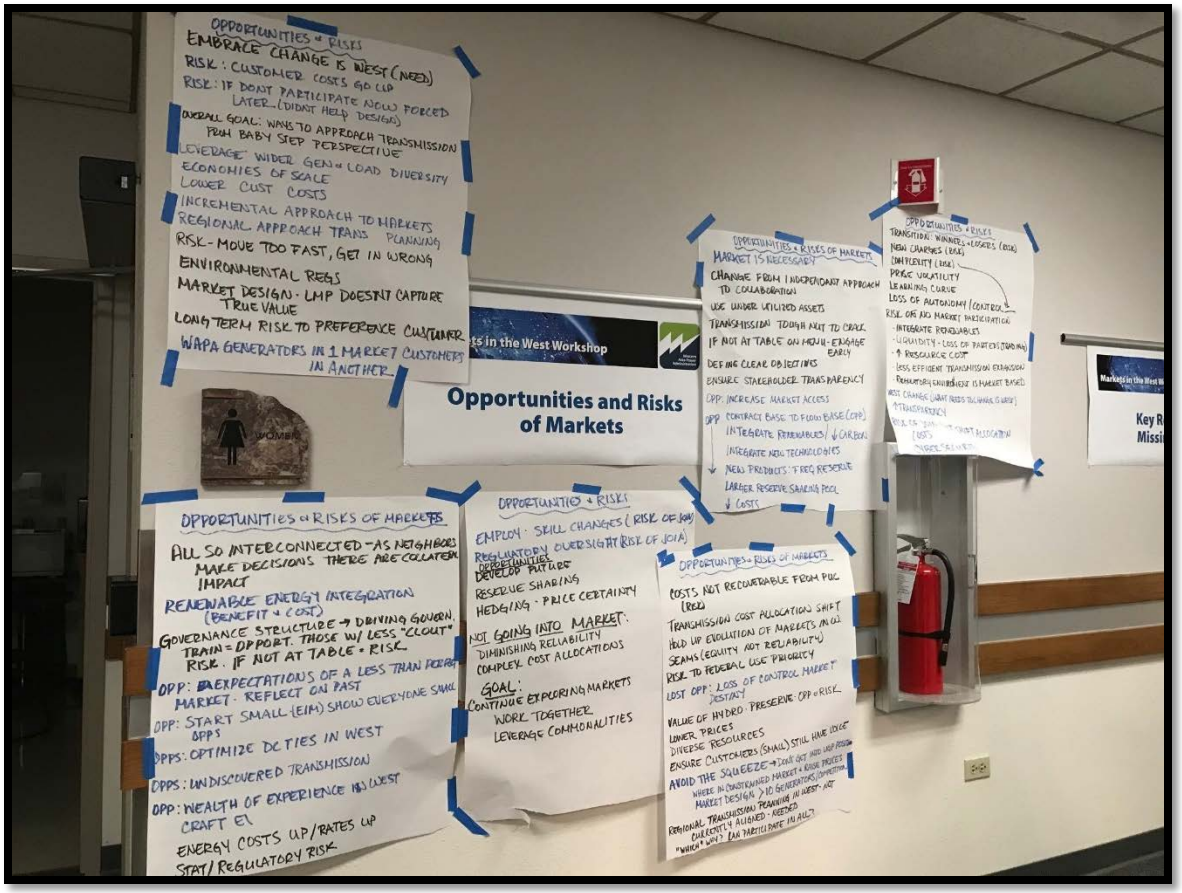
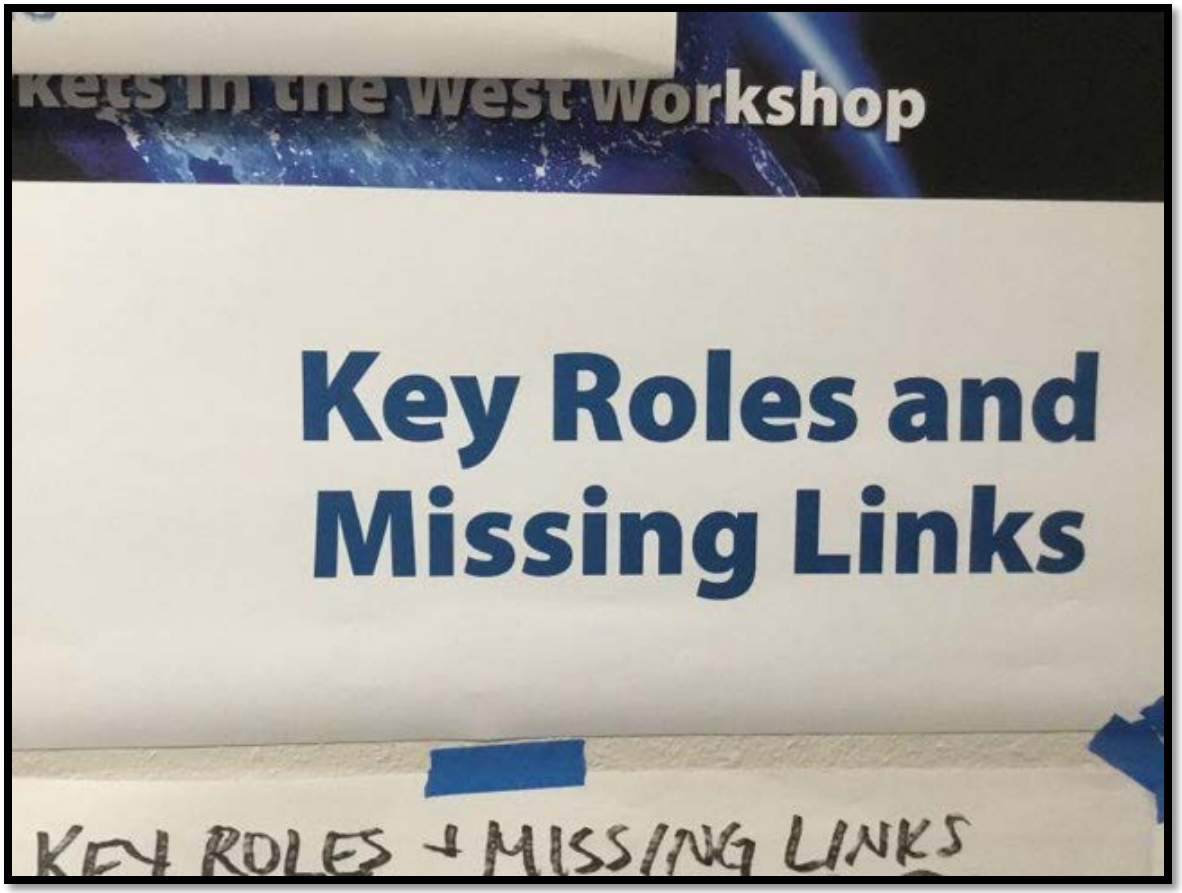
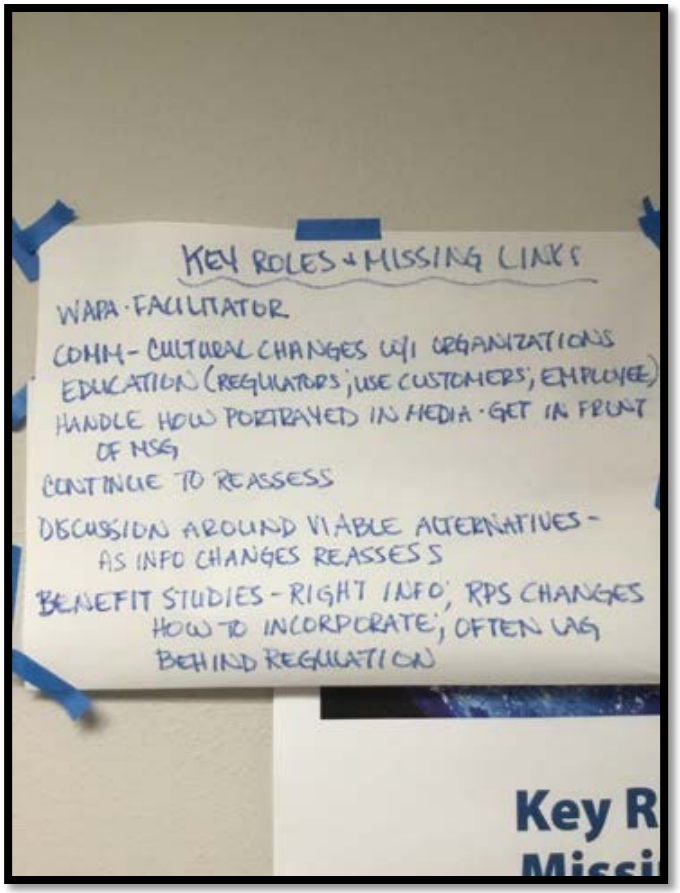
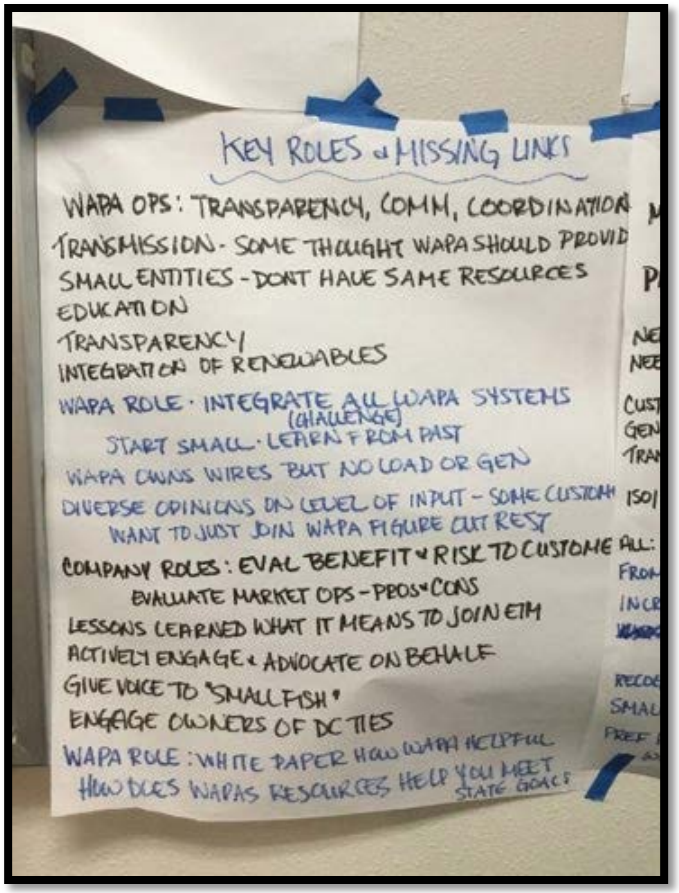
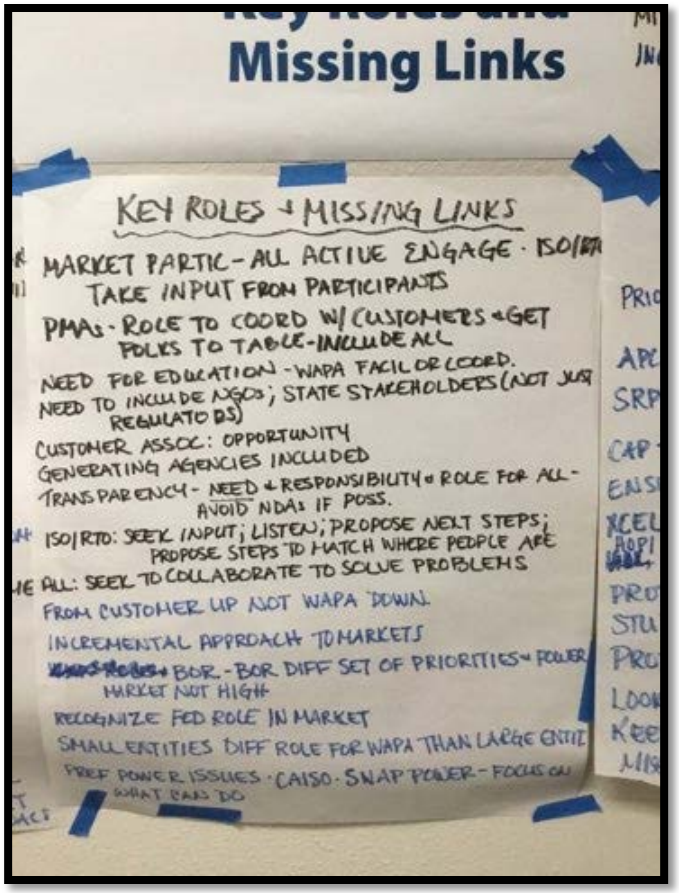
Opportunities and Risks of Markets

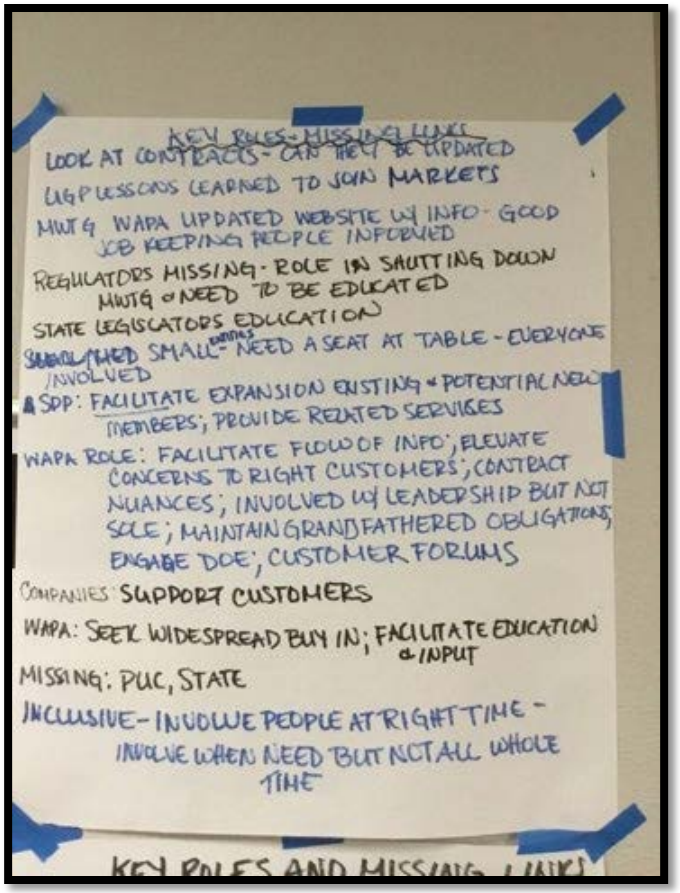

OPPORTUNITIES + RISKS
EMBRACE CHANGE IS BEST (NEED)
RISK: CUSTOMER COSTS GO UP
RISK: IF DONT PARTICIPATE NOW FORCED LATER (DIDNT HELP DESIGN)
OVERALL GOAL: WANT TO APPROACH TRANSMISSION FROM BABY STEP PERSPECTIVE
LEVERAGE WIDER GEN + LOAD DIVERSITY
ECONOMIES OF SCALE
LOWER CUST COSTS
INCREMENTAL APPROACH TO MARKETS
REGIONAL APPROACH TRANS PLANNING
RISK - MOVE TOO FAST, GET IN WRONG
ENVIRONMENTAL REGS
MARKET DESIGN - LMP DOESN'T CAPTURE TRUE VALUE
LONG TERM RISK TO PREFERENCE CUSTOMER
WAPA GENERATORS IN 1 MARKET CUSTOMERS IN ANOTHER
WOMEN
Markets in the West Workshop
Opportunities and Risks of Markets
OPPORTUNITIES + RISKS OF MARKETS
MARKET IS NECESSARY
CHANGE FROM INDEPENDENT APPROACH TO COLLABORATION
USE UNDER UTILIZED ASSETS
TRANSMISSION TOUGH NUT TO CRACK
IF NOT AT TABLE ON MOU - ENGAGE EARLY
DEFINE CLEAR OBJECTIVES
ENSURE STAKEHOLDER TRANSPARENCY
OPP: INCREASE MARKET ACCESS
OPP CONTRACT BASE TO FLOW BASE (CAP)
INTEGRATE RENEWABLES / ↓ CARBON
INTEGRATE NEW TECHNOLOGIES
NEW PRODUCTS: FREQ RESERVE
LARGER RESERVE SHARING POOL
↓ COSTS
OPPORTUNITIES + RISKS
TRANSITIONAL WINNERS + LOSERS (RISK)
NEW CHANGES (RISK)
COMPLEXITY (RISK)
PRICE VOLATILITY
LEARNING CURVE
LOSS OF AUTONOMY / CONTROL
RISK OF NO MARKET PARTICIPATION
- INTEGRATE RENEWABLES
- LIQUIDITY - LOSS OF PARTICIPANTS (TOO MANY)
↑ RESOURCE COST
LESS EFFICIENT TRANSMISSION EXPANSION
REGULATORY ENVIRONMENT IS MARKET BASED
MUST CHANGE (WHAT NEEDS TO CHANGE IS UNCLEAR)
TRANSPARENCY
LOSS
OPPORTUNITIES + RISKS OF MARKETS
ALL SO INTERCONNECTED - AS NEIGHBORS MAKE DECISIONS THERE ARE COLLATERAL IMPACT
RENEWABLE ENERGY INTEGRATION (BENEFIT + COST)
GOVERNANCE STRUCTURE → DRIVING GOVERN. TRAIN = OPPORT. THOSE W/ LESS "CLOUT" RISK. IF NOT AT TABLE = RISK
OPP: EXPECTATIONS OF A LESS THAN PERFECT MARKET - REFLECT ON PAST
OPP: START SMALL (EIM) SHOW EVERYONE SMALL OPPS
OPPS: OPTIMIZE DC TIES IN WEST
OPPS: UNDISCOVERED TRANSMISSION
OPP: WEALTH OF EXPERIENCE IN WEST
CRAFT EV
ENERGY COSTS UP/RATES UP
STAT/REGULATORY RISK
OPPORTUNITIES + RISKS
EMPLOY: SKILL CHANGES (RISK OF JOB)
REGULATORY OVERSIGHT (RISK OF JOB)
OPPORTUNITIES
DEVELOP FUTURE
RESERVE SHARING
HEDGING - PRICE CERTAINTY
NOT GOING INTO MARKET:
DIMINISHING RELIABILITY
COMPLEX COST ALLOCATIONS
GOAL:
CONTINUE EXPLORING MARKETS
WORK TOGETHER
LEVERAGE COMMONALITIES
OPPORTUNITIES + RISKS OF MARKETS
COSTS NOT RECOVERABLE FROM PUC (REG)
TRANSMISSION COST ALLOCATION SHIFT
HOLD UP EVOLUTION OF MARKETS (MOU)
SEAMS (EQUITY NOT RELIABILITY)
RISK TO FEDERAL USE PRIORITY
LOST OPP: LOSS OF CONTROL MARKET DESTINY
VALUE OF HYDRO - PRESERVE OPP + RISK
LOWER PRICES
DIVERSE RESOURCES
ENSURE CUSTOMERS (SMALL) STILL HAVE VOICE
AVOID THE SQUEEZE → DOES GET MORE LIKE PRESSURE WHERE IN UNSTEADY MARKET + RISKS PRICES
MARKET DESIGN > 10 GENERATORS/COMPETITION
REGIONAL TRANSMISSION PLANNING IN WEST - NOT CURRENTLY ALIGNED - NEEDED
"WHICH" WAY? (CAN PARTICIPATE IN ALL?)
Markets in the West W
Key R
Missi

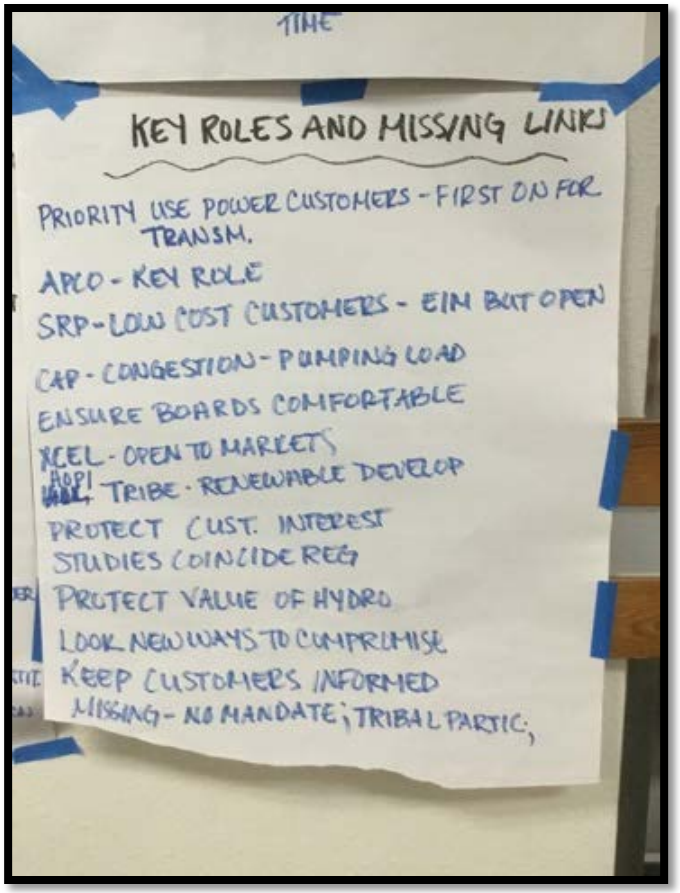

kets in the West Workshop
Key Roles and Missing Links
KEY ROLES + MISSING LINKS


KEY ROLES + MISSING LINKS
WAPA · FACILITATOR
COMM - CULTURAL CHANGES W/I ORGANIZATIONS
EDUCATION (REGULATORS; USE CUSTOMERS; EMPLOYEE)
HANDLE HOW PORTRAYED IN MEDIA · GET IN FRONT OF MSG
CONTINUE TO REASSESS
DISCUSSION AROUND VIABLE ALTERNATIVES - AS INFO CHANGES REASSESS
BENEFIT STUDIES - RIGHT INFO; RPS CHANGES HOW TO INCORPORATE; OFTEN LAG BEHIND REGULATION
Key R
Missi


KEY ROLES & MISSING LINKS
WAPA OPS: TRANSPARENCY, COMM, COORDINATION
TRANSMISSION - SOME THOUGHT WAPA SHOULD PROVID
SMALL ENTITIES - DONT HAVE SAME RESOURCES
EDUCATION
TRANSPARENCY
INTEGRATION OF RENEWABLES
WAPA ROLE - INTEGRATE ALL WAPA SYSTEMS
(CHALLENGE)
START SMALL - LEARN FROM PAST
WAPA OWNS WIRES BUT NO LOAD OR GEN
DIVERSE OPINIONS ON LEVEL OF INPUT - SOME CUSTOM
WANT TO JUST JOIN WAPA FIGURE OUT REST
COMPANY ROLES: EVAL BENEFIT & RISK TO CUSTOME
EVALUATE MARKET OPS - PROS & CONS
LESSONS LEARNED WHAT IT MEANS TO JOIN EIM
ACTIVELY ENGAGE & ADVOCATE ON BEHALF
GIVE VOICE TO "SMALL FISH"
ENGAGE OWNERS OF DC TIES
WAPA ROLE: WHITE PAPER HOW WAPA HELPFUL
HOW DOES WAPAS RESOURCES HELP YOU MEET
STATE GOALS


Missing Links
KEY ROLES + MISSING LINKS
MARKET PARTIC - ALL ACTIVE ENGAGE · ISO/RTO
TAKE INPUT FROM PARTICIPANTS
PMAs - ROLE TO COORD W/ CUSTOMERS + GET FOLKS TO TABLE - INCLUDE ALL
NEED FOR EDUCATION - WAPA FACIL OR COORD.
NEED TO INCLUDE NGOs; STATE STAKEHOLDERS (NOT JUST REGULATORS)
CUSTOMER ASSOC: OPPORTUNITY
GENERATING AGENCIES INCLUDED
TRANSPARENCY - NEED + RESPONSIBILITY + ROLE FOR ALL - AVOID NDAs IF POSS.
ISO/RTO: SEEK INPUT; LISTEN; PROPOSE NEXT STEPS; PROPOSE STEPS TO MATCH WHERE PEOPLE ARE
ALL: SEEK TO COLLABORATE TO SOLVE PROBLEMS
FROM CUSTOMER UP NOT WAPA DOWN
INCREMENTAL APPROACH TO MARKETS
BOR - BOR DIFF SET OF PRIORITIES + POWER MARKET NOT HIGH
RECOGNIZE FED ROLE IN MARKET
SMALL ENTITIES DIFF ROLE FOR WAPA THAN LARGE ENTIT
PREF POWER ISSUES · CAISO · SWAP POWER - FOCUS ON WHAT RAN DO


KEY ROLES - MISSING LINKS
LOOK AT CONTRACTS - CAN THEY BE UPDATED
LGP LESSONS LEARNED TO JOIN MARKETS
MWTG WAPA UPDATED WEBSITE W/ INFO - GOOD JOB KEEPING PEOPLE INFORMED
REGULATORS MISSING - ROLE IN SHUTTING DOWN MWTG & NEED TO BE EDUCATED
STATE LEGISLATORS EDUCATION
SMALL - NEED A SEAT AT TABLE - EVERYONE INVOLVED
SPP: FACILITATE EXPANSION EXISTING & POTENTIAL NEW MEMBERS; PROVIDE RELATED SERVICES
WAPA ROLE: FACILITATE FLOW OF INFO; ELEVATE CONCERNS TO RIGHT CUSTOMERS; CONTRACT NUANCES; INVOLVED W/ LEADERSHIP BUT NOT SOLE; MAINTAIN GRANDFATHERED OBLIGATIONS; ENGAGE DOE; CUSTOMER FORUMS
COMPANIES: SUPPORT CUSTOMERS
WAPA: SEEK WIDESPREAD BUY IN; FACILITATE EDUCATION & INPUT
MISSING: PUC, STATE
INCLUSIVE - INVOLVE PEOPLE AT RIGHT TIME - INVOLVE WHEN NEED BUT NOT ALL WHOLE TIME
KEY ROLES AND MISSING LINKS


KEY ROLES AND MISSING LINKS
PRIORITY USE POWER CUSTOMERS - FIRST ON FOR TRANSM.
APCO - KEY ROLE
SRP - LOW COST CUSTOMERS - EIM BUT OPEN
CAP - CONGESTION - PUMPING LOAD
ENSURE BOARDS COMFORTABLE
XCEL - OPEN TO MARKETS
HOP! TRIBE - RENEWABLE DEVELOP
PROTECT CUST. INTEREST
STUDIES COINCIDE REG
PROTECT VALUE OF HYDRO
LOOK NEW WAYS TO COMPROMISE
KEEP CUSTOMERS INFORMED
MISSING - NO MANDATE; TRIBAL PARTIC.;

Markets in the West Workshop
Bright Ideas
for the Future
S FOR FUTURE
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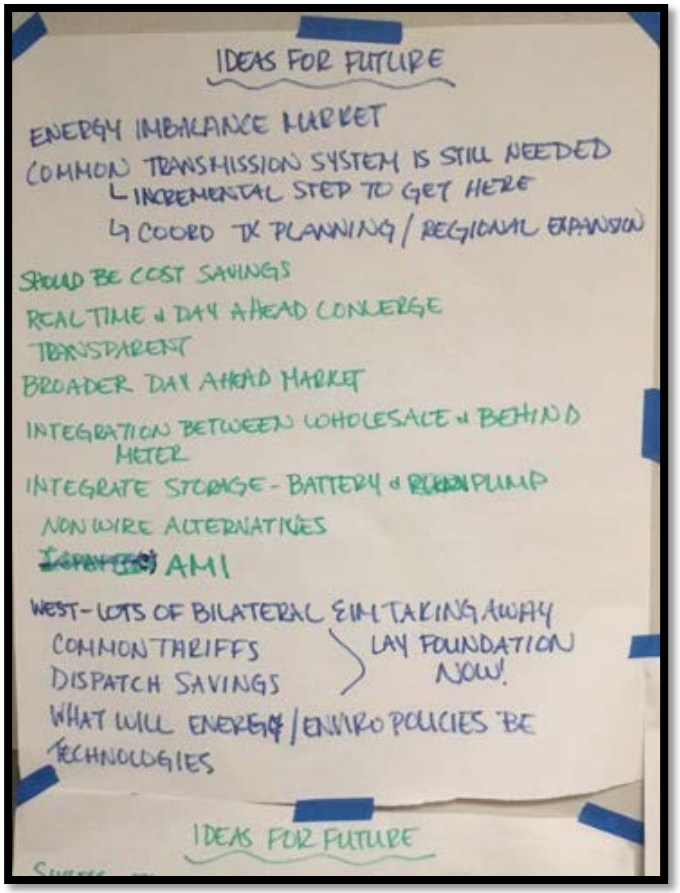
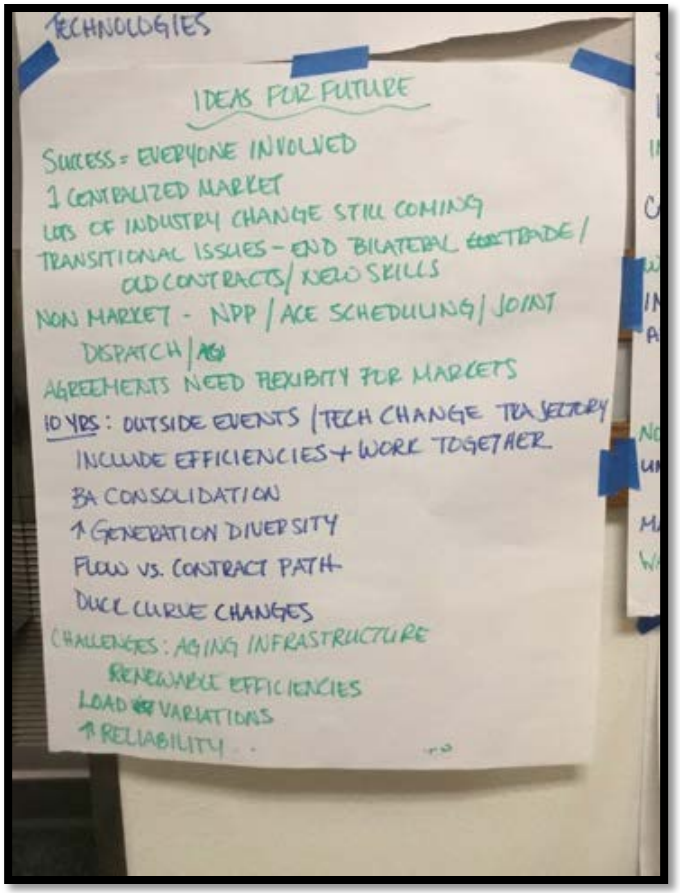
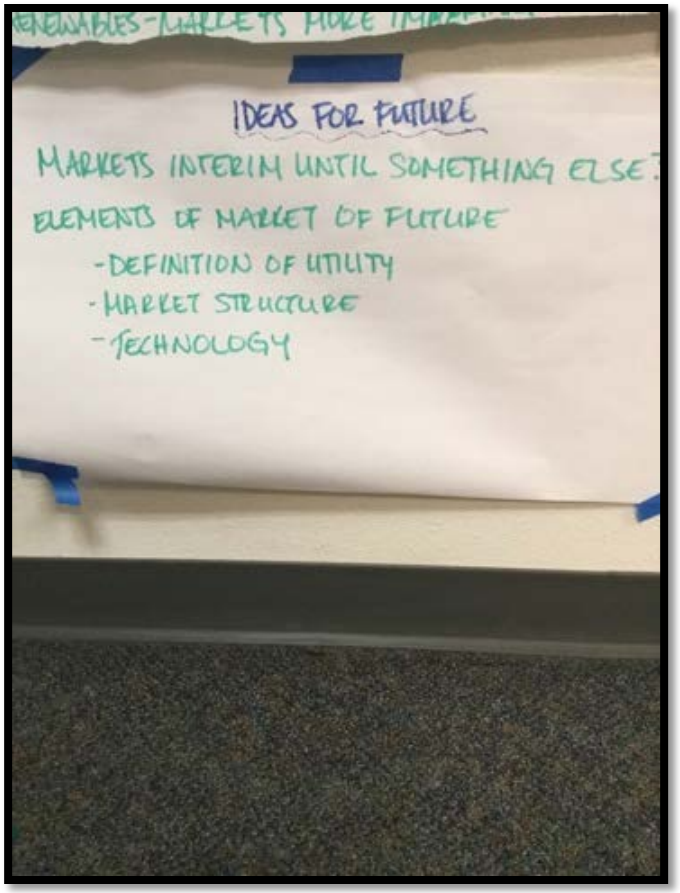

IDEAS FOR FUTURE
ENERGY IMBALANCE MARKET
COMMON TRANSMISSION SYSTEM IS STILL NEEDED
INCREMENTAL STEP TO GET HERE
COORD TX PLANNING / REGIONAL EXPANSION
SHOULD BE COST SAVINGS
REAL TIME & DAY AHEAD CONVERGE
TRANSPARENT
BROADER DAY AHEAD MARKET
INTEGRATION BETWEEN WHOLESALE & BEHIND METER
INTEGRATE STORAGE - BATTERY & PUMP
NON WIRE ALTERNATIVES
AMI
WEST - LOTS OF BILATERAL EIM TAKING AWAY
COMMON TARIFFS
DISPATCH SAVINGS
LAY FOUNDATION NOW!
WHAT WILL ENERGY / ENVIRO POLICIES BE
TECHNOLOGIES
IDEAS FOR FUTURE


TECHNOLOGIES
IDEAS FOR FUTURE
SUCCESS = EVERYONE INVOLVED
1 CENTRALIZED MARKET
LOTS OF INDUSTRY CHANGE STILL COMING
TRANSITIONAL ISSUES - END BILATERAL TRADE / OLD CONTRACTS / NEW SKILLS
NON MARKET - NPP / ACE SCHEDULING / JOINT DISPATCH
AGREEMENTS NEED FLEXIBITY FOR MARKETS
10 YRS: OUTSIDE EVENTS / TECH CHANGE TRAJECTORY
INCLUDE EFFICIENCIES + WORK TOGETHER
BA CONSOLIDATION
↑ GENERATION DIVERSITY
FLOW VS. CONTRACT PATH
DUCK CURVE CHANGES
CHALLENGES: AGING INFRASTRUCTURE
RENEWABLE EFFICIENCIES
LOAD VARIATIONS
↑ RELIABILITY

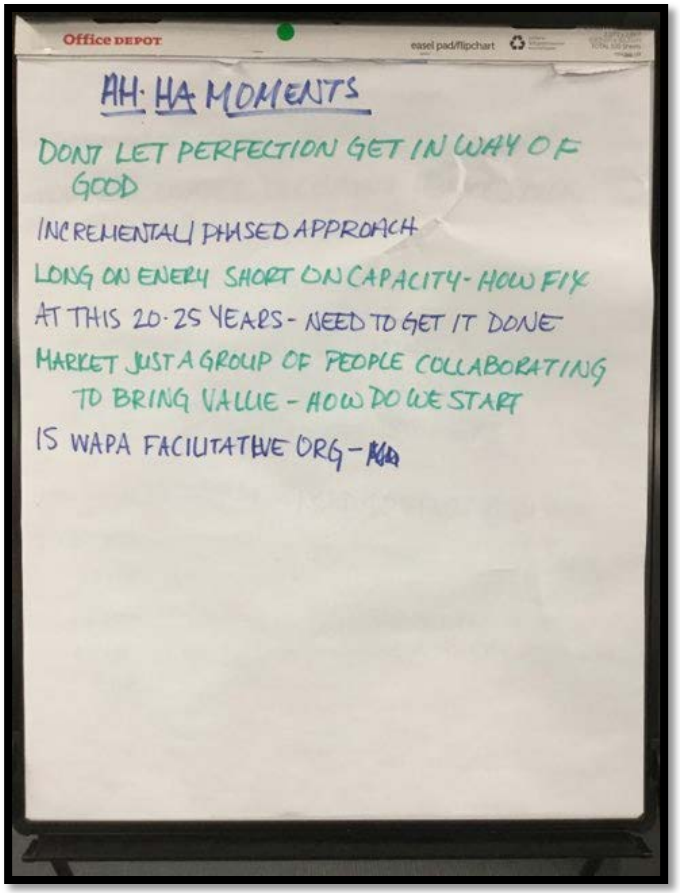
IDEAS FOR FUTURE
IN 10 YRS CONSISTANCY IN THE MARKETS ACROSS WEST-
SAME RULES ON SEAMS
BALANCE STANDARDIZATION / INNOVATION
SUBSTANTIAL RTO ENGAGEMENT
1 MARKET WORKING - END TO TRANSITION
INTEGRATE CHANGING MIX - 4K MW COAL OFFLINE IN THIS REGION
WHATS BEHIND IT?
CAN MARKET EVOLVE TO STANDARDIZE - PHONE BILL
EXAMPLE - NEED OR TAX DRIVEN?
WHO IS FILLING ANCILLARY SVCS BEHIND COAL
IN 10 YRS IN MARKET NOT TALKING
APPROACH TO GET THERE: STRAIGHT TO RTO HARD
BABY STEPS / BE TRANSITIONAL / MITIGATE RISKS
THROUGH GOVERNANCE STRUCTURE
NON MARKET OPTION: CONSOLIDATION OF BAS?
UNCERTAINTY → AGREE IN 10 YRS OPTIMIZE MARKETS WE
ARE IN NOT DO WE JOIN
MARKET OPTIONS MEAN DIFF. THINGS TO DIFF. PEOPLE
WAPA/BOR/COE COULD BE HIGH PRICE PROVIDER W/
RENEWABLES - MARKETS MORE IMPORTANT
IDEAS FOR FUTURE

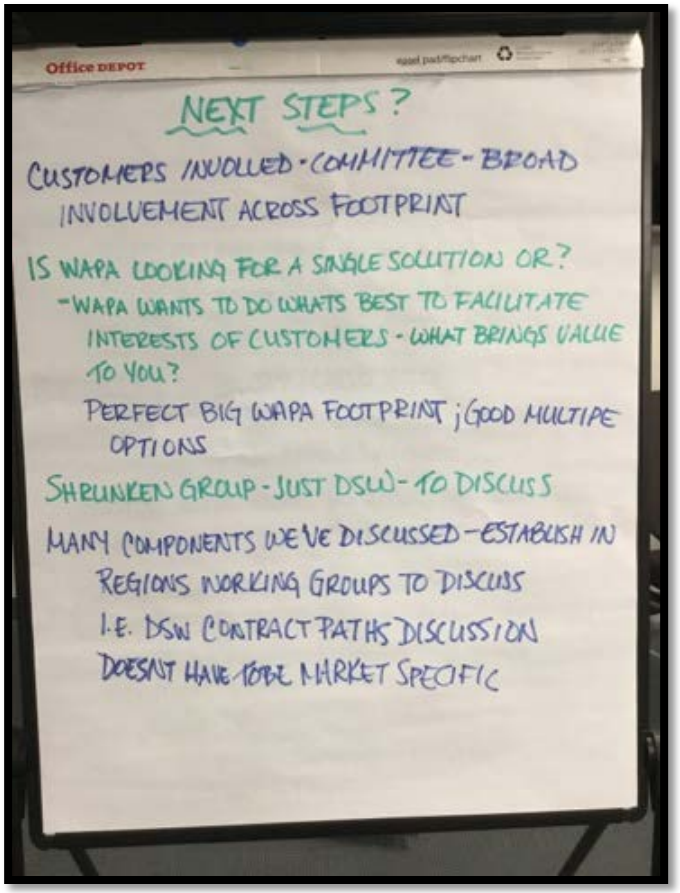
IDEAS FOR FUTURE
TRANSMISSION EQUAL ACCESS MAINTAINED
TRANS BUILT FOR CUSTOMERS NOT PROVIDERS
GOAL OF MARKET - DISPATCH ON CARBON IMPACT NOT PRICE IN FUTURE?
CONTINUED GROWTH STORAGE - FUNDING?
PUMP vs. BATTERY (BATT WARRANTY LEVERAGE)
MICROGRIDS - HOW DO WE LEVERAGE DC TIES?
CYBER - AS WE LEVERAGE TECHNOLOGY - HOW DO YOU PROTECT? GRAY AREA IN MARKET SYSTEMS
IN 10YRS: MARKETS MORE DIVERSIFIED TODAY & OFFER BROADER ARRAY OF PRODUCTS
↑ TREND SELF-SUFFICIENCY OF RETAIL CUSTOMERS
TRANSPARENT / MBR DRIVEN / LIMITED BARRIERS TO ENTER/EXIT; PREDICTABLE; UNDERSTANDABLE (MARKET OF FUTURE)
DO MARKETS NEED TO BE CENTRALIZED? RETAIL MICROGRID
SINGLE MARKET OR MULTIPLE DECENTRALIZED MARKETS?

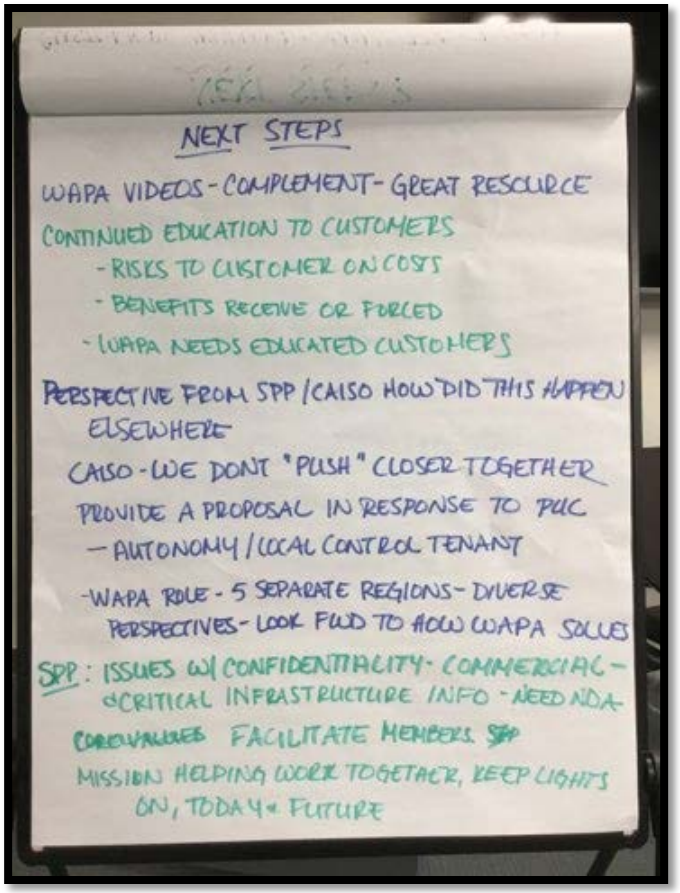

IDEAS FOR FUTURE
MARKETS INTERIM UNTIL SOMETHING ELSE?
ELEMENTS OF MARKET OF FUTURE
- DEFINITION OF UTILITY
- MARKET STRUCTURE
- TECHNOLOGY

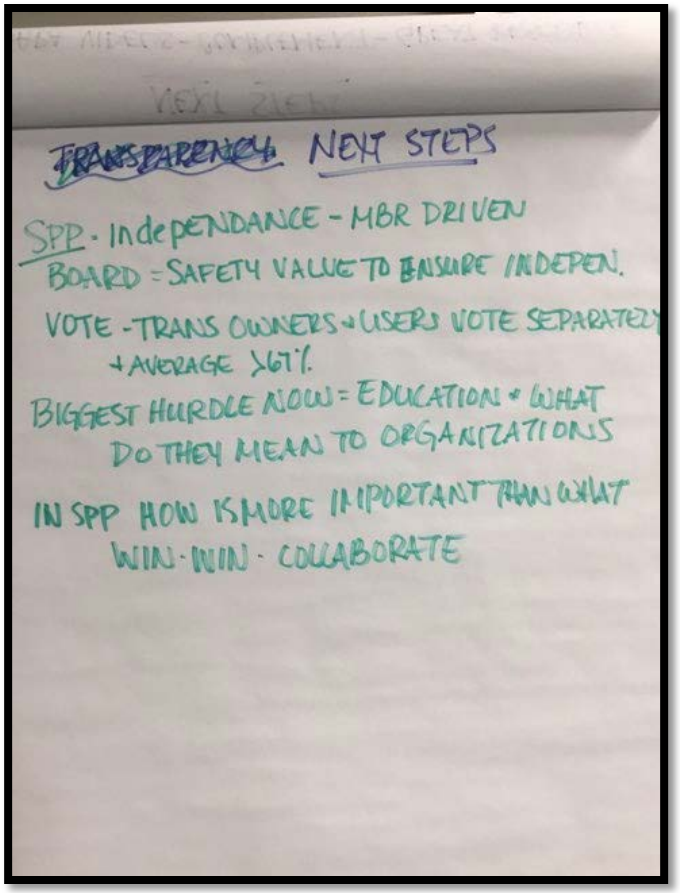
Western Area Power Administration

Mapping Out Next Steps


Office DEPOT
easel pad/flipchart
AH-HA MOMENTS
DONT LET PERFECTION GET IN WAY OF GOOD
INCREMENTAL/ PHASED APPROACH
LONG ON ENERY SHORT ON CAPACITY - HOW FIX
AT THIS 20-25 YEARS - NEED TO GET IT DONE
MARKET JUST A GROUP OF PEOPLE COLLABORATING TO BRING VALUE - HOW DO WE START
IS WAPA FACILITATIVE ORG -


Office DEPOT
NEXT STEPS?
CUSTOMERS INVOLVED - COMMITTEE - BROAD INVOLVEMENT ACROSS FOOTPRINT
IS WAPA LOOKING FOR A SINGLE SOLUTION OR?
- WAPA WANTS TO DO WHATS BEST TO FACILITATE INTERESTS OF CUSTOMERS - WHAT BRINGS VALUE TO YOU?
PERFECT BIG WAPA FOOTPRINT ; GOOD MULTIPE OPTIONS
SHRUNKEN GROUP - JUST DSW - TO DISCUSS
MANY COMPONENTS WE'VE DISCUSSED - ESTABLISH IN REGIONS WORKING GROUPS TO DISCUSS
I.E. DSW CONTRACT PATHS DISCUSSION
DOESN'T HAVE TO BE MARKET SPECIFIC


NEXT STEPS
WAPA VIDEOS - COMPLEMENT - GREAT RESOURCE
CONTINUED EDUCATION TO CUSTOMERS
- RISKS TO CUSTOMER ON COSTS
- BENEFITS RECEIVE OR FORCED
- WAPA NEEDS EDUCATED CUSTOMERS
PERSPECTIVE FROM SPP / CAISO HOW DID THIS HAPPEN ELSEWHERE
CAISO - WE DONT "PUSH" CLOSER TOGETHER
PROVIDE A PROPOSAL IN RESPONSE TO PUC
— AUTONOMY / LOCAL CONTROL TENANT
-WAPA ROLE - 5 SEPARATE REGIONS - DIVERSE PERSPECTIVES - LOOK FWD TO HOW WAPA SOLVES
SPP: ISSUES W/ CONFIDENTIALITY - COMMERCIAL - & CRITICAL INFRASTRUCTURE INFO - NEED NDA
CORE VALUES FACILITATE MEMBERS SPP
MISSION HELPING WORK TOGETHER, KEEP LIGHTS ON, TODAY & FUTURE



~~TRANSPARENCY~~ NEXT STEPS

SPP · INDEPENDANCE - MBR DRIVEN
BOARD = SAFETY VALUE TO ENSURE INDEPEN.

VOTE - TRANS OWNERS + USERS VOTE SEPARATELY
+ AVERAGE >67%

BIGGEST HURDLE NOW = EDUCATION + WHAT
DO THEY MEAN TO ORGANIZATIONS

IN SPP HOW IS MORE IMPORTANT THAN WHAT
WIN-WIN · COLLABORATE

NEXT STEPS

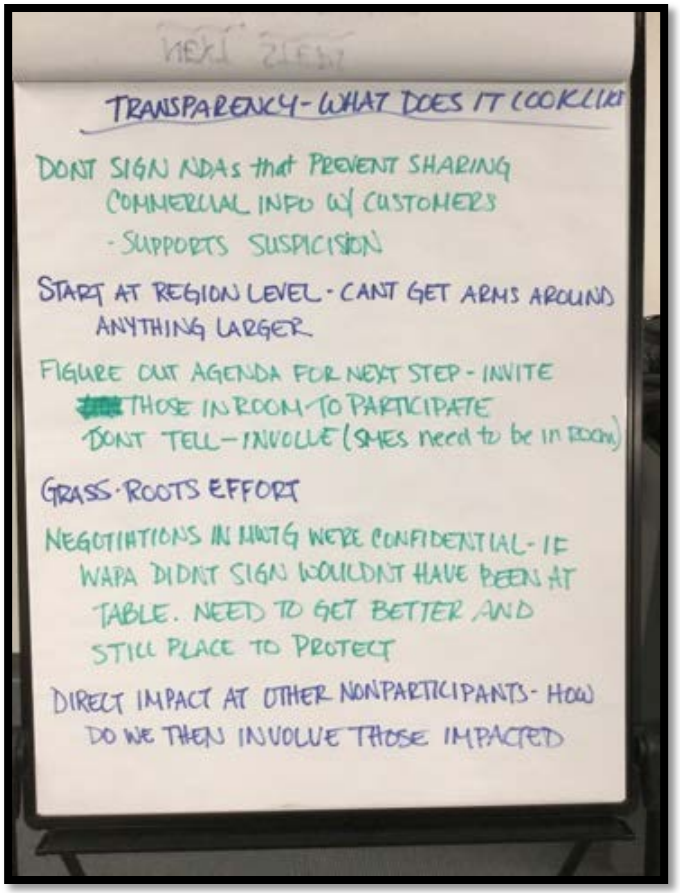
WAPA WIDE OR REGIONS = YES

HOW WILL WATER DECISIONS IMPACT GOING FORWARD

WAPA HAS A ROLE - LARGE ENTITY / MANY CONNECTI
- LEADERSHIP ROLE - HOW DO WE MOVE FWD?
- W/O DIRECT LEADERSHIP CONTINUE TO SPIN WHEELS
- PROBLEM ONLY WORSE IF DONT MOVE FWD
- WAPA GIVE LEADERSHIP, CUSTOMERS

ALL POLITICS LOCAL - NEED TO START @ REGION

LOOK INSIDE CURRENT CONSTRUCT - CAN WAPA HELP US ADDRESS (RENEWABLE PORTFOLIO STANDARDS) - NOT BINARY MARKET OR NO
MOVE SCHEDULING CLOSER TO OPERATIONAL HOUR


TRANSPARENCY - WHAT DOES IT LOOK LIKE
DONT SIGN NDAs that PREVENT SHARING
COMMERCIAL INFO W/ CUSTOMERS
- SUPPORTS SUSPICISION
START AT REGION LEVEL - CANT GET ARMS AROUND
ANYTHING LARGER
FIGURE OUT AGENDA FOR NEXT STEP - INVITE
THOSE IN ROOM TO PARTICIPATE
DONT TELL - INVOLVE (SMEs need to be in room)
GRASS-ROOTS EFFORT
NEGOTIATIONS IN MWTG WERE CONFIDENTIAL - IF
WAPA DIDNT SIGN WOULDNT HAVE BEEN AT
TABLE. NEED TO GET BETTER AND
STILL PLACE TO PROTECT
DIRECT IMPACT AT OTHER NONPARTICIPANTS - HOW
DO WE THEN INVOLVE THOSE IMPACTED