

SCE's MHP Service Transfers Standards & Practices

Presented by: Cynthia Fisher
Rich Viveros

SCE Electric System Overview



- SCE serves over 4.9 million electric customers in our 50,000 square mile service territory
 - Over 1,300 are master-metered customers at Mobile Home Parks/Communities in over 200 cities
 - Approximately 106,500 tenant spaces

Reasons MHP Owners Initiate the Transfer of Service Process

- Desire to “get out” of the utility business
 - Cost to maintain systems
 - Billing and Collection
- System Load Issues
 - Voltage problems
 - High/Low voltage
 - Flicker
 - Capacity
 - Additional load requirements
- System Reliability
 - Dealing with Emergencies
 - Equipment/Cable Failure
 - Problems with updating antiquated equipment

SCE's MHP Transfer of Service Process

- MHP owner initiates request (\$150 fee)
- SCE visits MHP for initial inspection
 - Explain process
 - Conduct interviews on system status
 - Issues with system voltage or capacity, age, serving load with new homes, maps/designs, depth of cables, maintenance
 - Visually inspect and assess if system is used, useful, and compatible
 - SCE reports initial findings to the customer and provides an estimate for engineering design advance
 - Discuss plan for going forward
- Customer decides whether to proceed with transfer process
 - If customer proceeds and system is transferable
 - Procedures established in PU Code 2791-2799
 - If system is NOT transferable, SCE provides the options of
 - Owner making the existing systems suitable for transfer or
 - Installing a new parallel system per Rules 15/16

SCE's MHP Equipment Findings

- Assets are approaching or are beyond their used and useful life
- General Orders 95 and 128 & NEC Infractions
 - Depth of cable/conduits, transformer/meter clearances and locations
- Systems are unable to serve the existing or new customary loads
- Constructed in rear property lines
 - Inaccessible
- Unique Equipment
 - Incompatible

SCE's MHP Equipment Findings: Examples of Equipment Incompatible with SCE's distribution system

■ Transformers

- Undersized for “customary expected load”
- Dry Pack (SCE Oil-Filled)
 - Include internal and individual service breakers

■ Meter Panels

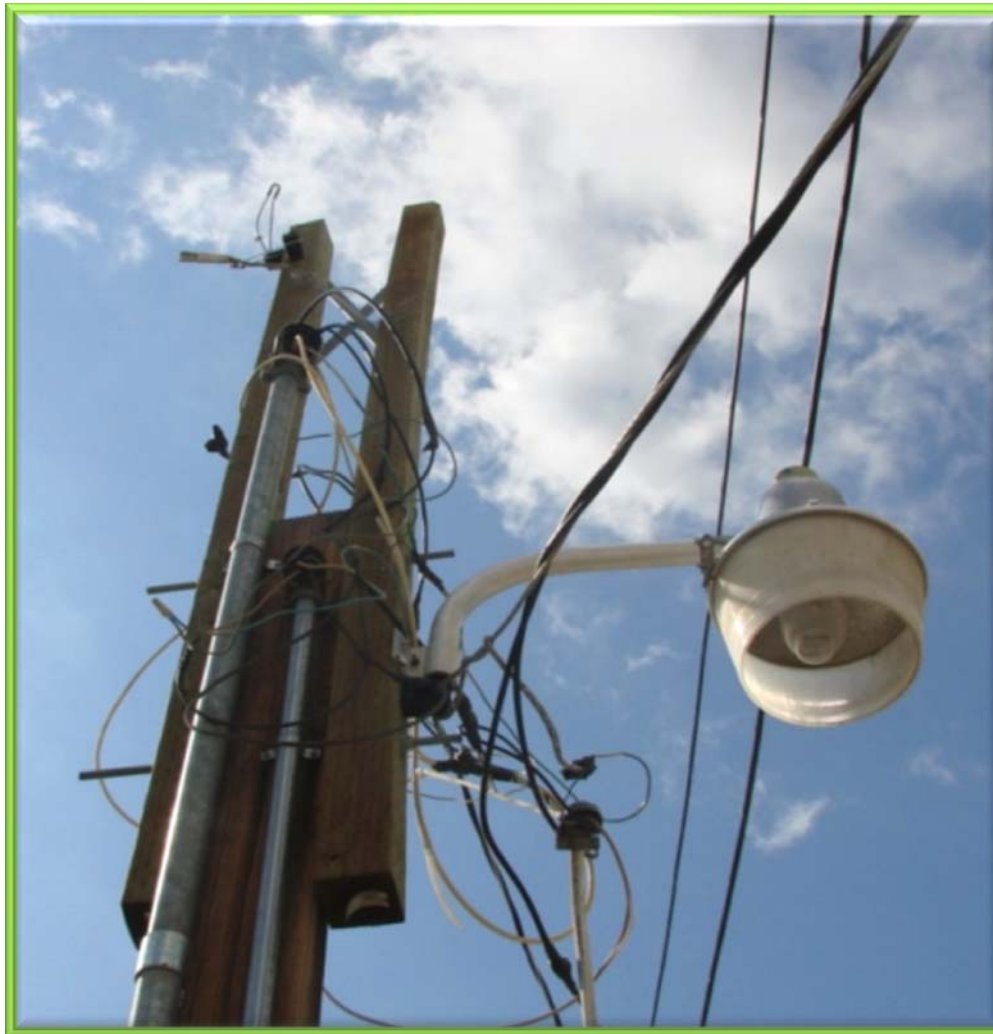
- Undersized service mains (breaker size)
- Plug-in receptacles for home connections – 30/40/50 Amp; 120v/240v
 - Minimum service panel of 100 Amp required by NEC

■ Cable/Conductor

- Direct Buried Cable
 - SCE design requires duct system
- Inadequate cable size (i.e. ampacity, flicker, and voltage problems)
 - Undersized conduits for SCE's cable

SCE's Findings at Customer Owned MHP Systems

GO 95 Infractions & Safety Hazards



SCE's Findings at Customer Owned MHP Systems



- Prohibited Transformer location
 - Inside pool equipment room
 - Inaccessible
 - Safety Concerns
 - Violates SCE Construction Standards
 - Violates NEC Standards
 - 8' clearance required on primary side of transformer
 - 36" clearance from a combustible wall

➤ Clearance Issues

- Violates SCE Construction Standards
- Violates NEC Standards
 - Requires 36" of clear and unobstructed space



SCE's Findings at Customer Owned MHP Systems



- G.O. 128 Infraction
 - Lack of 12" clearance between utilities
 - Lack of 6" clearance where utilities cross
 - Wet & dry utilities are together with improper separations
- Depth of Cable

- Example of faulted cable still carrying load and voltage
 - Swelling
 - Safety concerns



SCE's Findings at Customer Owned MHP Systems – Exposed Cable & Conduit



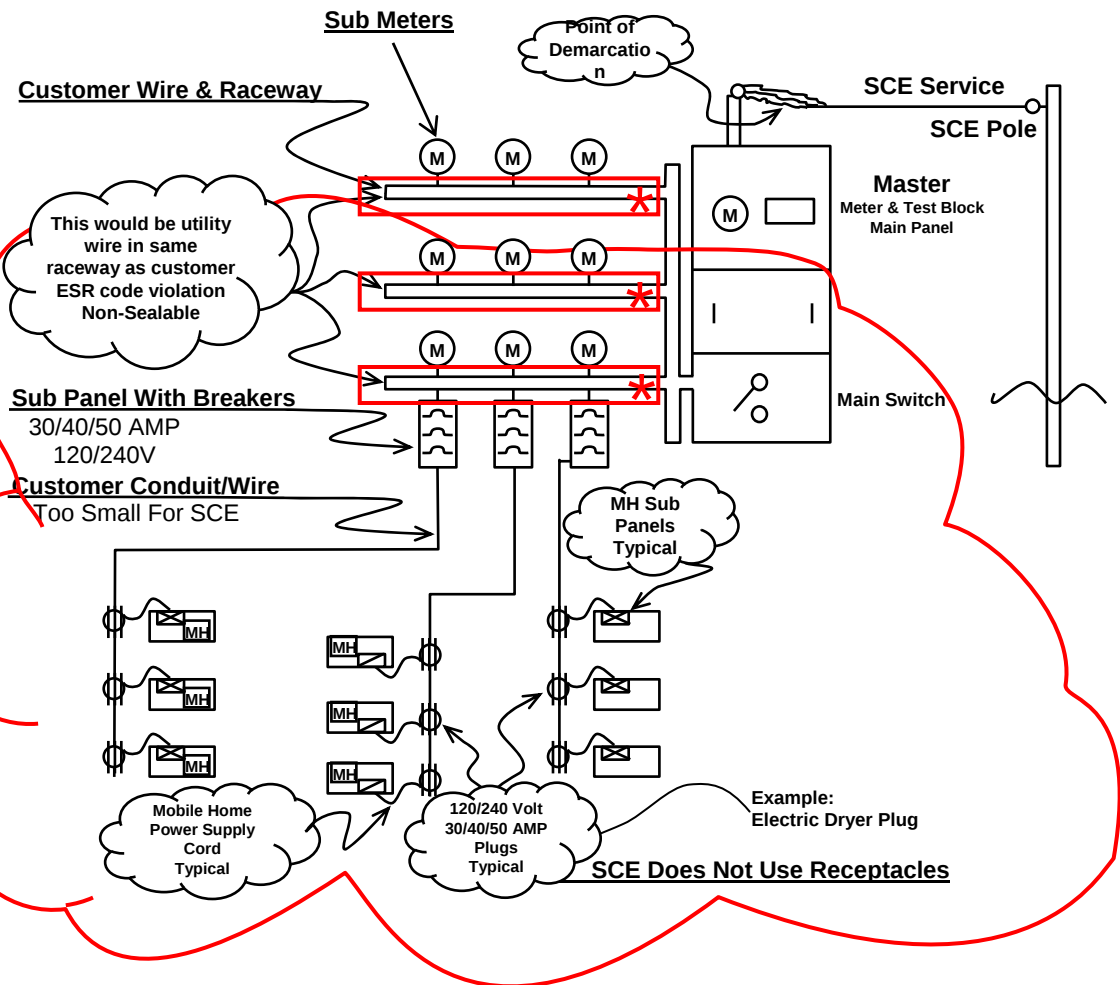
SCE's Design Requirements – Master-Meter System Compatibility Issues

Master-Meter System w/ Sub-Meters



Exposed Wires

Load Side
of the Meter *



SCE's Findings at Customer Owned MHP Systems



Sub-Meters

- Unapproved Splicing Methods
- Safety Hazard
 - 48" Minimum Height Clearance
- Incompatible with SCE's distribution system



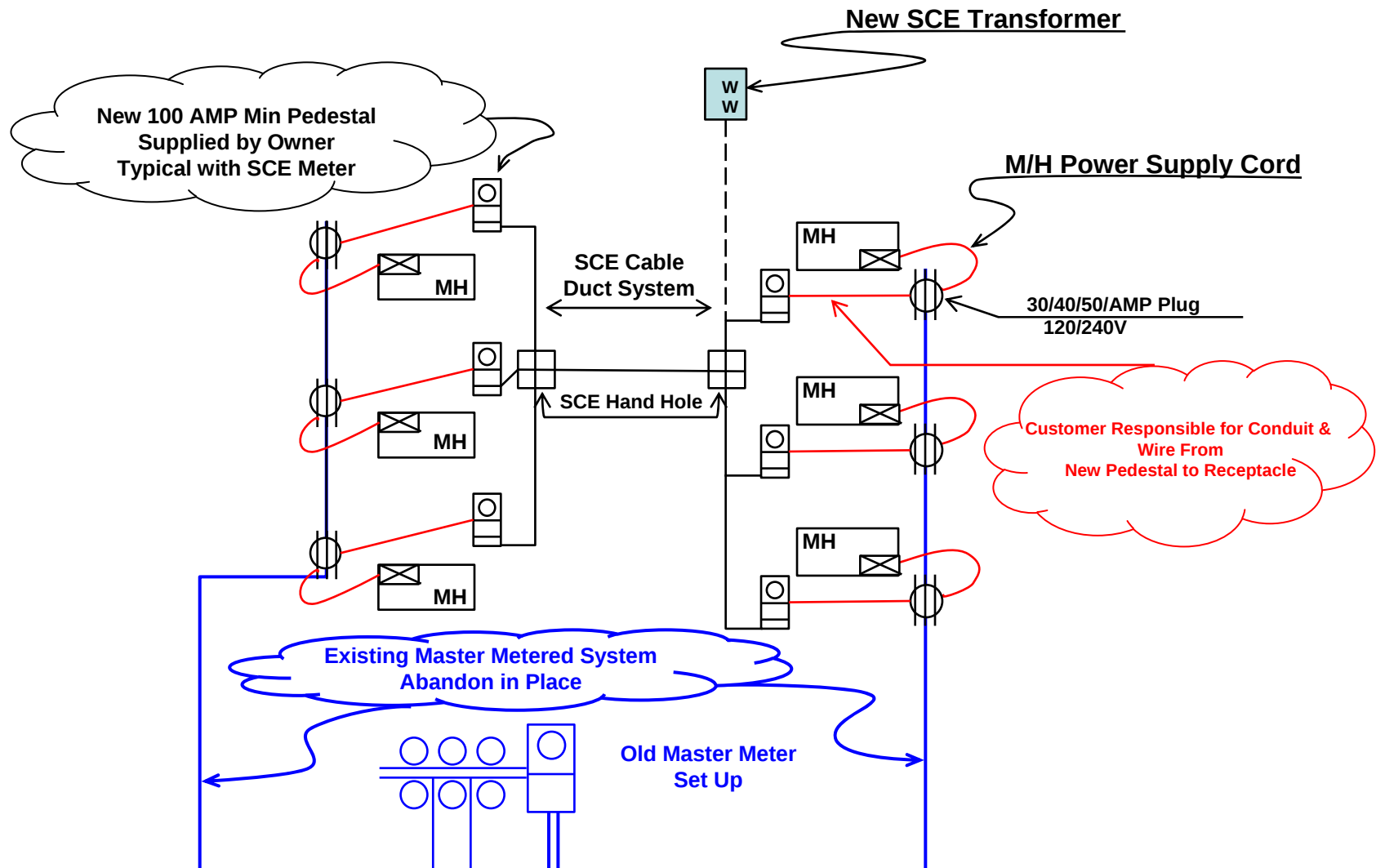
Inside View of Mobile Home Connection/Receptacle (P-54)

- Undersized
 - Wire
 - Conduit
 - Terminating Section
- Overheated wire and devices

SCE's MHP Electric Transfer of Service

- Since 1997, SCE has had **81** MHP owners initiate the transfer process
- 17 owners have pursued installing a new parallel system per Rules 15/16
- Reasons for not pursuing:
 - Customer share of cost and responsibility to construct new electrical facilities are too expensive
 - Customer unwilling to pay engineering advances
 - Customer decides to upgrade or repair and keep their system

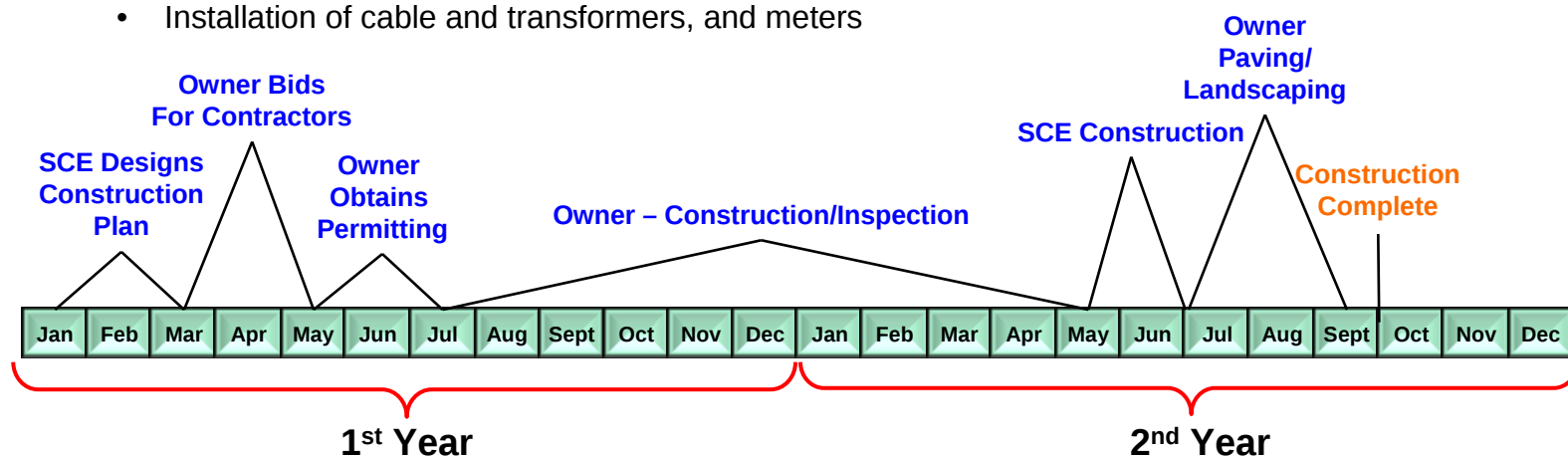
SCE Design of New Parallel System



SCE's MHP Electric System Installation (Timeline)*

- Design (2-3 months)
- Construction Process (1 ½ years)
 - Owner Construction (Responsibility)
 - Bid Process
 - Permitting
 - Trenching
 - Install ducts and structures
 - Inspections
 - Install meter panels and electrical work (cutovers)
 - Pave and landscape
 - SCE Construction
 - Installation of cable and transformers, and meters

* Timeline is largely dependent on owners experience and construction knowledge



SCE Equipment Comparison

- Typical undersized conduit in MHP alongside proper sized SCE conduit
- Typical undersized junction box and receptacle in MHP alongside proper sized SCE handhole



Conclusion

Appendix

Rule 15/16

- Rule 15 Distribution Line Extensions - Extension of electric distribution lines of voltages less than 50 kV to an applicant's premises to furnish permanent electric service
 - SCE responsible for planning, designing, and engineering the line using SCE's standards for material, design, and construction
 - Applicant responsible for excavation, substructures, conduits, and protective structures (barriers)
 - SCE installs and furnishes cables, switches, transformer and other distribution facilities required for Line Extension
 - Allowances (credits) – Residential = \$2,322 - are granted where evidence of construction and financing is adequate, and building permits or fully executed home purchase contracts/lease agreements in place
 - Refundable items are SCE's total estimated installed costs including ITCC (transformers, cable, meters, labor, etc.)
 - Options
 - Discount (50% of refundable costs) or Refundable (10 year contract)
- Rule 16 Service Extensions - Extension of service facilities from a Distribution Line to the service delivery point and service-related equipment required of applicant on applicant's premises to receive electric service
 - Allowances granted where applicable
 - All costs are Non-Refundable
 - Note: Where allowances are granted and loads do not come on line, customer will be deficit billed

SCE's Electrical Standards & Design Requirements



General Order 128 Clearances

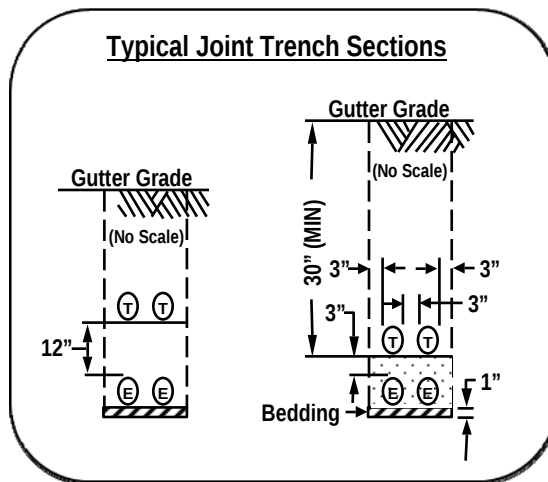
■ Minimum 12" of Clearance is required between utilities when running parallel lines between utilities

- Only Dry utilities
(Electric, Gas, Telecomm)
- Water & Sewage separate

■ Clearance of 6" required when utilities are crossing

■ Depth requirements are 30" of cover from flow line

- This also depends on number of utilities and number of conduits and if trench is joint, may require 48" minimum cover



Detailed Engineering Plan for MHP Electric Service Transfer

