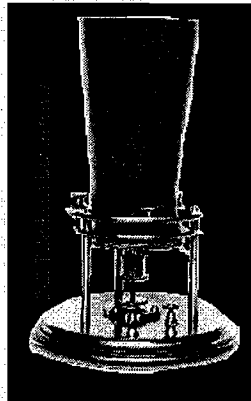


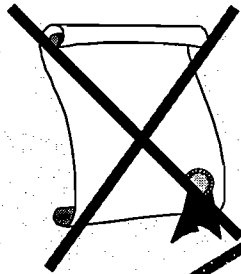
Collocation Power Issues

- Brief History of Interconnection
- Collocation Power Connection Diagram
- Why ILEC Should Provide Power
- Costs to be Recovered
 - Power Drain Monitoring
- Power Capacity Issues
- Collocation Time Frames
- Power Alarm Access

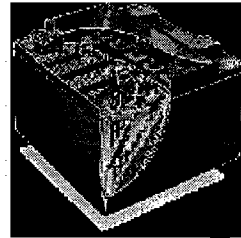
Interconnection Timeline



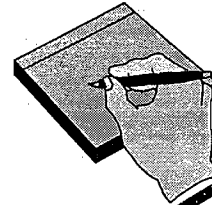
1876 — Bell Invents the Telephone



1896 — First Common Battery



1894 — Bell Patents Expire



1913 —
Kingsbury
Commitment
(Interconnection
for Independents)

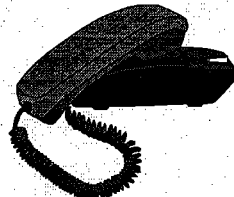
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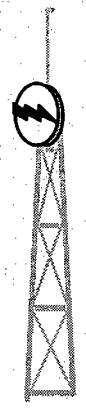
Interconnection Timeline (Continued)



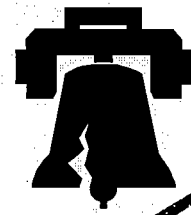
1956 — Consent Decree (Bell Patents Released)



1970 — MCI Begins Offering Long Distance
1968 — Carterphone CPE Decision



1984
MFJ



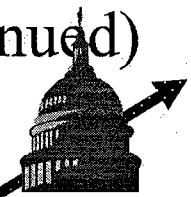
CAPs



1991
FCC
Order



1996
Telecomm
Act

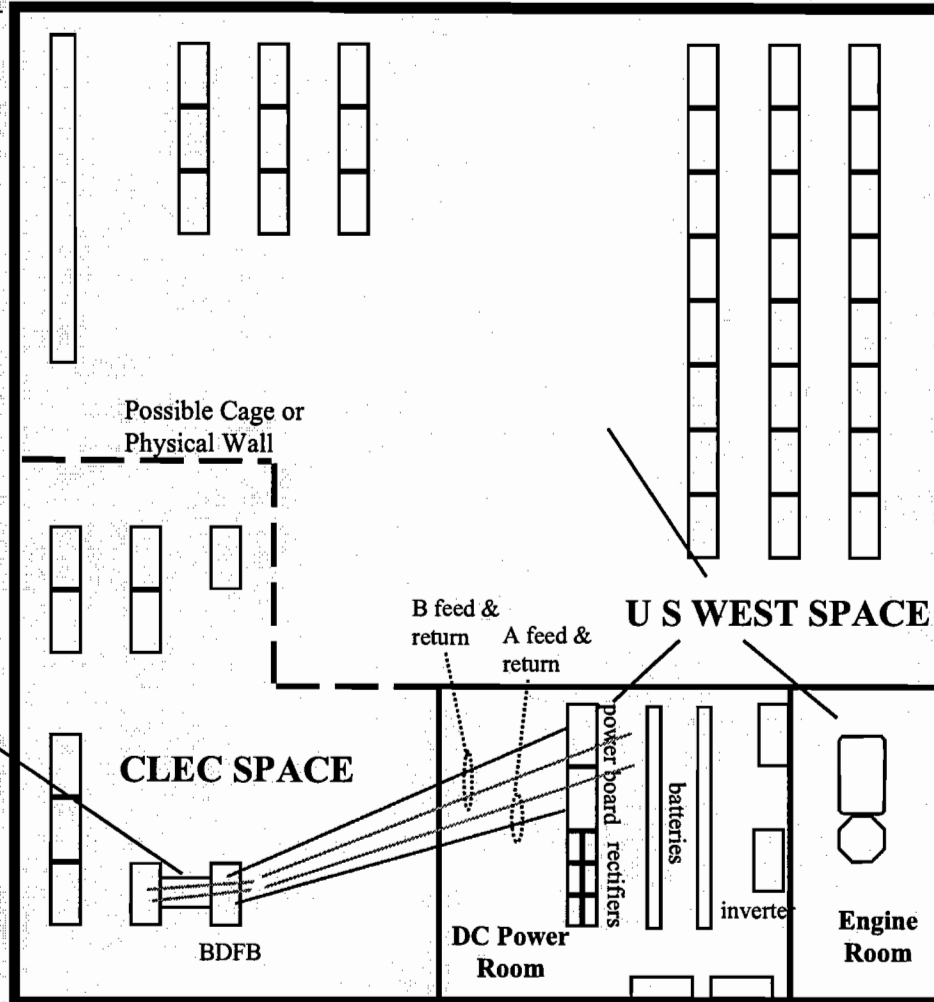


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Sample Collocation Powering

Each lineup or bay would probably be individually fed from the BDFB as shown if the feeder size is 60 Amps or less. However, larger feeder requirements would probably be fed directly from the Power Board









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Building

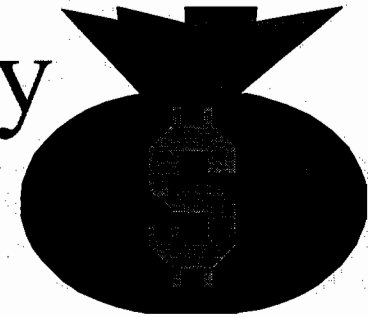
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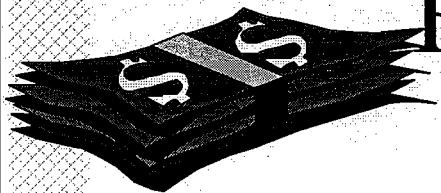
Why ILECs Should Provide Power

- Floor Loading
 - Bellcore GR-63 
- Ventilation
 - IEEE Stds 484 & 1187, & the UFC 
- HazMat & Fire Concerns led UFC to Require Containment and Compartmentation
 - VRLAs Overcome this but have a Shorter Life & are Susceptible to Thermal Runaway 
- Much Proactive Maintenance Required 
 - IEEE Stds 450 & 1188 for Battery Maintenance are Examples
- AC Power Issues 
 - ILEC Owns Engine
 - No UPS for CLECs, but Inverters Yes
- Present Telecomm NEC Exemption Might be Lost 

Power Cost Recovery



- Costs to be Recovered
 - One-time DC Cabling Costs
 - Power Infrastructure Portion Used by CLEC
 - DC Plant, Primary Cabling, Engine, Building AC
 - CLECs Portion of Maintenance and Monitoring
 - Cost of Electricity Used + Energy to Cool Eqpt.
- Cost-Recovery Methods
 - Up Front (use NPV)
 - Recurring (Amortization)
 - Possibly Use a Combination of Both



Power Cost Recovery

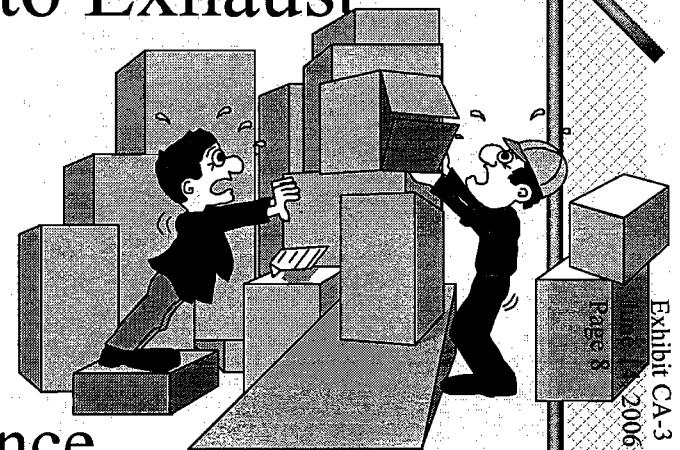
(Continued)



- Additional Possible “Power” Costs
 - Residual Ringing
 - Uninterruptible, Essential, or Convenience AC
 - Power Alarming
- Power Drain Monitoring
 - Power Monitors where Available
 - Manual Periodic “Average” Measurement
 - Predetermined, Contracted Amount
 - Possibly Use a Combination
 - e.g., Power Monitors & Manual for Large Drains, Predetermined for Small

Power Capacity Issues

- CLEC Power Usage May Drive Immediate Addition of Power Backup, or Will Cause Earlier Exhaust for ILEC
- Backup Power Items Subject to Exhaust
 - Rectifiers
 - Batteries (3 or 8 hour backup)
 - BDFBs
 - Engine-Alternator(s)
 - House AC Service Panel/Entrance
 - AC Distribution Infrastructure



Collocation Time Frames

- FCC Suggests Collocation can be Completed in 90 Days from Date of Agreement for a Site
- Unless Capacity is Added to Selected Sites Beforehand the Following Can Cause Delays:
 - New BDFB (3 months)
 - Rectifier Addition (3 months)
 - Battery String(s) Addition (4 months)
 - New Engine-Alternator (6 months)
 - New DC Power Plant (6 months)
 - New AC Service Entrance (6 months)

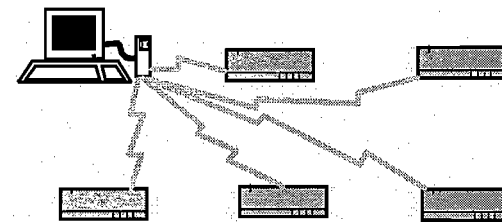
1992						
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

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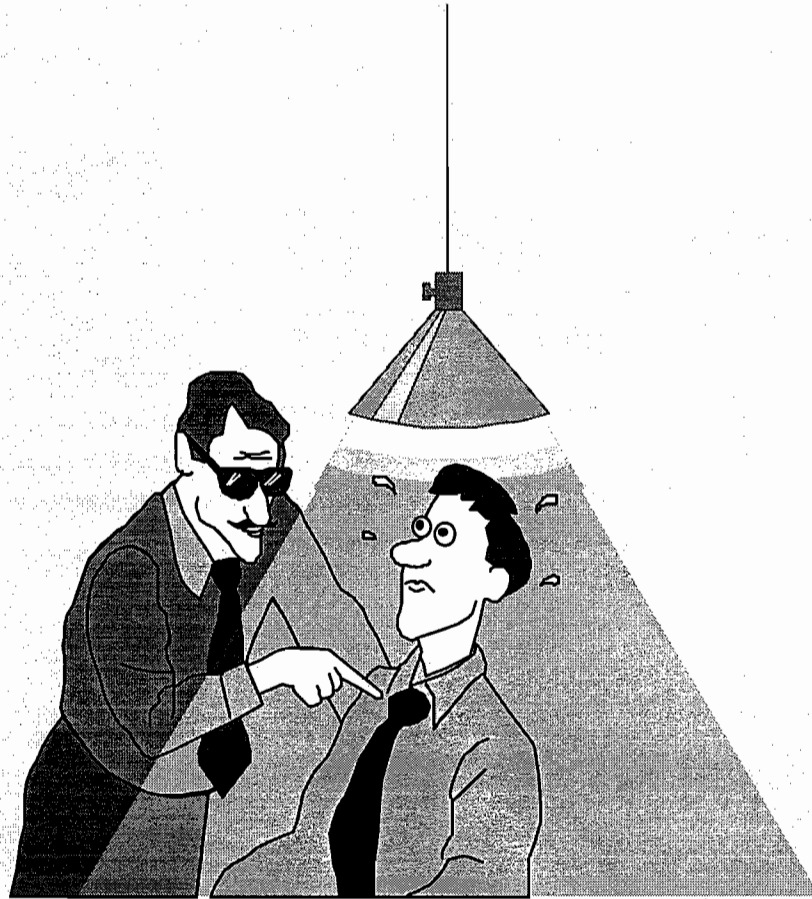
Power Alarm Access by CLECs



- Can be Done but Costs should be Borne by CLECs and Control of “Control Points” should be Maintained by the ILEC
 - Dry Contacts
 - Diode Protection
 - Power Monitors with Dialup Access
 - Can Limit ILEC Access if CLEC Access Given
 - Secure Protocols
 - X.25, SNMP, TCP/IP, etc.



Questions?



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