EVSE Basics for Today’s Discussion

• **AC Level 1**
  - Single-phase 120 V, up to 1.9 kW
  - Residential or commercial tariffs, depending on setting
  - Minimal peak load/demand charge impacts

• **AC Level 2**
  - Single-phase 208/240 V, typically 3 to 7 kW, up to 19.2 kW
  - Residential or commercial tariffs, depending on setting
  - Minimal peak load/demand charge impacts unless a site has a number of EVSE

• **DC Fast Charge**
  - Three-phase up to 500 V DC, typically 50 kW, up to 150 kW (today), eventually up to 400 kW?
  - Commercial settings, commercial tariff structures
  - Significant potential peak load/demand charge impacts
Current DCFC Use – Best Guess

Around Town Charging
• High adoption area (seen in parts of CA)
  • Up to 50% of daily uptime = ~30% capacity factor
• Lower adoption area
  • 2-10% of daily uptime (<1 to 3 sessions per day)

Corridor Charging
• Today: 2-10% of daily uptime (<1 to 3 sessions per day)
• Future: 20% of daily uptime = ~12-15% capacity factor

General Rule of Thumb
• Need at least 20% usage rate for economic viability
Current Charging Economics

- **Upfront cost:**
  - L2 - $10,000 per port
  - DCFC - $100,000 per port

- **O&M cost:**
  - L2 - $500 plus electricity
  - DCFC - $5,000 plus electricity

- **Reasonable near/mid-term utilization rate:**
  - L2 - 10-20%
  - DCFC - 5-10%

- **Electricity cost:**
  - L2 - $1,000/yr
  - DCFC - $25,000/yr

- **Potential revenue:**
  - L2 - $2,000/yr
  - DCFC - $20,000/yr
Future Charging Economics

- **Upfront cost:**
  - L2 - $7,000 per port
  - DCFC - $70,000 per port
- **O&M cost:**
  - L2 - $500 plus electricity
  - DCFC - $5,000 plus electricity
- **Reasonable mid/long-term utilization rate:**
  - L2 – 25-40%
  - DCFC – 20-30%
- **Electricity cost:**
  - L2 - $2,000/yr
  - DCFC - $40,000/yr
- **Potential revenue:**
  - L2 - $5,000/yr
  - DCFC - $60,000/yr
Economic Challenges to DCFC

• High CapEx requirements
  ▪ Multiple-port sites are baseline
  ▪ 150 kW make-ready are the expectation
• Low utilization/price per kWh at low use rates
•Difficulty reflecting TOU in pricing for users
• Operating costs (location-specific)
• Equipment installation costs (location-specific)
• High site acquisition costs
Other Potential Rate Structures

• Standby Rates
  • Currently available for CHP projects
  • Contract demand price and daily demand charge
  • Because of daily variability in EVSE use at peak times, potential savings of up to 40%

• Triggered Demand Charges
  • Commercial rate where demand charge only triggered after higher kWh threshold met
  • Allows for demand charge relief for low-utilization installations