Recruitment, Training and Retention of Engineers for Knowledge Transfer at Southern California Edison

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National Challenges

- **The mean age of the workforce is increasing**
  - Capacity risk and productivity risk are dual threats that can be assessed systematically by studying the age distribution of employees and evaluating percentages falling within high age brackets and projecting by location, unit, and job category, how distribution will change over time (Strack, Baier & Fahlaner, 2008, 119)

National Challenges

- **Many skilled employees will be retiring**
  - Retirements, restructuring, and technology changes are producing an accelerating exodus of expertise from the electric power industry (Ray & Snyder, 2008, 12)
  - It is necessary to view the exodus not as a short-term problem, but as a long-term opportunity to rebuild companies around the next generation of engineers and technicians (Ray & Snyder, 2008, 12)

National Challenges

- **Knowledge retires with employees**
  - Organizations can safeguard the intellectual capital from the baby boomer generation by rehiring or retaining older workers ensuring experienced staff transfers its knowledge and skills to younger workers (Kaye & Cohen, 2008, 30)
  - The importance of knowledge as the fundamental resource from the strategic viewpoint is widely recognized (Castro & Neira, 2005, 120).

Edison Challenges

- Need to bring in new employees and facilitate knowledge transfer
- Apprenticeships not readily available
- Difficult to find people with skills and interests to fit the workforce needs—technical and specific
- Difficult to hire from the local community
- Locations face challenges relocating employees
- Locations face challenges retaining employees

Layered Strategies

- Recruit from high schools to provide mentored internship for SCE experience
- Partner with colleges and students in Training Certificate Program preparing students for targeted SCE employment
- Work with select Colleges to provide 1-2 year employment/training in Engineering followed by opportunity for hire

Strategy: Recruit from high schools to provide mentored internship with SCE

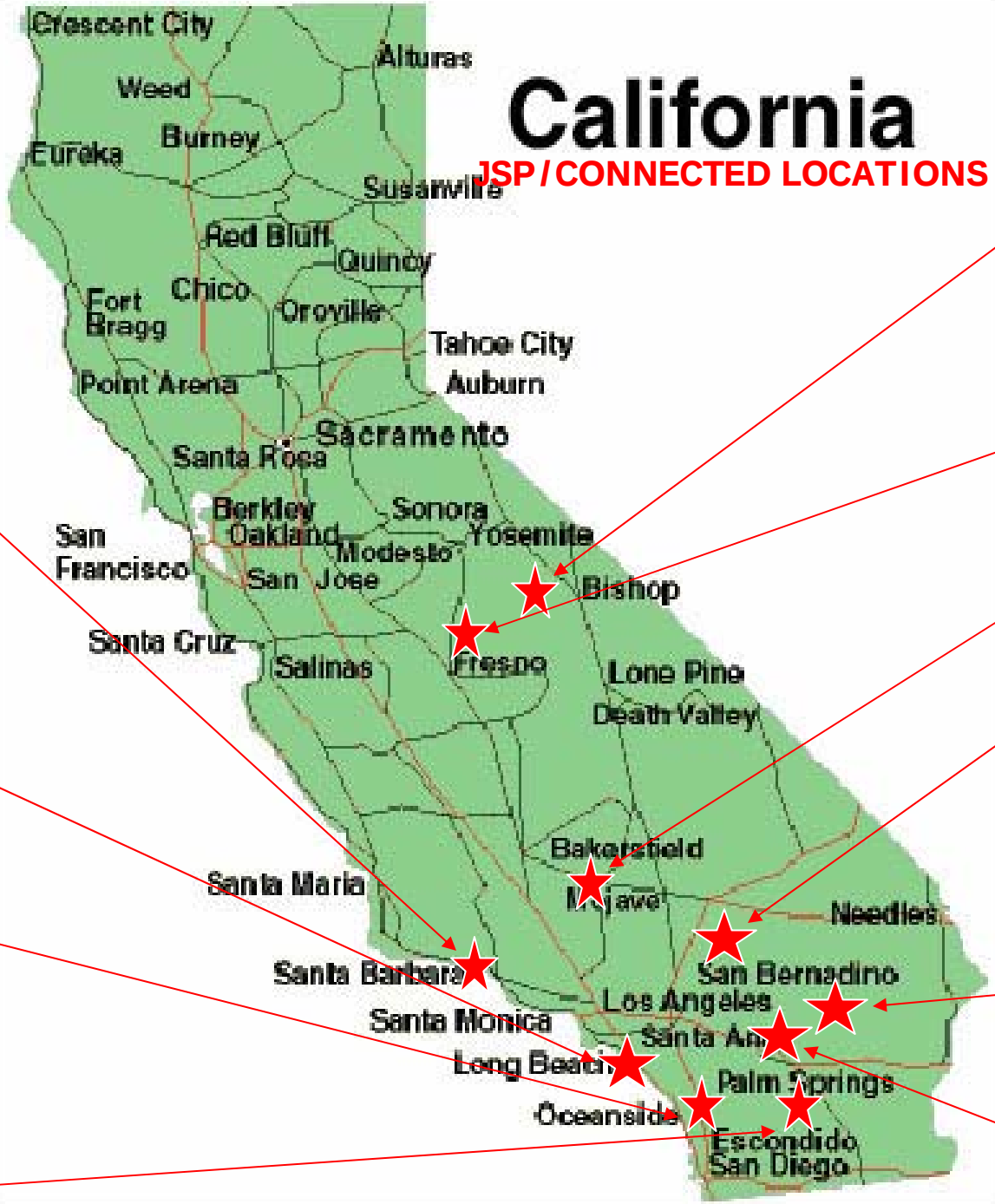
- **Job Skills Partnership and Connected Programs**
  - Utilize programs toward recruitment and training pipeline
  - Site specific placement
  - Local recruitment
  - Site specific training
  - Performance measurement provides justification for continued/future opportunity
  - ROI – successful recruitment, placement and knowledge transfer

History

- 1990 - Etiwanda Generating Station
  - One high school and 6 students
- 1990-2008 - 744 students 44 sites and 100 high schools

California

JSP / CONNECTED LOCATIONS



- •BISHOP S/C
- •BIG CREEK
- •SAN JOAQUIN VALLY S/C
- •Kaweah
- •ANTELOPE VALLEY S/C
- •TEHACHAPI S/C
- •BARSTOW S/C
- •RIDGECREST
- •VICTORVILLE
- •MOUNTAIN VIEW
- •RANCHO TRAINING FOOTHILL
- •SAN DIMAS
- •COVINA S/C
- •MONROVIA S/C
- •FULLERTON S/C
- •MONTEBELLO S/C
- •ONTARIO S/C
- •THOUSAND OAKS S/C
- •VENTURA S/C
- •WESTMINSTER T/D
- •ORANGE COAST S/C
- •CATALINA S/C
- •SAN ONOFRE
- •SADDLEBACK S/C
- •SANTA ANA S/C
- •PALM SPRINGS
- •REDLANDS
- •SAN JACINTO
- •YUCCA VALLEY

Current Success Opportunities

- JSP/Connected High School Mentoring Program- Junior/Senior year
- Summer – Students hired back as Agency employee furthering training toward employment
- College bound Students may participate in College Intern Program
- Students enter workforce immediately after program participation. Vacancy at site – Student competes for entry level position.

Success for Students and Community

- Without exception—all students graduate from high school
- Students benefit from specific skill training
- Majority of students continue education in a university, college or technical trade school
- To date more than 30 students have gained full time employment with SCE

Positions Prior Students Hold with Edison as Full Time Employees

- Substation Electrician
- Operator Plant Equipment
- Lineman Apprentice
- Utilityman
- Groundman
- Designer
- Engineer
- Meter Reader
- Planner
- Customer Specialist
- Analyst-Program/Project

Success for Edison

- Programs facilitate hiring from local community
- Students have a year of pre-screened experience prior to full time employment
- Students start as full time employees with prior training
- Opportunity to lower mean age of workforce
- Vehicle to fill void for apprenticeships
- Vehicle to facilitate filling technical positions at local and remote locations

Strategy: Partner with colleges and students in Training Certificate Program preparing students for targeted SCE employment

- Certain business areas face greater challenges with competitive recruitment
- Strategy--partner with education to provide academic and practical on-the-job experience needed to become a competitive job placement prospect

Model for Certificate Program

- Nuclear Operations and Maintenance Training Certificate at Palomar College
  - Program of Study
    - College Algebra
    - Trigonometry
    - General Physics I
    - General Physics II
    - Fundamental of Chemistry
    - General Chemistry
    - Basic Electrical Science
    - Basic Electronics
    - First Aid/Industrial Safety
    - Cooperative Education Work Experience

Model for Certificate Program

- Scholarships for tuition and books will be awarded to qualified candidates
- Students will receive paid on the job training
- Students earn Cooperative Education units

Model for Certificate Program

- The Nuclear Operations and Maintenance Certificate Program prepares students for well-paid careers in the following skilled trades:
  - Plant Operations Personnel
  - Electrician
  - Welder
  - Machinist
  - Crane Operator
  - Boiler and Condenser Mechanic
  - Instrumentation and Control Technician
  - Test Technician
  - Nuclear Maintenance Painter

Strategy: Work with select Colleges to provide 1-2 year employment/training in Engineering followed by formal hire

- Hiring need is highly specialized and is at the undergraduate and graduate level
- Prefer to work with a few select higher education institutions known for excellence in Engineering

Model for Engineering Internship

- Dr. Ziyad Duron, Harvey Mudd College, Claremont
  - Exceptional engineering students
  - Interest in working in the power industry
  - Opportunity for relationship with Edison
  - Hire students in Internship capacity while completing coursework
  - Opportunity for permanent employment following graduation and internship in specialized Engineering area

Successful Strategy

- **Recruitment**
  - Phased opportunity, on-going annual commitment spanning service territory
    - High school
    - College
    - University
- **Training**
  - Combine theory with practice
  - Provide office and field experience
- **Retention**
  - Identify retention strategy
  - Encourage senior engineers to mentor/train incoming engineers
  - Provide attractive salary and flexible schedule

Successful Strategy

- **Knowledge Transfer**
  - Theory tells us key is that seasoned employees and students have passion for the field and be willing to dialogue
  - Mentoring between seasoned employees and students is key to knowledge transfer
  - Items to be addressed:
    - Identify critical knowledge
    - Identify items to be taught to safeguard knowledge
    - Identify resources needed to learn (job aids, procedures, project plans, schedules, blueprints, etc)
    - Identify best way for someone to learn
    - Specify criteria to identify successful knowledge transfer

De Pietro Fellowship in Civil Engineering

2007-08