



Inland Empire Utilities Agency

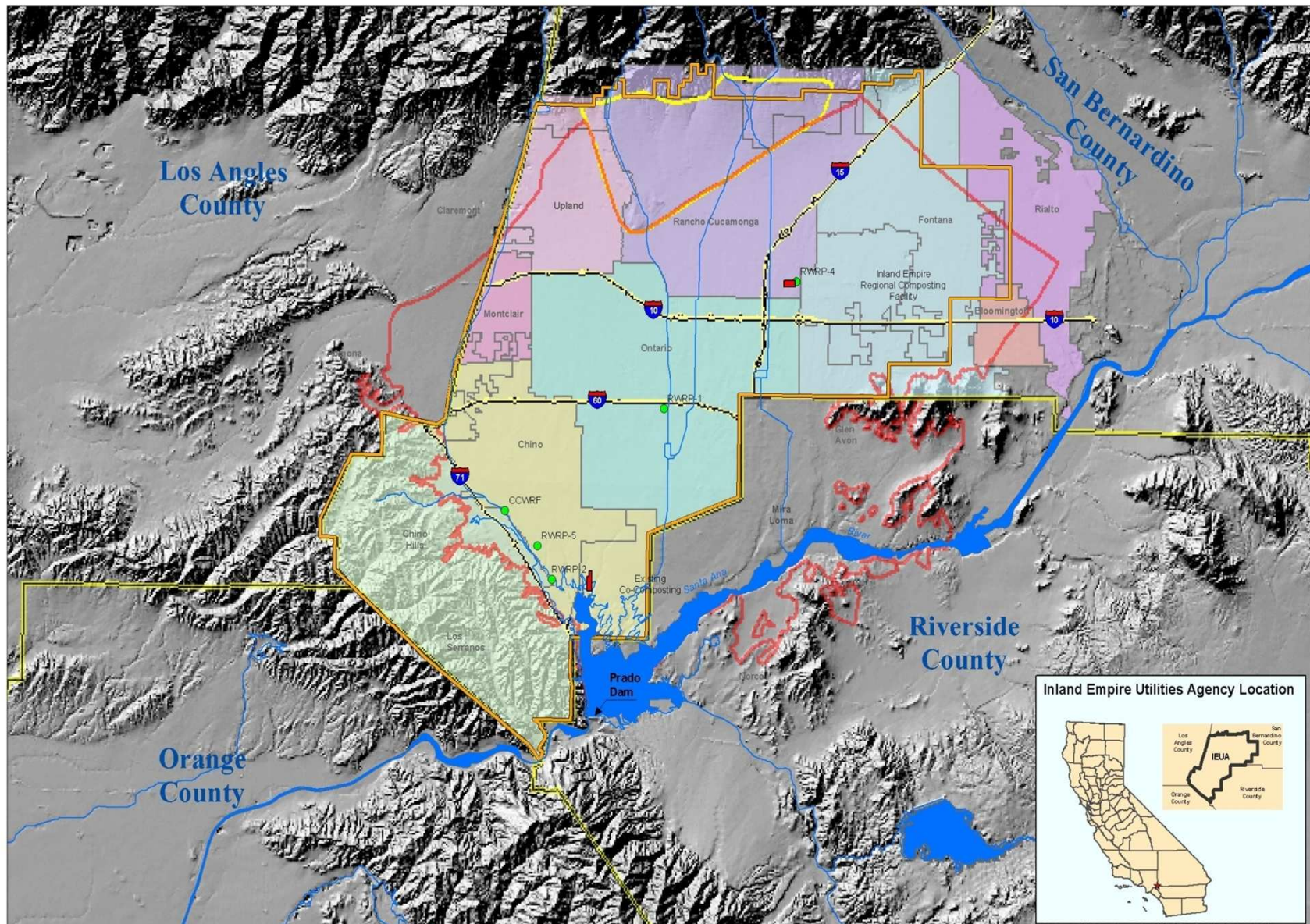
A MUNICIPAL WATER DISTRICT



IEUA's Energy Strategy

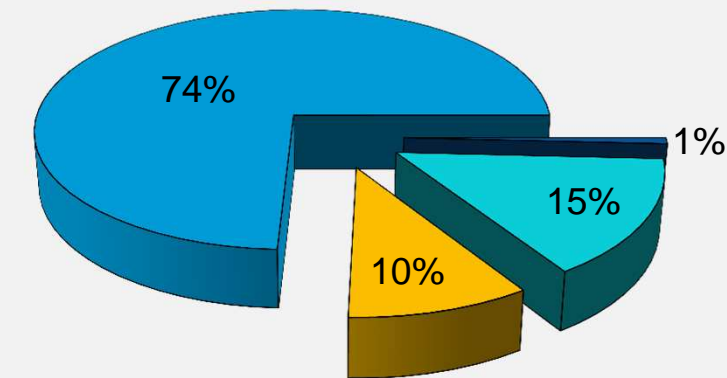
off the grid by 2020

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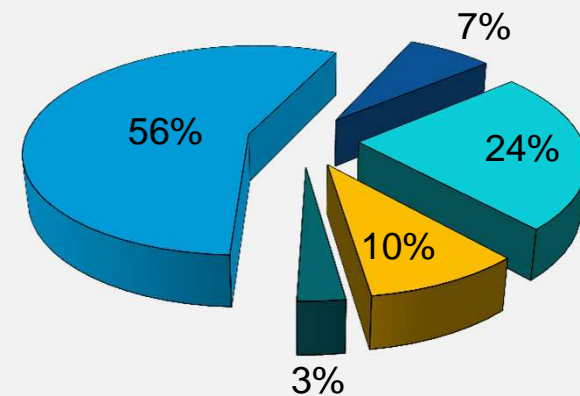
Agency Wide Energy Portfolio

Current



■ Imported ■ ICE (Natural Gas)
■ ICE (Biogas) ■ Solar

2012



■ Imported
■ Fuel Cell (Natural Gas)
■ Fuel Cell (Biogas)
■ Solar
■ Wind

Goals & Objectives

- Goal is to maximize renewable energy, optimize energy usage and become gridless by 2020
- Electric demand is approximately 8 MW avg.(12 MW peak)
- Renewable Energy includes:
 - Solar Power
 - Wind Power
 - Fuel cells
- Increasing energy efficiency:
 - Aeration Blowers
 - Lighting



Goals & Objectives

- Electricity demand is approximately 8 MW avg.(12 MW peak)
- Goal is to maximize renewable energy, optimize energy usage and become “gridless” by 2020
- “Gridless” – minimize reliance on imported energy



Renewable Energy - Solar

- More than 3,500 kW already installed at four IEUA facilities (PPA)
 - Water Recycling Plant RP-1: 831 kW
 - Water Recycling Plant RP-5: 1,000 kW
 - Water Recycling Plant CCWRF: 625 kW
 - Composter Plant: 1,000 kW
- Future Solar with new facilities (space limited)



Renewable Energy - Wind

- Power Purchase Agreement (PPA) for a wind turbine at RP-4
- 1,000 kW Wind Turbine
- Project is currently in pre-design & permitting
- On-line 2011
- Future potential 2-3MW additional



Renewable Energy – Fuel Cell

- Fuel Cell Capacity: 2,800 kW
 - Replacement of current 1,000 kW ICE (limited by AQMD Reg.)
- RFP released in October 2010
- PPA under negotiation
- On-line 2012
- Reduced carbon footprint
- Mitigate future air quality Standards compliance



Renewable Energy – Food Waste

- Retrofit Dairy Waste Digester for food waste digestion
- Generation of electricity with existing 3 MW ICE
- Landfill diversion benefit
- Facility lease to private venture with PPA
- Phase I – 1.5 MW 2011
- Phase II – 3 MW 2013



Energy Efficiency – Aeration Systems

- Aeration blowers are some of the most energy intensive equipment in a wastewater treatment plant
- Conducted condition assessments of blowers, aeration ducting, diffuser systems and instrumentation at all facilities
- Verified that aeration systems used the most effective control algorithms
- Recommendations:
 - Repair all leaks in ducting
 - Replace leaking diffusers
 - Replace some DO probes
 - Upgrade some controls



Energy Efficiency – Facility Lighting

- Initial Studies show that changing old facility lighting to newer high efficiency lighting can yield big savings in energy usage

Regional Plant	Replacement Luminaire Quantity	Projected Replacement Luminaire Costs	Percent Energy Savings	Energy Reduction (KWH/year)	Estimated Payback (years)
RP-1	473	\$472,600	86%	712,830	5
RP-2	143	\$157,500	86%	142,760	6
CCWRF	117	\$124,200	78%	79,650	10
RP-4	121	\$131,400	87%	98,920	9
RP-5	135	\$147,800	83%	102,190	10
TOTAL	989	\$1,033,500	Average Energy Savings 85%	1,136,350	Average Payback 6 years

Energy Efficiency – Facility Lighting (cont.)

- Utilize energy efficient lighting fixtures for exterior areas to reduce maintenance and replacement cost
- Decrease energy use with motion sensor controls – reduces energy waste and maintains security level
- Newer energy efficiency lights minimize light trespass to surrounding communities and provide improved uniformity



Future Development

- **Increased bio-gas production**
 - Digestion process improvements
 - High energy feedstock – food waste, FOG
- **Recycled water pumping optimization**
 - Off-peak pumping – on site equalization
- **Energy use efficiency optimization**
- **Additional solar and wind power**



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Questions?