

**STOP LEAPS (500 MW)/TE/VS LINES (500KV) :**  
**A FAILURE IN ECONOMIC BENEFITS FOR LAKE**  
**ELSINORE STAKEHOLDERS**

**Submitted for consideration to FERC**  
**DOCKET P-14227**

**Lake Elsinore Valley Community Members**  
**Facebook Groups: Stop LEAPS & Lake Elsinore LEAPS Opposition Team**

April 25th, 2019

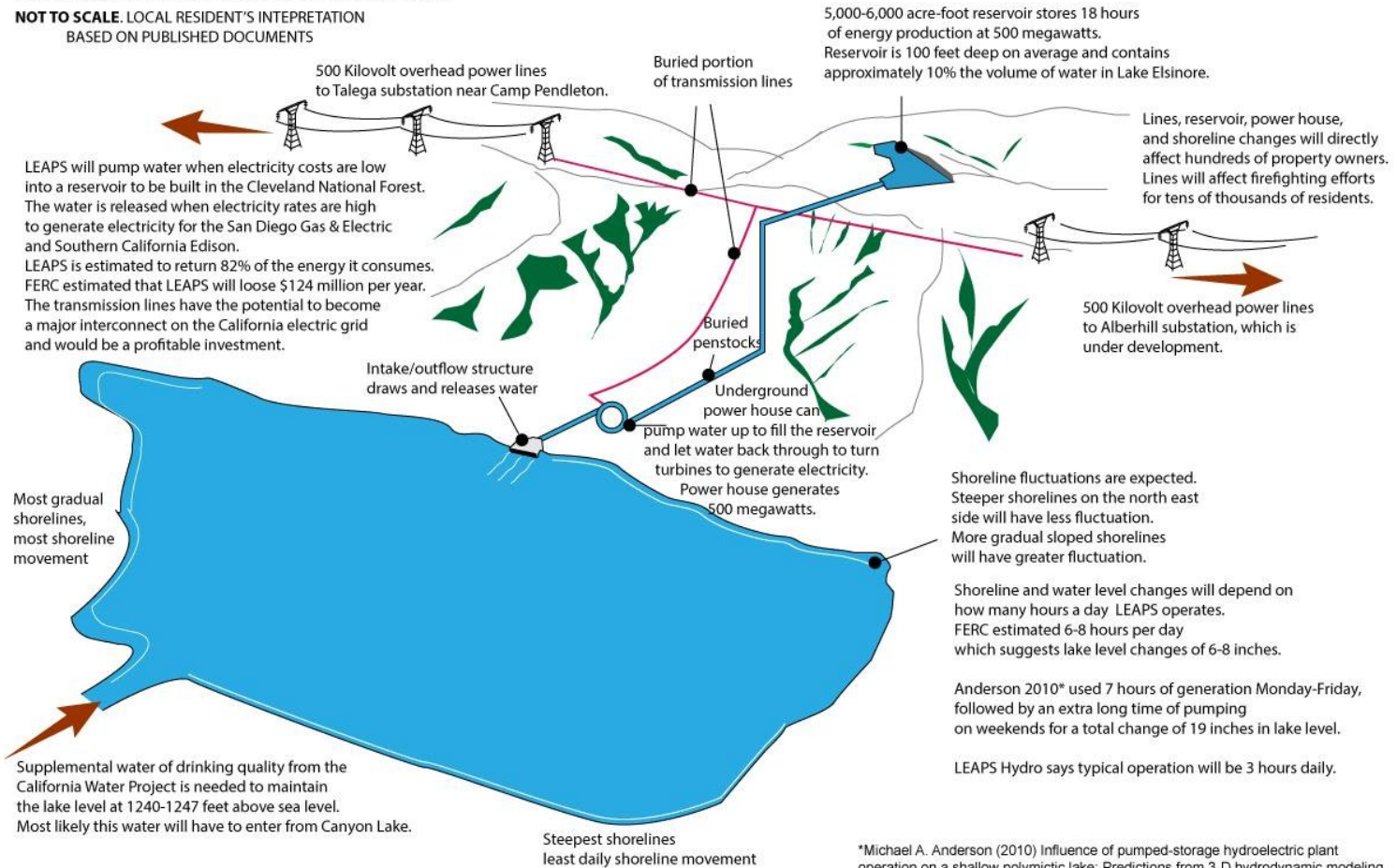
Final Version

Corroborators : Mr. John Garrett  
Mr. John Myers  
Mr. Craig Durham  
Dr. Ivan A. Gargurevich, Chemical Engineer.

# A DIAGRAM OF LEAPS (500MW)/TE/VS (500 KV) FERC P-14227 POWER LINES OVERALL FACILITIES

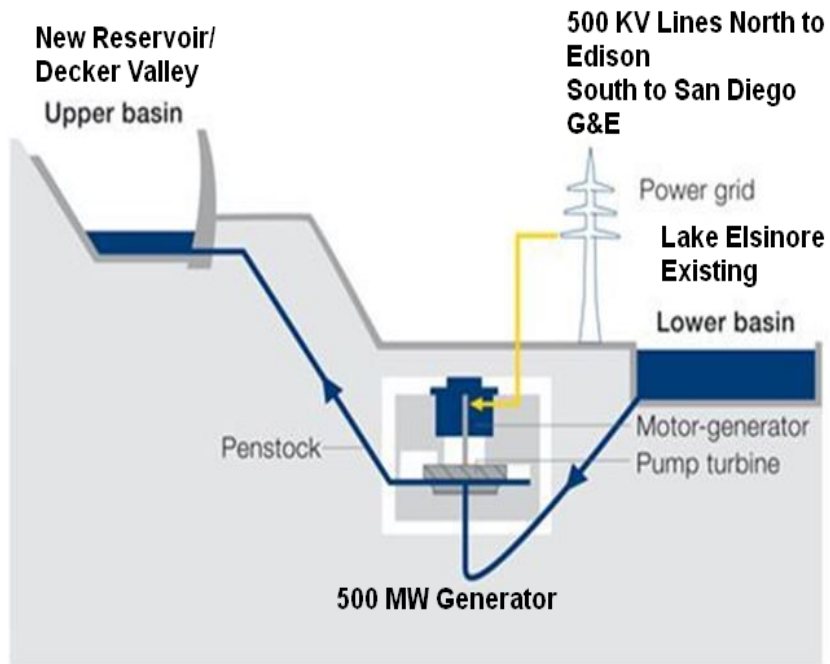
## LAKE ELSINORE ADVANCED PUMPED STORAGE PROJECT

**NOT TO SCALE.** LOCAL RESIDENT'S INTEPRETATION  
BASED ON PUBLISHED DOCUMENTS



\*Michael A. Anderson (2010) Influence of pumped-storage hydroelectric plant operation on a shallow polymictic lake: Predictions from 3-D hydrodynamic modeling. Lake and Reservoir Management, 26:1, 1-13, DOI: 10.1080/10402380903479102

# LEAPS/TE/VS POWER LINES PROJECT FERC P-14227 DESCRIPTION ( by Nevada Hydro)



- 500 megawatt pumped storage facility
  - Generating facility will be underground at foot of Elsinore mountains
- Lake Elsinore to provide source water, closed loop through upper reservoir in Decker Canyon
- Two reversible pump turbine units pump water to upper reservoir using low-cost off-peak power, and generate power from water flowing downhill at times of high demand

LEAPS or Lake Elsinore Advanced Power Storage will generate hydroelectric power 500MW making use of existing Lake and a upper new reservoir in Decker valley as a way to store power to make up for gaps in renewable energy sources such as solar....

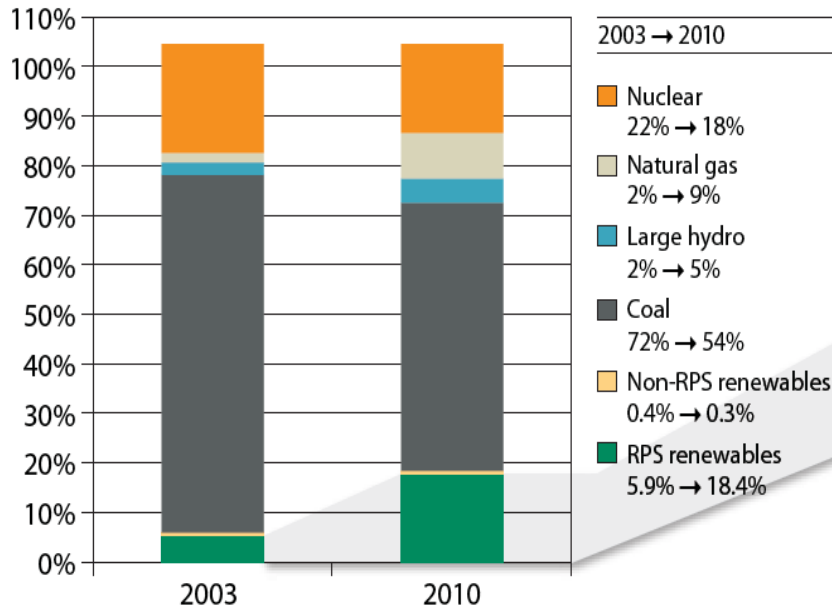
In addition new power transmission lines (@500 KV) will be implemented to deliver electricity to Edison North through Temescula Valley (TE) and south to San Diego G&E (VS)

# RIVERSIDE COUNTY ENERGY SOURCES IN PICTURES

## A. PAST SOURCES 2003- 2010

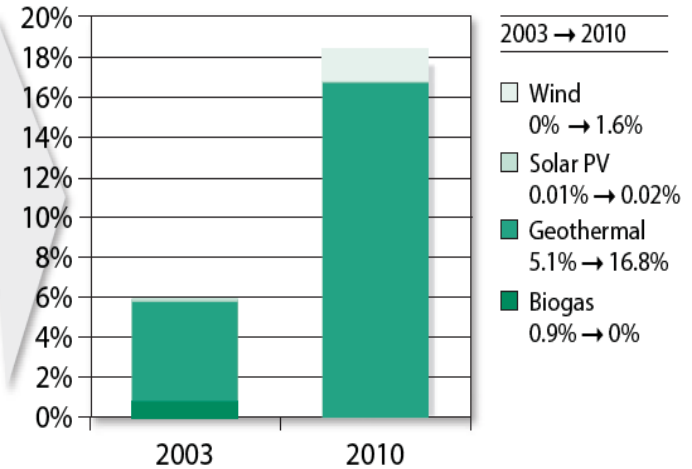
Riverside County has a commitment to increase renewable energy use.

**Riverside's Electricity Mix, 2003 and 2010**



The electricity mix totals more than 100 percent of retail sales because it includes electricity lost through transmission.

**Riverside's RPS Renewables**



# RIVERSIDE COUNTY ENERGY SOURCES IN PICTURES

## B. 2017 POWER SOURCE RIVERSIDE VS. CALIFORNIA COMPARISON.

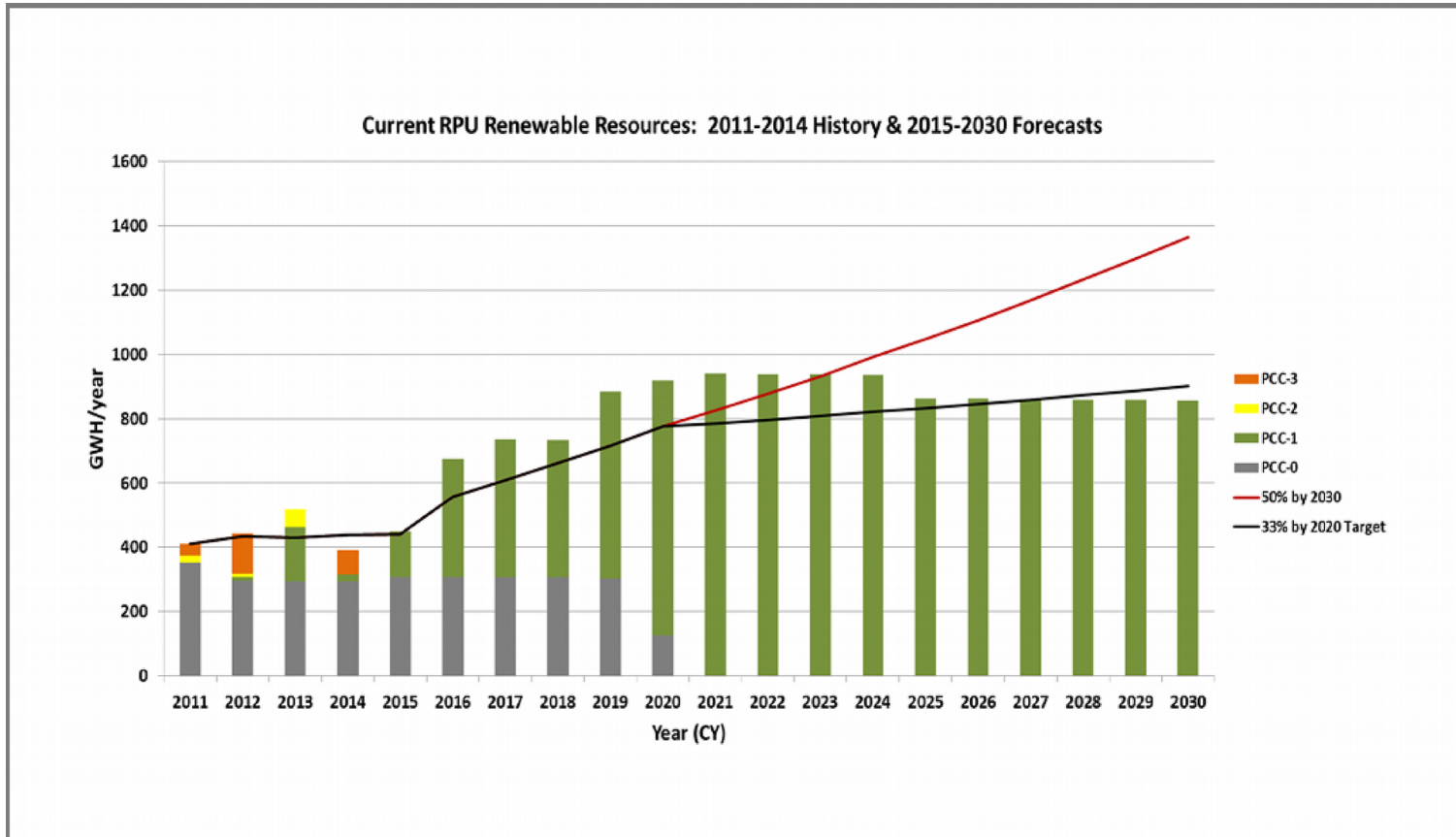
Year 2017 Renewable Energy accounts for 36% of electrical energy generation.

<b>2017 POWER CONTENT LABEL</b>		
<b>City of Riverside Public Utilities</b>		
<b>ENERGY RESOURCES</b>	<b>Power Mix</b>	<b>2017 CA Power Mix**</b>
<b>Eligible Renewable</b>	<b>36%</b>	<b>29%</b>
Biomass & biowaste	0%	2%
Geothermal	21%	4%
Eligible hydroelectric	0%	3%
Solar	11%	10%
Wind	4%	10%
<b>Coal</b>	<b>26%</b>	<b>4%</b>
<b>Large Hydroelectric</b>	<b>1%</b>	<b>15%</b>
<b>Natural Gas</b>	<b>5%</b>	<b>34%</b>
<b>Nuclear</b>	<b>4%</b>	<b>9%</b>
<b>Other</b>	<b>0%</b>	<b>&lt;1%</b>
<b>Unspecified sources of power*</b>	<b>28%</b>	<b>9%</b>
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>
<p>* "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.</p> <p>** Percentages are estimated annually by the California Energy Commission based on the electricity sold to California consumers during the identified year.</p>		
<p>For specific information about this electricity product, contact:</p>		<p><b>City of Riverside Public Utilities</b></p> <p><b>951-826-5485</b></p>
<p>For general information about the Power Content Label, please visit:</p>		<p><a href="http://www.energy.ca.gov/pcl/">http://www.energy.ca.gov/pcl/</a></p>
<p>For additional questions, please contact the California Energy Commission at:</p>		<p>844-454-2906</p>

# RIVERSIDE COUNTY ENERGY SOURCES IN PICTURES

## C. PROJECTED RENEWABLE SOURCES TO 2030 TARGET

Riverside County is expected to meet California Goals for increase use of Renewable Energy



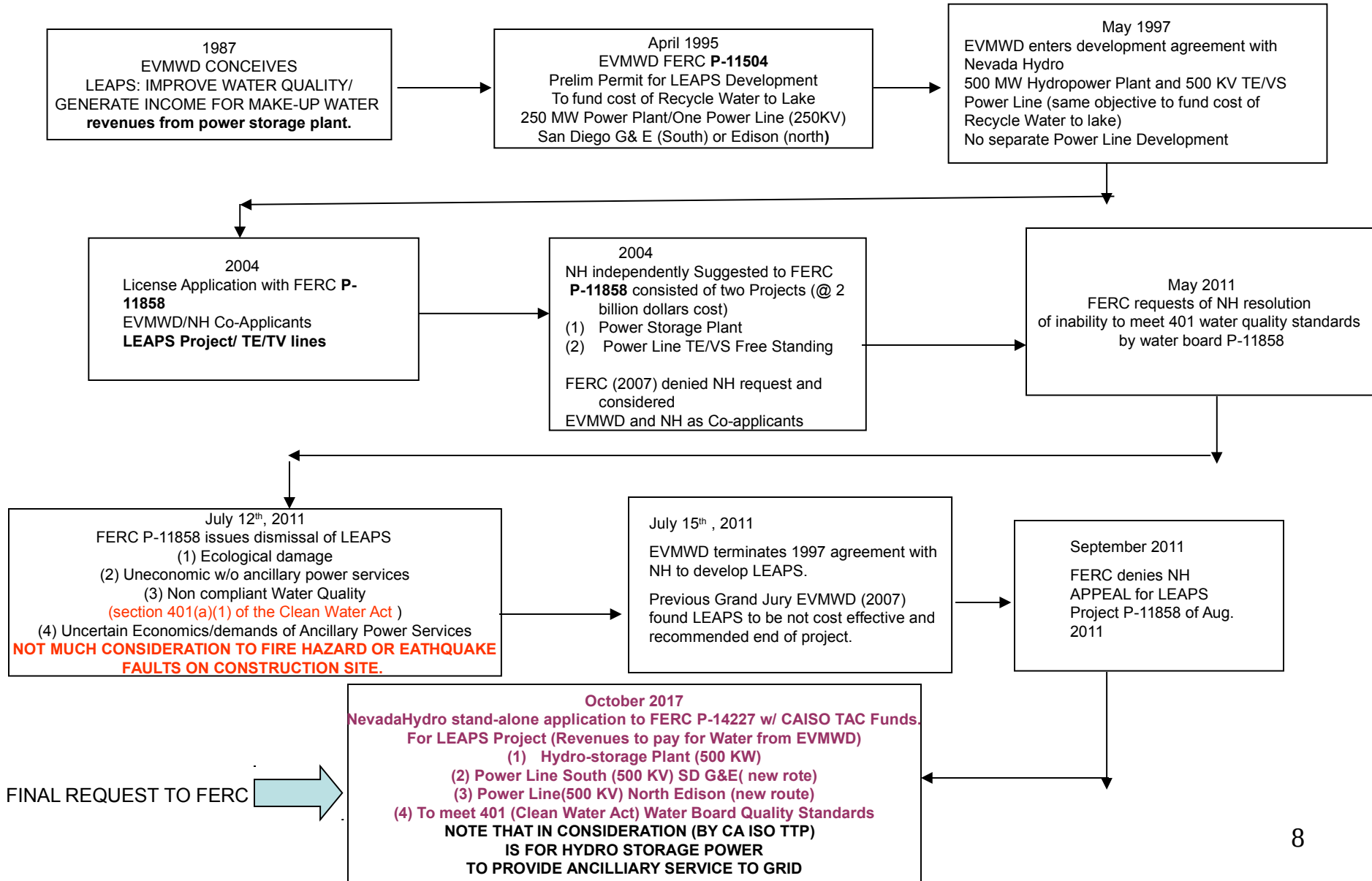
## RIVERSIDE COUNTY ELECTRICITY COMSUMPTION (ALL SOURCES) DATA

Note that the power to be generated by LEAPS (if built ) is 500 MW.

<b>CA Energy Comission Riverside County Data</b>	<b>Total Electricity Consumption (All Sources)</b>
<b>Year</b>	<b>MW</b>
2017	1815.788897
2016	1766.276206
2015	1745.421004
2014	1775.311404
2013	1728.650486
2012	1745.226863
2011	1646.688575
2010	1605.523534
2009	1656.835568
2008	1723.779501
2007	1703.463019
2006	1730.371538
2005	1506.914296
2004	1445.101054
2003	1450.430924
2002	1306.957918
2001	1184.141482
2000	1326.895178
1999	1227.363232
1998	1137.076424
1997	1123.252871
1996	1090.427132
1995	1043.154822
1994	1028.870306
1993	818.4728614
1992	823.1753844
1991	788.2166543
1990	772.1472021



# EVMWD & NEVADAHYDRO LEAPS/POWER LINES PROPOSAL HISTORICAL VIEW





# 1. NH LEAPS DOES NOT REPRESENT INVESTING IN RENEWABLE ENERGY(P-14227) (Proposed by Jerry Brown as way to reduce Fossil Fuels Consumption in California)

A. Information provided by NevadaHydro (NH) indicate that the project may ultimately be driven by **ISSUES/POLICIES of improving the Power Transmission Grid in California AND NOT BY CALIFORNIA'S COMMITMENT TO INCREASE IMPLEMENTATION OF GREEN ENERGY IN LIEU OF FOSSIL FUEL POWER DUE TO HIGH COST** (goals of Governor Jerry Brown)

## INCEPTION FREC P-11504 PERMIT FOR DEVELOPMENT

Referring to the previous slide or Project Historical View, **the base goals (1995) for LEAPS or FERC P-11504:**

- (1) To generate the funding for recycle water. electricity would be tied with a new power line to the Power Grid (SDG&E or SCE)
- (2) LEAPS was not considered a generator but would be viewed as providing electrical load balancing and integrating well with California's goal of increasing Renewable Energy as depicted on a previous slide (target 30% Renewable by 2030).
- (3) Provides increasing Renewable Energy such as Wind requiring Load balancing.

**1. NH LEAPS DOES NOT REPRESENT INVESTING IN RENEWABLE ENERGY(P-14227) CONTD.**

**EVMWD NEVADAHYDRO PARTNERSHIP LICENSE APPLICATION FERC P-11858**

B. As previous slide shows EVMWD formed a partnership with NevadaHydro (1997) to propose building LEAPS P-**11858**:

- (1) However NH proposal FERC P- 11858 consisting of LEAPS and departed from original intention (EVMWD'S) by adding two new and separate power lines (500 KV ) TE/VS to deliver power (500MW now) to SD G&E (south ) or SCE (north)**
- (2) AS A CONSEQUENCE OF AN ANALYSIS OF PROPOSAL FERC P-11858 WITH A CONSTRUCTION COST OF 2 BILLION DOLLARS, BOTH EVMWD AND FERC FOUND IT TO BE UNFEASIBLE ECONOMICALLY FOR LOAD BALANCING ONLY. NH USED HIGH DIFFERENTIAL PRICE OF HIGH/LOW PEAK ELECTRICITY.**
- (3) IT WAS ALSO APPARENT THAT WATER DID NOT MEET APPLICABLE WATER QUALITY STANDARDS OR **Section 401(a)(1) of the Clean Water Act****
- (4) The project was also thought of as being to destructive to the environment in general. A new upper Reservoir would have to be built doing away with Natural Habitats. The Powerhouse alone was to be 300 feet underground and the size of a football field on Grand Avenue location (City of Lake Elsinore). This is earthquake active zone and in the near proximity of a body of water such as it is the lake.

## 1. LEAPS DOES NOT REPRESENT INVESTING IN RENEWABLE ENERGY (CONTD.)

### Statements from Economic Insight Inc. on 2006 regarding the economic analysis for LEAPS FERC P-11858 of 2004.

The following is more information on the financial viability and economic assumptions of the LEAPS Project quoted directly from *An Economic Evaluation of the LEAPS Project and Associated Transmission For the Elsinore Valley Municipal Water District*, by Samuel A. Van Vactor, Stefan Brown, David Ramberg, Economic Insight, Inc. (Feb 7, 2006).

“When revenue and cost factors are considered, we conclude that the LEAPS project, as a merchant plant, is not viable at this time.”

LEAPS Economic Evaluation, Feb. 7, 2006, page 8

“Thus far, neither the California Independent System Operator (Cal ISO) nor Nevada Hydro has produced economic studies that would support the development of either LEAPS or the transmission system.”

LEAPS Economic Evaluation, Feb. 7, 2006, page 9

“Nevada Hydro’s spreadsheet dated July 20, 2005 assumed an on-peak price of \$65 per MWh and an off-peak price of \$25 per MWh. Although these price assumptions might be reasonable under different circumstances, since the California energy crisis ended in 2001, such a high differential has existed on only a few days, and the average differential is far lower.”

LEAPS Economic Evaluation, Feb. 7, 2006, page 5

“Based on 2005 actual prices, in our base case we project that LEAPS would have had annual net energy sales of just \$0.3 million, instead of the \$54.6 million Nevada Hydro calculated.”

LEAPS Economic Evaluation, Feb. 7, 2006, page 6



# 1. LEAPS DOES NOT REPRESENT INVESTING IN RENEWABLE ENERGY (CONTD.)

C. Prior to the present proposal FERC P-14227 or (FERC P-11858) it was already obvious as pointed out by the analysis of EVWMD and FERC that the estimate of 2 billion dollars as well as the design specifications have not considered in depth the significant Fire and Earthquake Hazard, This should be obvious from the pictures provided below. Should a cost for construction as well as design have been built in features considering frequent fires or possible earthquake?

A Sample of Fires Near the FERC Preferred Route of the Proposed Talega-Escondido/Valley-Serrano High Voltage Transmission Line



**Official says power line poses fire risk for all.**

The Californian 4/7/02  
 Quotes from article:  
 "The Cleveland National Forest has the highest number of wildland firefighting casualties of any national forest in the United States...  
 Firefighters cannot work under lines if the power running through them has not been shut down...Often there is a delay between the time firefighters arrive on a fire line and the time it takes a utility company to shut off the power to transmission lines.

In heavy smoke, charged power lines can cause an electrical arc, which shoots to the ground like a lightning bolt, possibly electrocuting anyone standing beneath the lines.  
 "In a brush fire, California forestry firefighters are required to stay 300 feet away from the area under transmission lines.  
 Transmission lines also present unacceptable risks for firefighting aircraft... adding to delays in fighting a blaze."  
 "Waiting until the blaze has gotten past the power lines means losing precious minutes. And when fighting a fire, time is of the essence..."



**1. LEAPS DOES NOT REPRESENT INVESTING IN RENEWABLE ENERGY (CONTD.)  
STAND ALONE NH APPLICATION TO FERC OR P-14227**

**D. The final proposal to FERC P-14227 filed independently by NevadaHydro has been questioned from its time of filing and issues remain still open:**

- (1) In order to make the LEAPS / TE/VS project economically feasible NH has proposed for LEAPS to be considered part of the Power Grid in Southern California as ancillary services facility. However this needs the consideration and approval of CAISO TPP still pending. Note that in the past Hydrostorage Power facilities were not considered power generators since they are net consumers of electricity used for the purpose of Load Balancing. **This is a considerable departure from the initial goal for LEAPS to support renewable Energy expansion.**
  
- (2) **One important fault in the financing of FERC-P14227 is the expectation electrical power demands which are unlikely to realize:**  
“SDG&E's Sunrise power line, already have been approved (2011) to bolster the region's energy supply so whether Nevada Hydro's power lines and plant would be of benefit could be beside the point. "It's a little bit of a red herring to point to an unapproved project and say it would alleviate a problem when there are other projects out there that could already meet that need,"
  
- (3) Implementation of a treatment process to make Lake Elsinore water quality comply with appropriate California/Federal standards has not yet been resolved (section 401(a)(1) of the Clean Water Act)  
• **EVMWD has already been using treated recycle water (2000) for make-up of evaporation and maintain water level/low salinity improving water quality, however Lake Elsinore still suffers from high total Nitrogen and Phosphorous as well as low dissolved Oxygen under some circumstances such as a heavy storm or heavy drought weather.**
  
- (4) A Fire Hazard plan has not been finalized and approved by proper Fire Department authority.  
See, <https://www.powermag.com/fire-safety-in-modern-hydroelectric-stations> (power Magazine)

**E. It should be separately noted that LEAPS Hydro storage is a net consumer of Electricity making it less profitable (typical efficiency is around 85%)**

## Notes Concerning False Premises for P-14227 by NevadaHydro

**FRONTLINES\*** (their Jacqueline Ayes) points out in a document submitted to FERC on September 22, 2017 and addressed to Kimberle Bose Secretary that NevadaHydro repeatedly states that the LEAPS/TEVS project P-14227 is "identical" to the LEAPS/TEVS project that the Commission considered in P-11858 [pages 2, 8, and 16]; this statement is patently false.

1. FEC P-14227 represents substantial change in the LEAPS/Southern California Edison interconnection point which significantly alters the 500- KV transmission line routing parameters in comparison to FEC P-11858. This results in an environmental impact for FEC P-14227 substantially greater.
2. History Reveals Substantial Errors in the LEAPS "Need" Assessment that was Provided in the 2007 FEC or P-11858

As set forth in Section 1.2.1 of the 2007 FEC Docket P-11858, the LEAPS power "Need" assessment established by the FEIS was founded on forecast load assumptions and demand projections which, history shows, never came to pass and which current projections prove will *not* come to pass. The 2007 FEC also assumed renewable generation profiles that are equally erroneous. Therefore, the entire basis for concluding that LEAPS was "needed" and therefore in the public interest which was set forth in the 2007 FEIS P-11858 is now proven to be entirely invalid as basis for P-14227.

**\* Notice that Frontlines refers to Forrest Residents Opposing New Transmission Lines.**





SCNG



## Future

- Simulations provide improved insights into past, present and future water quality and ecology of lakes
- Supplementation of Lake Elsinore with recycled water:
  - Prevents the complete dessication of lake witnessed in 1950s-60s
  - Predicted to maintain minimum level of 1232-1234'
  - Has limited effect on mean DO concentration in lake, but increased range of water column DO concentrations
  - Has negligible effects on average total N and total P concentrations
  - Predicted to lower slightly chlorophyll a concentrations
- Overall, model predictions do not indicate marked effects on water quality resulting from periodic inputs of recycled water to help maintain lake level
- Salinity in Lake Elsinore is a concern; high salinity:
  - Impairs sport fish and beneficial zooplankton reproduction
  - Negatively alters food web and water quality
  - Outflows needed to remove salts from lake and maintain conditions

## 2. CONSIDERATION OF ADDED COSTS FERC P-14227 (CAISO TPP approval pending)

A NOTE UPFRONT REGARDING THE HIGH COST OF PROJECT FERC P14227: THE STATED COST FOR THE PROJECT HAS BEEN REPORTED BY NH AS 2 BILLION DOLLARS.

THE PROJECTED REVENUES FOR THE RIVERSIDE COUNTY 2018/2019 IS ABOUT 5.5 BILLION DOLLARS. OBVIOUSLY RELATIVELY SPEAKING THIS WOULD BE A HEAVY COST BURDEN FOR RESIDENTS OF LAKE ELSINORE VALLEY.

**A. Newly Proposed Financial incentives (CAISO TAC) will allow NH to proceed with the project including LEAPS and Power Transmission Lines (as achieving increasing Power Grid capacity) with little consideration to risk to environment as well as damage to a balanced biological system due to construction of LEAPS new reservoir in Decker Canyon and the above ground Power Transmission. Note as stated previously the reason is a significantly different routing for the lines than proposed previously under P-11858,**

“SDG&E's Sunrise power line, already have been approved (2011) to bolster the region's energy supply so whether Nevada Hydro's power lines and plant would be of benefit could be beside the point.

"It's a little bit of a red herring to point to an unapproved project and say it would alleviate a problem when there are other projects out there that could already meet that need,"

B. The 2 billion dollar price Tag reported by NH should be revised to consider the cost of Environmental damage to the Lake Elsinore and loss of access to camping grounds/hiking Trails for visitors resulting in an increase cost of the project (CAMPING FEES FOR EXAMPLE).

C. Similarly due to construction in an area of Fires historically, the cost of LEAPS and Transmission Power Lines should account explicitly for major repairs due to Fires.

**D. Improper Cost Analysis as stated above will result in a net loss for Lake Elsinore Stakeholders while NH will recover 2 billions dollars invested as well as a guaranteed profit secured by FERC Policies (Order No. 679 in addition to & CAISO TAC) presently being modified with the concept of increasing the Power Grid capacity in California ( and resulting in LEAPS APPROVAL as provider of ancillary services ).**

## Fire Hazards and Hydroelectric Power Plants (Power Magazine)

It is true that hydro plants have perhaps the lowest fire risk among electric generating facilities, but that's only because, generally speaking, the likelihood of a fire is lower than in a fossil-fueled power station. Hydro plants are not without fire risk, and history reminds us that large-loss fires have occurred (see table).

Date	Location	Brief description	Approximate loss, in 2007 \$
2/8/96	Switzerland	Fire initiated by a malfunctioning overload switch spread to all four units. The entire plant was shut down as a result of the event. <sup>a</sup>	55,900,000
7/20/81	Washington State	Fire involving oil-filled cables in a cable tunnel. Contributing factors included access difficulties and lack of firefighting water supply. <sup>a</sup>	48,500,000
9/27/02	Tennessee	Rapid-growth fire initiating in a vertical cable shaft spread to the control building and eventually self-extinguished. There was extensive damage to all areas of the facility. The control building had no fire suppression systems. Contributing factors included access difficulties and lack of pre-planning with emergency responders. <sup>b</sup>	36,300,000
3/21/97	Portugal	Electrical fire at an unattended station. The fire extensively damaged cabling, monitoring equipment, and the control room due to corrosive soot and smoke throughout various level of the powerhouse. The facility was shut down for nine months. <sup>a</sup>	13,700,000

Notes: a. *A 30-Year Review of Large Losses in the Power Industry 1969 to 1998*, 7th Ed., Marsh Risk Consulting.

b. "Fire at Watts Bar Hydroelectric Plant," US Fire Administration, USFA-TR-147/September 2002.

**Sample of large-loss fires at hydroelectric generating facilities.** *Source: Starr Technical Risks Agency Inc.*

Hydroelectric stations share many of the same fire hazards as their fossil-fueled cousins and, thus, share many of the same equipment and personnel policies. For example, common hazards include oil-filled transformers, electrical cables and switchgear, air-cooled generators, and large quantities of combustible hydraulic oil. Common fire hazards include hot work, smoking, general storage, and temporary construction/overhaul materials.

### **3. CONSIDERATION OF ADDITIONAL WATER TREATMENT COSTS**

A. NH cost estimate may not properly account for the increase cost of make up water to both reservoirs due to Evaporation losses.

B. It has been reported that lake Elsinore has reached the maximum of Colorado River water allocation. Make up water to reservoirs will become a more costly and compete with use of water for drinking.

C. Make up water may have to be secondary water placing added strain on existing sewage treatment systems in Lake Elsinore perhaps resulting in added construction of more sewage water treatment plants

D, COMPLIANCE ISSUES WITH WATER BARD (CLEAN WATER ACT 401) NOT YET RESOLVED OR TREATMENT TECHNOLOGY NOT DEFINED AS YET.

## 4. LEAPS PROJECT FERC P-14227 AND FAULTY CARBON EMISSION EVALUATIONS

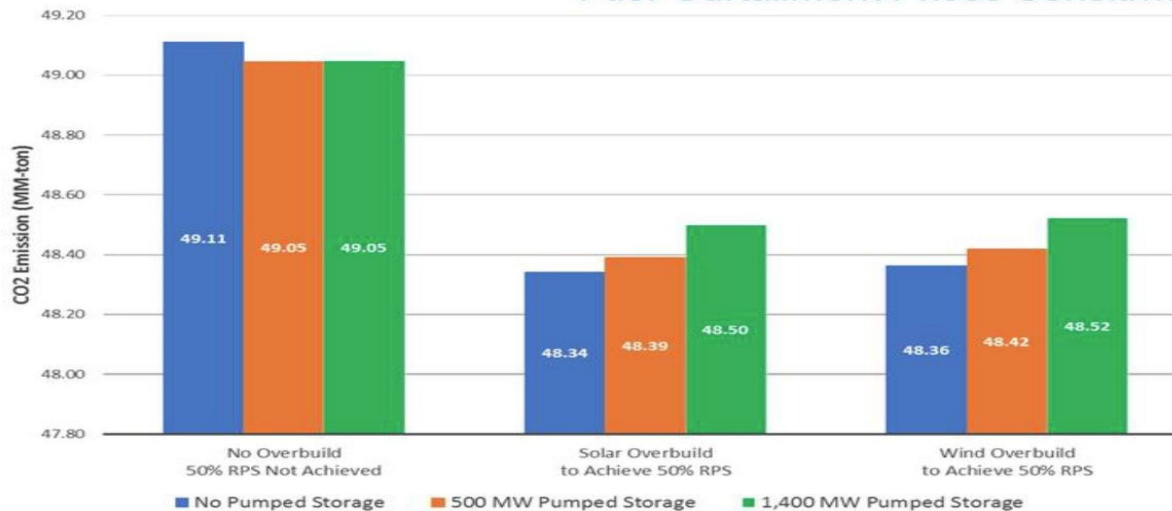
A. it is possible that LEAPS will result in added vapor emissions (Carbon Dioxide, Methane) from new Decker valley reservoir as published studies indicates. There has not been a PROPER accounting of this problem by NH since inception of the LEAPS project.  
See, Deemer, Bridget R. et al., "Greenhouse Gas Emissions from Reservoir Water Surfaces: A New Global Synthesis " BioScience November 2016, vol.66, No.11.

B. Pumping of water to Decker valley upper reservoir will make NET use of conventional Grid Power resulting in added carbon emissions which need to be quantify properly by NH

### California CO2 emission (50% RPS)

Source: CAISO,  
ISO 2016-2017 Transmission Planning Process  
Supplemental Sensitivity Analysis:  
Benefits Analysis of Large Energy Storage  
January 4, 2018

#### 4-tier Curtailment Prices Sensitivity



CA CO2 Emission includes the CO2 emission from net import

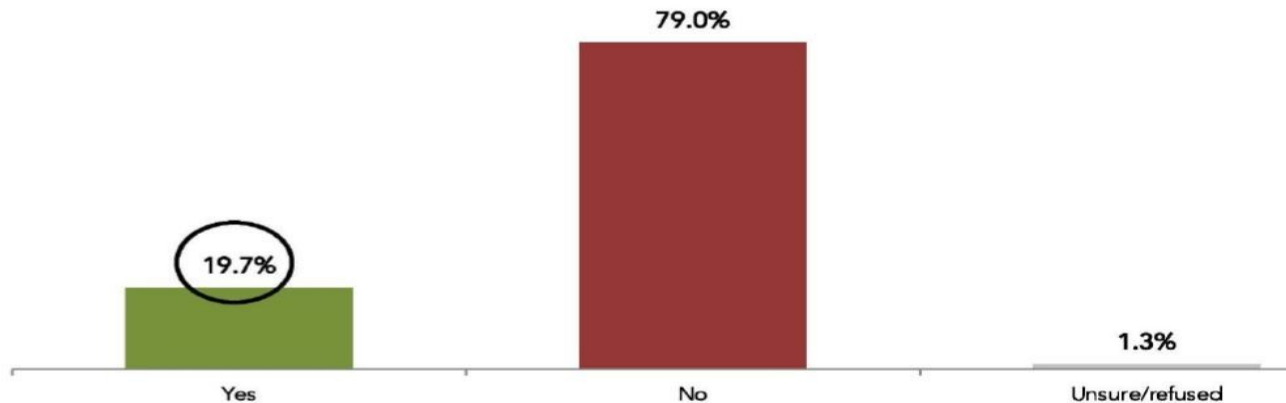
## 5. NEVADA HYDRO FILES A BIASED SURVEY OF CITIZENS OPINION OF LEAPS P-14227

The Lake Elsinore community survey produced by NH on P-14227 and presented to FERC indicates that most of the 300 people (79% of them) surveyed about LEAPS ( out of 160,000 residents with 6% margin of error and 95% confidence) were not aware of the project or the issues to begin with and they responded to questions as I understood prepared by NH on the survey itself (they responded approving of the project or in favor of....)... A BIASED statistics of opinion among residents of Lake Elsinore to an extreme.

**About one-fifth (19.7%)**

Have heard of a proposed hydroelectric project on Lake Elsinore

Question: Have you heard of a proposed hydroelectric project on Lake Elsinore?





## 5. NEVADA HYDRO FILES A BIASED SURVEY OF CITIZENS OPINION OF LEAPS P-14227 CONTD.

The residents which respond as supporting LEAPS do not have an understanding of all the issues involving LEAPS. Issues which might favor or lead to a rejection of the Project if fully known prior to the survey.

### A majority (56.7%) supports The LEAPS hydroelectric project

Question: Now, I am going to read you some more information about a proposed hydroelectric project on Lake Elsinore. California law requires our state to obtain 100% of its electricity from renewable sources by 2045. To help meet this demand, the Nevada Hydro Company has proposed to construct "The LEAPS Project", a hydroelectric project which consists of an upper reservoir that would be constructed in the Cleveland National Forest at Decker Canyon, just south of State Route 74. Lake Elsinore would serve as the "lower reservoir". A set of tunnels would connect the two reservoirs. When electrical energy is in high demand, the water in the upper reservoir is released through tunnels flowing down to turbines at the powerhouse. Projects like LEAPS are designed to ensure our communities have clean, safe and reliable electric energy supplies now and in future years. Based on what you now know, do you support or oppose the LEAPS hydroelectric project?

