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**ORIGINAL**

January 28, 2009

Docket Control  
Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, AZ 85007

Arizona Corporation Commission  
**DOCKETED**

JAN 28 2009

Subject: Docket No. E-00000D-09-0020



Docket Control:

Enclosed please find an original and thirteen copies of the Harcuvar Transmission Project ("HTP") Participants' 2009-2018 Ten-Year Plan, submitted pursuant to Arizona Revised Statutes, Section 40-360.02 by the Central Arizona Water Conservation District ("CAWCD") as Project Manager of the HTP. Please direct any questions regarding this filing to me at 623-869-2362.

Enclosed is an additional copy of the filing that CAWCD requests you date-stamp and return in the self-addressed, stamped envelope for our files.

Sincerely,

Gary L. Ijams  
Manager, Power Program

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Encls.

cc: Ernest Johnson, ACC  
Christopher Kempsey, Esq., ACC  
Lyn Farmer, ACC  
Ken Bagley, Genessee Consulting Group  
Larry Dozier, CAWCD  
John McNeill, Esq., CAWCD

AZ CORP COMMISSION  
DOCKET CONTROL

2009 JAN 28 P 4: 16

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**Docket No. E-00000D-07-0376**

**Harcuvar Transmission Project Participants**

**2009 – 2018  
Ten-Year Plan**

**Prepared for the Arizona Corporation Commission**

**Submitted by:  
The Central Arizona Water Conservation District**

**As Project Manager of:  
The Harcuvar Transmission Project**

January 28, 2009

# **Harcuvar Transmission Project Participants**

## **2009-2018**

### **Ten-Year Plan**

#### **General Information**

Pursuant to A.R.S. § 40-360.02, the Central Arizona Water Conservation District (CAWCD) submits this Ten-Year Plan on behalf of the Harcuvar Transmission Project (HTP or Project) Participants. The HTP Participants consist of ten different entities representing renewable and thermal energy developers, merchant transmission providers, and load serving entities in Arizona. The HTP is a proposed 230kV transmission loop located in La Paz County, Arizona. The benefits which will be derived from the proposed Project include:

- Acting as a collector system for several thousand megawatts of proposed renewable solar and thermal generation seeking to site in the La Paz County area.
- Affording these renewable resources simultaneous access to the Palo Verde hub, California ISO and the Federal transmission system operated by the Western Area Power Administration (Western).
- Providing load serving entities in La Paz and Mohave County access to the Palo Verde hub energy markets, and
- Enhancing reliability of the Central Arizona Project's pumping facilities in La Paz County.

The Project consists of two principal components. The first component is an approximate 90-mile 230kV loop connecting the existing Harcuvar, Bouse Hills and Little Harquahala substations. The second consists of joint ownership, along with Southern California Edison (SCE), in the Arizona segment of the proposed Devers – Palo Verde No. 2 (DPV2) transmission project. Terms of this joint ownership are currently being negotiated with SCE.

## Project History

The Central Arizona Project, which is operated and maintained by the CAWCD, has three pumping plants located in Mohave and La Paz counties which have an aggregate peak load of 358MW. In an effort to enhance its system reliability the CAWCD has been seeking additional interconnections between the CAP and regional transmission systems. These efforts have been pursued through the Southwest Area Transmission (SWAT) and Southwest Transmission Expansion Planning (STEP) forums beginning in 2003. At a SWAT meeting in October of 2007 SCE announced the desire to work with Arizona entities in an effort to enhance the proposed DPV2 project's value to Arizona. CAWCD was the sole entity at this SWAT meeting to stand up and accept SCE's offer.

In the spirit of conducting regional transmission planning in an open stakeholder process, CAWCD and SCE agreed to pursue their joint effort through the SWAT Colorado River Transmission (CRT) planning committee. The HTP was formally announced to the CRT on October 12, 2007. Subsequent CRT workgroup meetings were held on November 29, 2007, and January 11, 2008, for the purpose of creating a stakeholder group interested in pursuing the HTP. As a result of these meetings the following entities agreed to participate in the technical studies to evaluate the benefits and implications of the HTP:

Arizona Public Service – Jon Stahlhut  
CAWCD – Ken Bagley  
PDS Consulting – John Kyei  
Salt River Project – James Hsu  
Southern California Edison – Dana Cabbell and David Franklin  
Southwest Public Power Resource Group – Gary Romero  
Tucson Electric Power – Gary Trent  
Western Area Power Administration – Nick Saber  
Western States Energy Solutions – Milt Percival

Due to the positive results of the technical studies it was decided to formally pursue the HTP. On October 16, 2008 CAWCD issued an Open Season announcement for the HTP requesting all interested parties to attend a meeting on November 7, 2008, at CAWCD offices in Phoenix. This announcement was distributed to all WestConnect, SWAT and CRT participants. The November 7<sup>th</sup> meeting was attended by 29 individuals

representing 18 different organizations. The Arizona utilities represented included Arizona Public Service, Mohave Electric Cooperative, Salt River Project and Tucson Electric Power. By the close of the Open Season period, on November 21, 2008, ten different entities had submitted statements of interest to pursue the development phase of the HTP.

These ten entities are presently in the process of developing a Memorandum of Agreement under which funding for the development phase of the HTP will be provided. The development phase will entail:

1. Environmental review of the Project route.
2. Preliminary engineering design.
3. Application to the Bureau of Land Management for expansion of existing right-of-ways.
4. Pursuit of an Arizona Corporation Commission Certificate of Environmental Compatibility.
5. Completion of the studies associated with the transmission interconnection process to be submitted to SCE, for interconnection to the DPV2, and to Western, for interconnection to their Parker-Davis system at the Harcuvar Substation.

In addition to these activities, CAWCD, on behalf of the HTP Participants, is currently negotiating a Memorandum of Understanding with SCE delineating the terms under which the HTP and SCE will share ownership in a segment of the DPV2 between the proposed Salome Substation and the Palo Verde hub.

## Project Description

At its ultimate build-out the Project will consist of two components; a double-circuited 230kV loop, connecting Harcuvar, Bouse Hills and Little Harquahala substations, and joint ownership in a segment of SCE's proposed DPV2 500kV line. This proposed loop will connect to the regional transmission system via its tie to Western's Harcuvar 230kV substation and a proposed approximately four mile tie south from Little Harquahala to a new Salome 230/500kV substation connected to the Devers-Palo Verde 500kV system. Known mileages for the proposed HTP consist of the line segments between Harcuvar to Bouse Hills and Harcuvar to Little Harquahala. These segments' respective distances are 23.5 and 27.3 miles. It is estimated that a line following the CAP canal, which will tie the Bouse Hills and Little Harquahala substations, would be approximately 33 miles. This gives the 230kV loop a combined distance of 83.8 miles. It is also estimated that the distance for the proposed 230kV tie between Little Harquahala and the Devers-Palo Verde corridor is approximately four miles. Subject to routing changes, these estimates imply that the total amount of 230kV line construction will be approximately 87.8 miles.

The 500kV transmission portion of the Project entails joint ownership with SCE in approximately 40 line miles of the proposed DPV2 beginning from a point due south of the Little Harquahala Substation (at the proposed Salome Substation) east to the proposed APS Delaney (aka Harquahala Junction) Substation. The final 500kV segment of the Project entails a partial share of the 500kV line between the proposed Delaney Substation and the Palo Verde hub, which is approximately 15 line miles. The following table summarizes the HTP's transmission components:

**HTP Transmission Components**

Line Segment	Voltage	Miles	Ownership
Harcuvar - Bouse Hills	230	23.5	HTP
Harcuvar - Little Harquahala	230	27.3	HTP
Bouse Hills - Little Harquahala	230	33.0	HTP
Little Harquahala - Salome	230	4.0	HTP
Salome - Delaney	500	40.0	Joint
Delaney - PV Hub	500	15.0	Joint
<b>Total</b>		<b>142.8</b>	

In addition to the associated transmission facilities the HTP entails constructing new or upgrading existing substations. Wholly new substations consist of the proposed Salome 230/500kV substation and the Delaney Substation. The Project will share with SCE the cost of constructing the Salome Substation. It will share with SCE, APS and the Harquahala Generating Station the cost of the Delaney Substation. Since all lines connected at the Delaney Substation will be at 500kV there will be no need for transformers. Due to the magnitude of generation the Project Participants expect to interconnect to the HTP (approx. 2,000 MW)<sup>1</sup>, and the need for transformation from 230kV to 500kV, it is expected that seven single-phase 230/500kV transformers will need to be installed at Salome (three for each of the 230kV circuits and a spare). The existing substations that will require upgrading include the Hareuvar, Bouse Hills and Little Harquahala substations. The following table provides a summary of the substations associated with the HTP:

**HTP Substation Information**

Substation	Voltage (kV)	No. Lines*	Ownership
Hareuvar	230	8	Western
Bouse Hills	230/115	4/1	HTP
Little Harquahala	230/115	6/1	HTP
Salome	500/230	4/2	Joint
Delaney	500	4	Joint

\* Number of line connections at each respective voltage.

The target in-service date for the HTP is June of 2013. This in-service date assumes a fairly brief environmental review process in light of the fact that the entire 230kV loop is located within an existing BLM designated utility corridor. The only proposed segment outside a designated utility corridor is the four mile tie between the Little Harquahala Substation and the proposed Salome Substation. On the following page is a map illustrating the location of the HTP in relation to the surrounding western Arizona EHV and HV transmission system.

<sup>1</sup> In addition to the HTP Participants' interest of approximately 2,000MW, an additional 2,700MW exists in the California ISO generation queue which is seeking interconnection to the Devers – Palo Verde 500kV system in the area of the proposed Salome Substation.



## Project Summary

Project Name Harcuvar Transmission Project

### Size

- a) Voltage 230kV AC
- b) Capacity Proposed design capacity of 2,000MW
- c) Point of Origin Western's Harcuvar 230kV Substation
- d) Point of Termination Proposed Salome 230/500kV Substation
- e) Length 87.8 miles

### Routing

The HTP will consist of a 230kV loop connecting the existing Harcuvar, Bouse Hills and Little Harquahala substations. This 230kV loop will be connected to the Devers – Palo Verde 500kV system at a proposed Salome 230/500kV Substation. The proposed site for the Salome substation is approximately four miles due south of the Little Harquahala Substation.

### Purpose

The HTP will serve as a collector system for renewable generation seeking to site in the La Paz County area in Arizona. Between the interest of the present HTP Participants, and projects included in the California ISO queue, the total renewable generation interest in the vicinity of the HTP loop is approximately 4,000MW. The HTP includes joint ownership rights in the DPV2 from the point of interconnection (Salome Substation) to the Palo Verde Hub. In addition to acting as a collector system for renewable generation, the HTP will also serve to enhance the reliability of the Central Arizona Project's pumping facilities in La Paz County.

### Date

- a) Estimated Construction Start 2011
- b) Estimated In-Service 2013