CALIFORNIA ENERGY COMMISSION

1999

NET SYSTEM POWER CALCULATION

(1999 CALIFORNIA POWER MIX)

APRIL 2000
P300-00-004

Gray Davis, *Governor*

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1999 NET SYSTEM POWER CALCULATION

(1999 CALIFORNIA POWER MIX)

Adopted by the full Commission at the
April 5, 2000 Business Meeting

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CALIFORNIA ENERGY COMMISSION

April 5, 2000

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Introduction

Each year, the Energy Commission is directed by legislation to calculate Net System Power, which represents the mix of fuel types comprising the generic (undifferentiated) pool of power available for sale in California. This information provides consumers a basis for comparing various electricity products. For example, if Company A claims that its product is greener (better for the environment) than power produced by other companies, the consumer can compare Power Content Labels. The Power Content Label shows the proportions of fuel types comprising the mix of the product offered, as well as Net System Power.

1999 Net System Power

Staff s estimate of 1999 Net System Power is:

1999 CA POWER MIX	
Fuel Type	Net System Power
Coal	20%
Large Hydroelectric	20%
Natural Gas	31%
Nuclear	16%
Other	<1%
Eligible Renewables	12%
Total:	**100%**

What is Net System Power? The Statutory Definition...

According to Senate Bill 1305 (Stats. 1997, Ch. 796, Section 398.2), Net System Power is the mix of electricity fuel source types established by California Energy Resources Conservation and Development Commission representing the sources of electricity consumed in California that are not disclosed as specific purchases by retail service providers.

What is Net System Power? The Practical Definition...

Net System Power is the percentage of annual generation produced in California for consumption in the state during the previous calendar year from each of the statute s fuel type categories. Imports of out-of-state generation by fuel type are added in, but both self-generation and specific purchases by fuel type are subtracted out.

How Net System Power is calculated:

Net System Power is calculated using a three-step process:

- Calculate gross system power by:
  - Summing all in-state generation by fuel type
  - Estimating imports of power from net flows, and
  - Establishing the generation mix for out-of-state generation imports delivered at interface points and metered by the system operators;

- Classify and subtract from the gross system power mix all Specific Purchases identified by retail suppliers; and,

- Classify and subtract from the gross system power mix all self-generated power.

What Are Specific Purchases?

Specific Purchases refer to power sales for which the seller made a specific claim as to the fuel types used to produce the power.

Data Used to Calculate 1999 Net System Power

The 1999 Net System Power report marks the first year that the NSP calculation was made using data collected specifically for this purpose. Previous years calculations were performed using mostly Quarterly Fuel and Energy Report (QFER) data. In 1999, staff collected generation and out-of-state power flow data from System Operators as provided for under statute (Stats. 1997, Ch. 796, Section 398.3). Overall, data filings on generation and out-of-state flows were both complete and on time.

In contrast, the timeliness and consistency of specific purchase data (filed by retail suppliers) was mixed. Some data was received on time (on or before March 1). Other data, received after the filing deadline, was marked as draft indicating that the values were preliminary and subject to revision. Other data was anticipated but not received by staff. Mindful of the legislative requirement that Commission adopt net system power calculation by April 15, staff chose March 24 as the filing cut-off date. Specific purchase data received after this date were not used in the calculation of net system power.

QFER Data is Useful

Staff relied on QFER data for two categories of data that were not being collected under the 1305 Power Content Disclosure Program. The two categories were:

1) Self-generation data (subtracted from total generation by fuel type). This data was provided on QFER form 11.

2) Data on Qualifying Facilities (QFs): QFER form 2A.

Data on Imported Power

Characterization of net imports of electricity to California presents a challenge. While the Energy Commission lacks authority to require out-of-state generators to report directly, System Operators that are located in state, and which own or dispatch out-of-state generators, must provide generator-specific energy data on imported power. System operators also provide power flow data, which was used to estimate the remaining power imported from out-of-state entities.

Allocating Imports of Electricity by Fuel Type

For 1999, staff used the same method that was used for 1998 Net System Power to allocate imported power by fuel type. Staff used system operator data to estimate imports and applied the ***1994 Electricity Report*** non-firm energy fuel mix assumptions for the generation mix of out-of-state imports. These assumptions follow:

The Pacific Northwest

80 percent hydroelectric
20 percent coal

The Southwest

74 percent coal
26 percent natural gas

This north-south breakout is based upon assumptions originally developed for a production cost model and used to produce the ***1992 Electricity Report***. Both the flow data used and fuel-type allocations are meant to serve as approximations of what happens in the interstate market. Staff feels that while this data is suited to NSP purposes, it should not be used to make absolute comparisons regarding trends in out-of-state generation of a particular fuel type over time.

Differences Between the 1999 and 1998 Net System Power Calculations

The major differences between the 1999 and 1998 Net System Power calculations are:

- Different sources of data: The 1998 net system power calculation relied on QFER data for the majority of generation data. In 1999, system operators provided plant specific generation data for both in-state and some out-of-state plants. This data was entered into a Power Source Disclosure database.

- For 1998, staff estimated Imperial Irrigation District (IID) flow data. IID provided 1999 flow data directly to the database.

1999 Net System Power

Net System Power Calculation for 1999				
Fuel Type	GigaWatt-hours		Net System Power	
Coal		51,460		19.8%
Large Hydroelectric		52,082		20.1%
Natural Gas		80,497		31.0%
Nuclear		42,030		16.2%
Other		1,671		0.6%
Eligible Renewables		31,625		12.2%
Biomass & Waste	*5,119*		*2.0%*	
Geothermal	*12,786*		*4.9%*	
Small Hydro (≤30 MW)	*8,916*		*3.4%*	
Solar	*954*		*0.4%*	
Wind	*3,850*		*1.5%*	
Total:		**259,365**		**100%**

1998 Net System Power

Net System Power Calculation for 1998				
Fuel Type	GigaWatt-hours		Net System Power	
Coal		52,430		20.2%
Large Hydroelectric		56,407		21.8%
Natural Gas		81,491		31.4%
Nuclear		41,353		16.0%
Other		4		0.0%
Eligible Renewables		27,500		10.6%
Biomass & Waste	*5,060*		*2.0%*	
Geothermal	*12,400*		*4.8%*	
Small Hydro (≤30 MW)	*6,425*		*2.5%*	
Solar	*839*		*0.3%*	
Wind	*2,776*		*1.1%*	
Total:		**259,185**		**100%**