

BP-20-E-JP01-02

Attachment 3 (AT03)

Data Name	Data Description	Unit	Source Description
midchprice	Volume-weighted average HA price for hourly transactions on a given day at Mid-C	\$/day	EQRs filed at FERC
cobhprice	Volume-weighted average HA price for hourly transactions on a given day at COB	\$/day	EQRs filed at FERC
nobhprice	Volume-weighted average HA price for hourly transactions on a given day at NOB	\$/day	EQRs filed at FERC
np15hprice	Volume-weighted average HA price for hourly transactions on a given day at NP15	\$/day	EQRs filed at FERC
sp15hprice	Volume-weighted average HA price for hourly transactions on a given day at SP15	\$/day	EQRs filed at FERC
midcdamprice	Volume-weighted average DA price for hourly transactions on a given day at Mid-C	\$/day	EQRs filed at FERC
cobdamprice	Volume-weighted average DA price for hourly transactions on a given day at COB	\$/day	EQRs filed at FERC
nobdamprice	Volume-weighted average DA price for hourly transactions on a given day at NOB	\$/day	EQRs filed at FERC
np15damprice	Volume-weighted average DA price for hourly transactions on a given day at NP15	\$/day	EQRs filed at FERC
sp15damprice	Volume-weighted average DA price for hourly transactions on a given day at SP15	\$/day	EQRs filed at FERC
midchaquantity	Total HA quantity for hourly transactions on a given day at Mid-C	MWh/day	EQRs filed at FERC
cobhaquantity	Total HA quantity for hourly transactions on a given day at COB	MWh/day	EQRs filed at FERC
nobhaquantity	Total HA quantity for hourly transactions on a given day at NOB	MWh/day	EQRs filed at FERC
np15haquantity	Total HA quantity for hourly transactions on a given day at NP15	MWh/day	EQRs filed at FERC
sp15haquantity	Total HA quantity for hourly transactions on a given day at SP15	MWh/day	EQRs filed at FERC

Data Name	Data Description	Unit	Source Description
midedamquantity	Total DA quantity for hourly transactions on a given day at Mid-C	MWh/day	EQRs filed at FERC
cobdamquantity	Total DA quantity for hourly transactions on a given day at COB	MWh/day	EQRs filed at FERC
nobdamquantity	Total DA quantity for hourly transactions on a given day at NOB	MWh/day	EQRs filed at FERC
np15damquantity	Total DA quantity for hourly transactions on a given day at NP15	MWh/day	EQRs filed at FERC
sp15damquantity	Total DA quantity for hourly transactions on a given day at SP15	MWh/day	EQRs filed at FERC
bpahourlytransmission rate	BPA's Southern Intertie rate for hourly service	\$/MWh	BPA rate schedules
sp15gasstoragecapacity	Gas storage capacity at SP15	Mcf	Natural Gas annual respondent query system
californiact	The price of California carbon allowances	\$/day	The California ISO's greenhouse gas allowance index prices
midctemperature	The absolute value of the difference between mean temperature and 65F. PNW Temperature is the average of the measurement at Portland, Seattle and Spokane.	Heating Degree Days + Cooling Degree Days	Weather Underground's Heating and Cooling Degree Days
cobtemperature	The absolute value of the difference between mean temperature and 65F. COB Temperature is PNW Temperature plus Sacramento.	Heating Degree Days + Cooling Degree Days	Weather Underground's Heating and Cooling Degree Days
nobtemperature	The absolute value of the difference between mean temperature and 65F. NOB Temperature is PNW Temperature plus SP15 Temperature.	Heating Degree Days + Cooling Degree Days	Weather Underground's Heating and Cooling Degree Days

Data Name	Data Description	Unit	Source Description
np15temperature	The absolute value of the difference between mean temperature and 65F. NP15 Temperature is PNW Temperature plus Sacramento.	Heating Degree Days + Cooling Degree Days	Weather Underground's Heating and Cooling Degree Days
sp15temperature	The absolute value of the difference between mean temperature and 65F. SP15 Temperature is measured at Burbank.	Heating Degree Days + Cooling Degree Days	Weather Underground's Heating and Cooling Degree Days
midcbuyerconcentration	The concentration of energy buyers in a given hour at Mid-C (HHI).	Index between 0 and 1.	EQRs filed at FERC
cobbuyerconcentration	The concentration of energy buyers in a given hour at COB (HHI).	Index between 0 and 1.	EQRs filed at FERC
nobbuyerconcentration	The concentration of energy buyers in a given hour at NOB (HHI).	Index between 0 and 1.	EQRs filed at FERC
midcsellerconcentration	The concentration of energy sellers in a given hour at Mid-C (HHI).	Index between 0 and 1.	EQRs filed at FERC
cobsellerconcentration	The concentration of energy sellers in a given hour at COB (HHI).	Index between 0 and 1.	EQRs filed at FERC
nobsellerconcentration	The concentration of energy sellers in a given hour at NOB (HHI).	Index between 0 and 1.	EQRs filed at FERC
midcotcacdc	Sum of operating capacity of the AC and DC Intertie, north to south.	2-second SCADA MW Readings	BPA technical operations

Data Name	Data Description	Unit	Source Description
cobotcac	AC operating capacity, north to south.	2-second SCADA MW Readings	BPA technical operations
nobotcdc	DC operating capacity, north to south.	2-second SCADA MW Readings	BPA technical operations
np15otcac	AC operating capacity, north to south.	2-second SCADA MW Readings	BPA technical operations
sp15otcdc	DC operating capacity, north to south.	2-second SCADA MW Readings	BPA technical operations
midcwindssolaretc	Total wind, solar, thermal, biomass, hydro and nuclear generation in the Pacific Northwest.	MWh/day	Non-dispatchable generation in the Pacific Northwest
cobwindssolaretc	Total wind, solar, thermal, biomass, hydro and nuclear generation in the Pacific Northwest plus same at NP15.	MWh/day	Non-dispatchable generation in the Pacific Northwest and the California ISO's wind and solar forecast
nobwindssolaretc	Total wind, solar, thermal, biomass, hydro and nuclear generation in the Pacific Northwest plus same at SP15.	MWh/day	Non-dispatchable generation in the Pacific Northwest and the California ISO's wind and solar forecast
np15windandssolar	Total wind, solar, thermal, biomass, hydro and nuclear generation at NP15.	MWh/day	The California ISO's wind and solar forecast
sp15windandssolar	Total wind, solar, thermal, biomass, hydro and nuclear generation at SP15.	MWh/day	The California ISO's wind and solar forecast

Data Name	Data Description	Unit	Source Description
midcelevationcoulee	The reservoir elevation at Lake Roosevelt. This proxies the potential energy, the water behind the dam that could be hydro energy should it be released from behind the dam.	feet	Elevation at midnight
cobelevationcoulee	The reservoir elevation at Lake Roosevelt. This proxies the potential energy, the water behind the dam that could be hydro energy should it be released from behind the dam.	feet	Elevation at midnight
nobelevationcoulee	The reservoir elevation at Lake Roosevelt. This proxies the potential energy, the water behind the dam that could be hydro energy should it be released from behind the dam.	feet	Elevation at midnight
np15elevationsum	Sum of reservoir elevation at the five largest reservoirs in Northern California (Shasta Lake, Lake Trinity, Oroville Reservoir, New Melones Reservoir, Don Pedro Reservoir)	feet	Elevation at midnight
sp15elevationcoulee	The reservoir elevation at Lake Roosevelt. This proxies the potential energy, the water behind the dam that could be hydro energy should it be released from behind the dam.	feet	Elevation at midnight
midhydroflowsdalles	The hydro flows at the Dalles in Mid-C.	cfs	Flows from the USGS Water Data site
cobhydroflowsdallesnocal	Hydro flows at the Dalles plus hydro flows at the five largest reservoirs in Northern California (Trinity River, Sacramento River, Feather River, Stanislaus River, Tuolumne River). This is used in the COB equation.	cfs	Flows from the USGS Water Data site and the CDEC CA Water site
nobhydroflowsdalles	The hydro flows at the Dalles in Mid-C. This is used in the NOB equation.	cfs	Flows from the USGS Water Data site

Data Name	Data Description	Unit	Source Description
np15hydroflowsdallesnocal	Hydro flows at the Dalles plus hydro flows at the five largest reservoirs in Northern California (Trinity River, Sacramento River, Feather River, Stanislaus River, Tuolumne River) This is used in the NP15 equation.	cfs	Flows from the USGS Water Data site and the CDEC CA Water site
sp15hydroflowsdalles	The hydro flows at the Dalles in Mid-C. This is used in the SP15 equation.	cfs	Flows from the USGS Water Data site
midengpricestanfordkingsgate	The average price of natural gas at Stanfield and Kings Gate.	\$/day	Gas prices by location
cobngpricestanfordkingsgate	The price of natural gas at Henry Hub.	\$/day	Gas prices by location
nobngpricestanfordkingsgate	The price of natural gas at Henry Hub	\$/day	Gas prices by location
np15ngpricemalincitygate	The average price of natural gas at Malin and City Gate.	\$/day	Gas prices by location
sp15ngpriceneedles	The price of natural gas at Needles	\$/day	Gas prices by location
pugetsoundenergyeconomy	This is the date of Puget Sound Energy's entry into the EIM (October 1st, 2016). This has a value of 1 for all dates afterwards.	Dummy variable	N/A
portlandgeneralelectriceconomy	This is the date of Portland General Electricity's entry into the EIM (October 1st, 2017). This has a value of 1 for all dates afterwards.	Dummy variable	N/A
powerexeconomy	This is the date of Powerex's entry into the EIM (April 4th, 2018). This has a value of 1 for all dates afterwards.	Dummy variable	N/A
weekday	This has a value of 1 for every weekday (Mon, Tues, Wed, Thur, Fri)	Dummy variable	N/A
anomaly	There is one day in 2017 - the 28th of August 2017 - with extremely high residuals across functional forms. This is likely the result of a heat storm, but the variation in the data is not explained by temperature variables. Anomaly = 1 on 8.28.17.	Dummy variable	N/A
eimvolume	The volume of all EIM transactions between the PNW and the CAISO.	MWh/day	EIM RTD Transfers

Data Name	URL	URL #2	
midchprice	https://eqrreportviewer.ferc.gov/		
cobhaprice	https://eqrreportviewer.ferc.gov/		
nobhaprice	https://eqrreportviewer.ferc.gov/		
np15haprice	https://eqrreportviewer.ferc.gov/		
sp15haprice	https://eqrreportviewer.ferc.gov/		
midcdamprice	https://eqrreportviewer.ferc.gov/		
cobdamprice	https://eqrreportviewer.ferc.gov/		
nobdamprice	https://eqrreportviewer.ferc.gov/		
np15damprice	https://eqrreportviewer.ferc.gov/		
sp15damprice	https://eqrreportviewer.ferc.gov/		
midchaquantity	https://eqrreportviewer.ferc.gov/		
cobhaquantity	https://eqrreportviewer.ferc.gov/		
nobhaquantity	https://eqrreportviewer.ferc.gov/		
np15haquantity	https://eqrreportviewer.ferc.gov/		
sp15haquantity	https://eqrreportviewer.ferc.gov/		

Data Name	URL	URL #2	
midcdamquantity	https://eqrreportviewer.ferc.gov/		
cobdamquantity	https://eqrreportviewer.ferc.gov/		
nobdamquantity	https://eqrreportviewer.ferc.gov/		
np15damquantity	https://eqrreportviewer.ferc.gov/		
sp15damquantity	https://eqrreportviewer.ferc.gov/		
bpahourlytransmission rate	bpa.gov		
sp15gasstoragecapacity	https://www.eia.gov/naturalgas/nggs/#?report=RP8&year1=2014&year2=2018&company=Name		
californiact	http://oasis.caiso.com/mrioasis/logon.do		
midctemperature	www.degree-days.net		
cobtemperature	www.degree-days.net		
nobtemperature	www.degree-days.net		

Data Name	URL	URL #2	
np15temperature	www.degreeedays.net		
sp15temperature	www.degreeedays.net		
midcbuyerconcentration	https://eqrreportviewer.ferc.gov/		
cobbuyerconcentration	https://eqrreportviewer.ferc.gov/		
nobbuyerconcentration	https://eqrreportviewer.ferc.gov/		
midcsellerconcentration	https://eqrreportviewer.ferc.gov/		
cobsellerconcentration	https://eqrreportviewer.ferc.gov/		
nobsellerconcentration	https://eqrreportviewer.ferc.gov/		
midcotcacdc	https://transmission.bpa.gov/Business/Operations/Paths/default.aspx		

Data Name	URL	URL #2	
cobotcac	https://transmission.bpa.gov/Business/Operations/Paths/default.aspx		
nobotcdc	https://transmission.bpa.gov/Business/Operations/Paths/default.aspx		
np15otcac	https://transmission.bpa.gov/Business/Operations/Paths/default.aspx		
sp15otcdc	https://transmission.bpa.gov/Business/Operations/Paths/default.aspx		
midcwindsolaretc	https://transmission.bpa.gov/Business/Operations/Wind/default.aspx		
cobwindsolaretc	https://transmission.bpa.gov/Business/Operations/Wind/default.aspx	http://oasis.caiso.com/mrioasis/logon.do	
nobwindsolaretc	https://transmission.bpa.gov/Business/Operations/Wind/default.aspx	http://oasis.caiso.com/mrioasis/logon.do	
np15windandsolar	http://oasis.caiso.com/mrioasis/logon.do		
sp15windandsolar	http://oasis.caiso.com/mrioasis/logon.do		

Data Name	URL	URL #2	
midcelevationcoulee	https://waterdata.usgs.gov/nwis/dv?referred_module=sw&site_no=12436000		
cobelevationcoulee	https://waterdata.usgs.gov/nwis/dv?referred_module=sw&site_no=12436000		
nobelevationcoulee	https://waterdata.usgs.gov/nwis/dv?referred_module=sw&site_no=12436000		
np15elevationsum	http://cdec.water.ca.gov/reportapp	http://cdec.water.ca.gov/dynami	http://cdec.water.ca.gov/dynami
sp15elevationcoulee	https://waterdata.usgs.gov/nwis/dv?referred_module=sw&site_no=12436000		
midhydroflowsdalles	https://waterdata.usgs.gov/nwis/dv?cb_72147=on&format=rdb&site_no=14105700&referred_mo		
cobhydroflowsdallesnocal	https://waterdata.usgs.gov/nwis/	http://cdec.water.ca.gov/reportapp/javareports?name=RES	
nobhydroflowsdalles	https://waterdata.usgs.gov/nwis/	http://cdec.water.ca.gov/reportapp/javareports?name=RES	

Data Name	URL	URL #2	
np15hydroflowsdallesnocal	https://waterdata.usgs.gov/nwis/https://cdec.water.ca.gov/reportapp/javareports?name=RES		
sp15hydroflowsdalles	https://waterdata.usgs.gov/nwis/https://cdec.water.ca.gov/reportapp/javareports?name=RES		
midngpricestanfordkinggate	NOT PUBLIC - SMUD		
cobngpricemaryhub	NOT PUBLIC - SMUD		
nobngpricemaryhub	NOT PUBLIC - SMUD		
np15ngpricemalincitygate	NOT PUBLIC - SMUD		
sp15ngpriceneedles	NOT PUBLIC - SMUD		
pugetsoundenergyeconomy	N/A		
portlandgeneralelectriceconomy	N/A		
powerexeconomy	N/A		
weekday	N/A		
anomaly	N/A		
eimvolume	https://www.bpa.gov/Finance/RateCases/BP-20/Pages/Models-and-Datasets.aspx		