

Independent Statistics & Analysis U.S. Energy Information Administration

FORM EIA-411 COORDINATED BULK POWER SUPPLY AND DEMAND PROGRAM REPORT

OMB No. 1905-0129 Approval Expires: 05/31/2017 Burden: 122 hours

NOTICE: This report is **mandatory** under the Federal Energy Administration Act of 1974 (Public Law 93-275) for all parts. Failure to comply may result in criminal fines, civil penalties and other sanctions as provided by law. For further information concerning sanctions and data protections see the provision on sanctions and the provision concerning the confidentiality of information in the instructions. **Title 18 USC 1001 makes it a criminal offense for any person knowingly and willingly to make to any Agency or Department of the United States any false, fictitious, or fraudulent statements as to any matter within its jurisdiction.**

SCHEDULE 1. IDENTIFICATION						
Survey	v Contact					
First Name:	Last Name:					
Title:						
Telephone (include extension):	Fax:					
Email:						
Supervisor of Contact Person for Survey						
First Name:	Last Name:					
Title:						
Telephone (include extension):	Fax:					
Email:						
Rep	ort For					
Regional Entity:						
Reporting Party (Regional Entity or subregion):						
For questions about the data requested or	Form EIA-411, contact the Survey Manager:					
	n DeVilbiss					
	ber: (202) 586-2992 (202) 287-1938					
	.DeVilbiss@eia.gov					



FORM EIA-411 COORDINATED BULK POWER SUPPLY AND DEMAND **PROGRAM REPORT**

OMB No. 1905-0129 Approval Expires: 05/31/2017 Burden: 122 hours

Regional Entity:

Reporting Party:

SCHEDULE 2. PART A. HISTORICAL AND PROJECTED PEAK DEMAND AND ENERGY - MONTHLY

Peak Demand Reported:

Coincident _____

Non-Coincident

If non-coincident, please explain why coincident is not used.

			YEAR						
		2013 (Actua	I - Prior Year)	2014 (RY -	Report Year)	2015 (N	lext Year)		
LINE NO.	MONTH	PEAK HOUR DEMAND (MEGAWATTS) (a)	NET ENERGY (THOUSANDS OF MEGA-WATTHOURS) (b)	PEAK HOUR DEMAND (MEGAWATTS) (a)	NET ENERGY (THOUSANDS OF MEGA-WATTHOURS) (b)	PEAK HOUR DEMAND (MEGAWATTS) (a)	NET ENERGY (THOUSANDS OF MEGAWATTHOURS) (b)		
1	January								
2	February								
3	March								
4	April								
5	Мау								
6	June								
7	July								
8	August								
9	September								
10	October								
11	November								
12	December								

SCHEDULE 2. PART B. HISTORICAL AND PROJECTED PEAK DEMAND AND ENERGY - ANNUAL

			YEAR								
		Actual	Year 1	Year 2	Year 3			 	Year 8	Year 9	Year 10
	Summer Peak Hour										
	Demand (Megawatts)										
1	June-September										
	Winter Peak Hour										
	Demand (Megawatts)										
2	December - February										
3	Net Annual Energy (Gigawatt hours)										



Regional Entity:

Reporting Party: _____

;	SCHEDULE 3. PART A. HISTORICAL AND PROJECTED DEMAND AND CAPACITY - SUMMER							
LINE				YEAF	2			
NO.		Actual (2013)	Year 1 (RY 2014)	Year 2 (2015)		Year 9 (2022)	Year 10 (2023)	
		DEMAND	(IN MEGAWA	TTS)		•		
1	Unrestricted Peak Demand							
1a	New Conservation (Energy Efficiency)							
1b	Estimated Diversity							
1c	Additions for non-member load							
1d	Stand-by Load Under Contract							
1e	Non-Controllable Demand Response							
2	Total Internal Demand							
2a	Direct Control Load Management							
2b	Interruptible Load							
2c	Critical Peak Pricing with Control							
2d	Load as a Capacity Resource							
3	Net Internal Demand							
4	Total Demand Response							
		SUPPL	Y CATEGORIE	S (IN MEGAW	IATTS)			
5	TOTAL INTERNAL CAPACITY (sum of 6 and 8a)							
6	EXISTING CAPACITY (6a+6b+6c)							
6a 6b	Certain Other							
60 60	Unavailable							
00	Unavallable							
7	PEAK HOUR DEMAND PLUS AVAILABLE RESERVES					 		



Regional Entity:

S	SCHEDULE 3. PART A. HISTORICAL AND PROJECTED DEMAND AND CAPACITY - SUMMER							
LINE		YEAR						
NO.		Actual	Year 1	Year 2		Year 9	Year 10	
		(2013)	(RY 2014)	(2015)		(2022)	(2023)	
		FUTUR	ECAPACITY	CATEGORIE	S (IN MI	EGAWATTS)		
8	FUTURE CAPACITY ADDITIONS							
8a	Tier 1 (Most Certain)							
8b	Tier 2							
8c	Tier 3 (Least Certain)							
9	ANTICIPATED CAPACITY (6a+8a)							
		CA	PACITY TRA	NSFERS (IN	MEGAV	VATTS)		
10	CAPACITY TRANSFERS – IMPORTS							
10a	Prior Year Actual Imports			_	_	_		
10b	Firm							
10c	Expected							
11	CAPACITY TRANSFERS – EXPORTS							
11a	Prior Year Actual Exports							
11b	Firm							
11c	Expected							



Regional Entity: _____ Reporting Party: _____

	YEAR					
	Actual (2013)	Year 1 (RY 2014)	Year 2 (2015)		Year 9 (2022)	Year 10 (2023)
	()					(/
EXISTING, CERTAIN & NET FIRM TRANSFERS (6a+10b-11b)						
ANTICIPATED CAPACITY RESOURCES (12+8a)						
PROSPECTIVE CAPACITY RESOURCES						
ADJUSTED POTENTIAL CAPACITY RESOURCES						
		RESERVE	AND CAPACI	TY MAR	GINS	
ARGET RESERVE MARGIN FOR Region/Assessment Area						
EXISTING, CERTAIN & NET FIRM TRANSFERS						
Reserve Margin						
Capacity Margin						
ANTICIPATED RESOURCES						
Reserve Margin						
Capacity Margin						
PROSPECTIVE RESOURCES						
Reserve Margin						
Capacity Margin						
ADJUSTED POTENTIAL RESOURCES						
Reserve Margin						
Capacity Margin						
	TRANSFERS (6a+10b-11b) ANTICIPATED CAPACITY RESOURCES (12+8a) PROSPECTIVE CAPACITY RESOURCES ADJUSTED POTENTIAL CAPACITY RESOURCES ARGET RESERVE MARGIN FOR tegion/Assessment Area EXISTING, CERTAIN & NET FIRM TRANSFERS Reserve Margin Capacity Margin ANTICIPATED RESOURCES Reserve Margin Capacity Margin PROSPECTIVE RESOURCES Reserve Margin Capacity Margin PROSPECTIVE RESOURCES Reserve Margin Capacity Margin ADJUSTED POTENTIAL RESOURCES Reserve Margin	EXISTING, CERTAIN & NET FIRM TRANSFERS (6a+10b-11b) ANTICIPATED CAPACITY RESOURCES (12+8a) PROSPECTIVE CAPACITY RESOURCES ADJUSTED POTENTIAL CAPACITY RESOURCES ADJUSTED POTENTIAL CAPACITY RESOURCES EXISTING, CERTAIN & NET FIRM TRANSFERS Reserve Margin Capacity Margin ANTICIPATED RESOURCES Reserve Margin Capacity Margin PROSPECTIVE RESOURCES Reserve Margin Capacity Margin PROSPECTIVE RESOURCES Reserve Margin Capacity Margin ADJUSTED POTENTIAL RESOURCES Reserve Margin	EXISTING, CERTAIN & NET FIRM TRANSFERS (6a+10b-11b) ANTICIPATED CAPACITY RESOURCES (12+8a) PROSPECTIVE CAPACITY RESOURCES ADJUSTED POTENTIAL CAPACITY RESOURCES CONTROL CAPACITY RESOURCES RESERVE MARGIN FOR Legion/Assessment Area CONTROL CERTAIN & NET FIRM TRANSFERS Reserve Margin Capacity Margin ANTICIPATED RESOURCES Reserve Margin Capacity Margin PROSPECTIVE RESOURCES Reserve Margin Capacity Margin PROSPECTIVE RESOURCES Reserve Margin Capacity Margin ADJUSTED POTENTIAL RESOURCES Reserve Margin Capacity Margin ADJUSTED POTENTIAL RESOURCES Reserve Margin	EXISTING, CERTAIN & NET FIRM TRANSFERS (6a+10b-11b) ANTICIPATED CAPACITY RESOURCES (12+8a) PROSPECTIVE CAPACITY RESOURCES ADJUSTED POTENTIAL CAPACITY RESOURCES RESERVE MARGIN FOR tegion/Assessment Area EXISTING, CERTAIN & NET FIRM TRANSFERS Reserve Margin Capacity Margin ANTICIPATED RESOURCES Reserve Margin Capacity Margin PROSPECTIVE RESOURCES Reserve Margin Capacity Margin PROSPECTIVE RESOURCES Reserve Margin Capacity Margin ANTICIPATED RESOURCES Reserve Margin Capacity Margin PROSPECTIVE RESOURCES Reserve Margin Capacity Margin ADJUSTED POTENTIAL RESOURCES Reserve Margin CAPACIA	EXISTING, CERTAIN & NET FIRM TRANSFERS (6a+10b-11b) ANTICIPATED CAPACITY RESOURCES (12+8a) PROSPECTIVE CAPACITY RESOURCES ADJUSTED POTENTIAL CAPACITY RESOURCES ADJUSTED POTENTIAL CAPACITY RESOURCES RESERVE MARGIN FOR tegion/Assessment Area EXISTING, CERTAIN & NET FIRM TRANSFERS Reserve Margin Capacity Margin ANTICIPATED RESOURCES Reserve Margin Capacity Margin PROSPECTIVE RESOURCES Reserve Margin Capacity Margin PROSPECTIVE RESOURCES Reserve Margin Capacity Margin ADJUSTED POTENTIAL RESOURCES Reserve Margin Capacity Margin ADJUSTED POTENTIAL RESOURCES Reserve Margin Capacity Margin ADJUSTED POTENTIAL RESOURCES Reserve Margin	TRANSFERS (6a+10b-11b) ANTICIPATED CAPACITY RESOURCES ADJUSTED POTENTIAL CAPACITY RESOURCES ADJUSTED POTENTIAL CAPACITY RESOURCES ARGET RESERVE MARGIN FOR tegion/Assessment Area EXISTING, CERTAIN & NET FIRM TRANSFERS Reserve Margin Capacity Margin ANTICIPATED RESOURCES Reserve Margin Capacity Margin PROSPECTIVE RESOURCES Reserve Margin Capacity Margin ANTICIPATED POTENTIAL RESOURCES Reserve Margin Capacity Margin ADJUSTED POTENTIAL RESOURCES Reserve Margin Capacity Margin Reserve Margin Capacity Margin ADJUSTED POTENTIAL RESOURCES Reserve Margin Capacity Margin



OMB No. 1905-0129 Approval Expires: 05/31/2017 Burden: 122 hours

Regional Entity: _____

	SCHEDULE 3. PART B. HISTORICAL AND PROJECTED DEMAND AND CAPACITY - WINTER							
LINE				YEA	र			
NO.		Actual (2013)	Year 1 (RY 2014)	Year 2 (2015)		Year 9 (2022)	Year 10 (2023)	
		DEMAND) (IN MEGAWA	TTS)		-		
1	Unrestricted Peak Demand							
1a	New Conservation (Energy Efficiency)							
1b	Estimated Diversity							
1c	Additions for non-member load							
1d	Stand-by Load Under Contract							
1e	Non-Controllable Demand Response							
2	Total Internal Demand							
2a	Direct Control Load Management							
2b	Interruptible Load							
2c	Critical Peak Pricing with Control							
2d	Load as a Capacity Resource							
3	Net Internal Demand							
4	Total Demand Response							
	· · ·							
		SUPPL	Y CATEGORIE	S (IN MEGAW	ATTS)	4	•	
5	TOTAL INTERNAL CAPACITY (sum of 6 and 8a)							
•								
6 6a	EXISTING CAPACITY (6a+6b+6c) Certain							
6b	Other							
6C	Unavailable							
7	PEAK HOUR DEMAND PLUS AVAILABLE RESERVES							



Regional Entity:

S	SCHEDULE 3. PART B. HISTORICAL AND PROJECTED DEMAND AND CAPACITY - WINTER							
LINE			YEAR					
NO.		Actual	Year 1	Year 2		Year 9	Year 10	
		(2013)	(RY 2014)	(2015)		(2022)	(2023)	
		FUTUR	ECAPACITY	CATEGORIE	S (IN MI	EGAWATTS)		
8	FUTURE CAPACITY ADDITIONS							
8a	Tier 1 (Most Certain)							
8b	Tier 2							
8c	Tier 3 (Least Certain)							
9	ANTICIPATED CAPACITY (6a+8a)							
		CA	APACITY TRA	NSFERS (IN	MEGAV	VATTS)		
10	CAPACITY TRANSFERS – IMPORTS							
10a	Prior Year Actual Imports							
10b	Firm							
10c	Expected							
11	CAPACITY TRANSFERS – EXPORTS							
11a	Prior Year Actual Exports							
11b	Firm							
11c	Expected							



Regional Entity: _____ Reporting Party: _____

	SCHEDULE 3. PART B. HISTORIC	AL AND P		DEMAND AN		ACITY - WIN	TER
LINE				YEA	R		
NO.			Year 1 (RY 2014)	Year 2 (2015)		Year 9 (2022)	Year 10 (2023)
			CAPACITY - C	Continued (II	N MEGA	WATTS)	
12	EXISTING, CERTAIN & NET FIRM TRANSFERS (6a+10b-11b)						
13	ANTICIPATED CAPACITY RESOURCES (12+8a)						
14	PROSPECTIVE CAPACITY RESOURCES						
15	ADJUSTED POTENTIAL CAPACITY RESOURCES						
			RESERVE	AND CAPAC		GINS	
16	TARGET RESERVE MARGIN FOR Region/Assessment Area						
17	EXISTING, CERTAIN & NET FIRM TRANSFERS						
17.1	Reserve Margin						
17.2	Capacity Margin						
18	ANTICIPATED RESOURCES						
18.1	Reserve Margin						
18.2	Capacity Margin				_		
19	PROSPECTIVE RESOURCES						
19.1	Reserve Margin						
19.2	Capacity Margin						
20	ADJUSTED POTENTIAL RESOURCES						
20.1	Reserve Margin						
20.2	Capacity Margin						



OMB No. 1905-0129 Approval Expires: 05/31/2017 Burden: 122 hours

Regional Entity:

Reporting Party:

SCHEDULE 4. BULK TRANSMISSION FACILITY POWER FLOW CASES

Line	
No.	

- 1Case Name:2Year of Study:
- 3 Case Number:

PROSPECTIVE FACILITIES AND CONNECTIONS

	Name And Type	Projected In-Service Date	Conn	ections
4	Of Facility	(e.g., 12-2004)	Bus Number	Bus Name
	(a)	(b)	(c)	(d)



Regional Entity:

	SCHEDULE 5. BULK ELECTRIC TRANSMISSION SYSTEM MAPS								
LINE NO.									
1	Specify the Number of Maps Provided:								
2	For each map provide file name, co	overage, and map software:							
	MAP NUMBER (if applicable)	FILE NAME (if applicable)	MAP SOFTWARE (if applicable)						
	(a)	(b)	(c)						



Regional Entity:

Reporting Party: _____

	SCHEDULE 6. PART A. EXISTING AND PROJECTED CIRCUIT MILES														
			CIRCUIT MILES												
		In Report	eport Year 2014 and Report Year 2015 report circuit miles for voltage categories 100 kV and above. From Report Year 2016 forward report only for transmission elements that are part of the new BES definition												
					AC (kV))			DC (kV)						
		Less than 100	100- 199	200- 299	300- 399	400- 599	600+	TOTAL	100- 299	300- 399	400- 599	600+	TOTAL		
1	Existing (as of last day of prior report year)														
2	Under Construction (as of first day of current report year)														
3	Planned (completion within first five years)														
4	Conceptual (completion within first five years)														
5	Planned (completion within second five years)														
6	Conceptual (completion within second five years)														
7	Sum of Existing, Under Construction, and Planned Transmission (full ten-year period)														
8	Sum of Existing, Under Construction, Planned, and Conceptual Transmission (full ten-year period)														



OMB No. 1905-0129 Approval Expires: 05/31/2017 Burden: 122 hours

Regio	onal	Entity:	
	-	_	

S	CHEDULE 6. PART B. CHA	RACTERISTICS OF PRO	JECTED TRANSMISSION	I LINE ADDITIONS
LINE NO.		TRANSMISSION LINE (a)	TRANSMISSION LINE (b)	TRANSMISSION LINE (c)
		TRANSMISSION LINE IDE	<u>ENTIFICATION</u>	
1	Project Name			
2	Project Status			
3	Tie line			
4a	Primary Driver			
4b	Secondary Driver			
5	Terminal Location (From)			
6	Terminal Location (To)			
		TRANSMISSION LINE (OWNERSHIP	
7	Company Name			
8	EIA Company Code			
9	Type of Organization			
10	Percent Ownership			
		TRANSMISSION LI	NE DATA	
11	Line Length (miles)			
12	Line Type	[]OH[]UG[]SM	[]OH[]UG[]SM	[]OH[]UG[]SM
13	Voltage Type	[]AC[]DC	[] AC [] DC	[] AC [] DC
14	Voltage Operating (Kilovolts)			
15	Voltage Design (Kilovolts)			
16	Circuits per Structure Present			
17	Circuits per Structure Ultimate			
18	Capacity Rating (MVA)			
19	Original In-Service Date			
20	Expected In-Service Date			
21	Line Delayed?			
22	Cause of Delay			
		LEGEND		
Line Type	:	Voltage Type:		
OH=Overl		AC=Alternating Current DC=Direct Current		



OMB No. 1905-0129 Approval Expires: 05/31/2017 Burden: 122 hours

Regional Entity:

	SCHEDULE 7. PART A, ANNUAL DATA ON TRANSMISSION LINE OUTAGES FOR AC LINES													
	(Report following data for each applicable EHV Voltage Class) In Report Year 2014 and Report Year 2015 report for voltage categories 200 kV													
			nd above.	From		Year 20)16 for	ward re	port on	ly for t	ransmi		kV	
LINE NO.	Applicable AC Voltage Class	10	s Than 0 kV		0-199 kV		V		V	k	-599 (V	k	-799 V	
			(a)	I	(b)		;)	•	d)	(e)	(1	f)	
	AUTOMATIC (Unscheduled), Susta	ained C	Outages	for S	Specifi	ied Vo	oltage	e Clas	S					
1	Number of Outages													
1a	Number of Single Mode Outages													
1b	Number of Dependent Mode Outages													
1c	Number of Common Mode Outages													
2	Number of Circuit-Hours Out of Service													
3	Initiating (I) and Sustained (S) Causes (Count of Outages per Cause Category)	I	S	I	S	I	S	I	S	I	s	I	S	
3a	Weather, excluding lightning													
3b	Lightning													
3c	Environmental													
3d	Foreign Interference													
3e	Contamination													
3f	Fire													
3g	Vandalism, Terrorism, or Malicious Acts													
3h	Failed AC Substation Equipment													
3i	Failed AC/DC Terminal Equipment													
3j	Failed Protection System Equipment													
3k	Failed AC Circuit Equipment													
31	Failed DC Circuit Equipment													
3m	Human Error													
3n	Vegetation													
30	Power System Condition													
3p	Unknown	-												
3q	Other													
	NON-AUTOMATIC, Operationa	I Outa	ges for	Spec	ified \	/oltag	e Cla	ass	1	1	1			
4	Number of Outages													
5	Number of Circuit-Hours Out of Service													
6	Outage Cause (Count)													
6a	Emergency													
6b	System Voltage Limit Mitigation													
6c	System Operating Limit Mitigation (excluding voltage)													
6d	Other Operational Outage													
								1		I		L		



OMB No. 1905-0129 Approval Expires: 05/31/2017 Burden: 122 hours

Regional Entity:

SCHEDULE 7. PART B, ANNUAL DATA ON TRANSMISSION LINE OUTAGES FOR DC LINES (Report following data for each applicable EHV Voltage Class)															
	(,	In Re	eport Ye ve. Fro	ear 201	4 and ort Ye	Repoi ar 201	t Year	2015 ard rej	report	ly for	transn	catego	ries 20 1 eleme	0 kV a ents th	and at
LINE NO.	Applicable DC Voltage Class	Tł ± 10	ess han 00 kV (a)	199	00-) kV b)	299	200- 9 kV (c)	399	800- 9 kV d)	499	00-) kV e)	-	00-) kV	± 6 799 (f	kV
	AUTOMATIC (Unscheduled), S	ustair	ned Ou	utage	es for	Spe	cified	l Volt	tage	Clas	s				
1	Number of Outages														
1a	Number of Single Mode Outages														
1b	Number of Dependent Mode Outages														
1c	Number of Common Mode Outages														
2	Number of Circuit-Hours Out of Service														
3	Initiating (I) and Sustained (S) Causes (Count of Outages per Cause Category)	I	S	I	S	I	S	I	s	I	S	I	S	I	S
3a	Weather, excluding lightning														
3b	Lightning														
3c	Environmental														
3d	Foreign Interference														
3e	Contamination														
3f	Fire														
3g	Vandalism, Terrorism, or Malicious Acts														
3h	Failed AC Substation Equipment														
3i	Failed AC/DC Terminal Equipment														
3j	Failed Protection System Equipment														
3k	Failed AC Circuit Equipment														
31	Failed DC Circuit Equipment														
3m	Human Error														
3n	Vegetation														
30	Power System Condition														
3р	Unknown														
3q	Other														
	NON-AUTOMATIC, Operati	onal	Outag	es fo	r Spe	cifie	d Vo	ltage	Clas	S					
4	Number of Outages														
5	Number of Circuit-Hours Out of Service														
6	Outage Cause (Count)														
6a	Emergency														
6b	System Voltage Limit Mitigation														
6c	System Operating Limit Mitigation (excluding voltage)														
6d	Other Operational Outage														



Regional Entity: ______ Reporting Party: ______

	SCHEDULE 7. PART C, ANNUA							UTA	GES				
	(Report following da	1											
		In Re 200 k	port Yea V and ab	r 2014 ove. F	rom Rep	ort Yea	ar 2016	5 report 6 forwar 3ES de	rd repo	rt only	for ele	h low- ments	side that
LINE NO.	Applicable Transformer Low-Side Voltage Class	10	s Than 0 kV (a)		0-199 kV (b)	k	-299 (V		V	k	-599 (V	k	-799 V
					(b)		c)	(0	-	(e)	(f)
	AUTOMATIC (Unscheduled), Sust	ained	Outage	es for	[·] Speci	fied \	/oltag	ge Cla	ISS				
1	Number of Outages												
1a	Number of Single Mode Outages												
1b	Number of Dependent Mode Outages												
1c	Number of Common Mode Outages												
2	Number of Transformer-Hours Out of Service												
3	Initiating (I) and Sustained (S) Causes (Count of Outages per Cause Category)	I	S	I	S	I	S	I	S	I	S	I	S
3a	Weather, excluding lightning												
3b	Lightning												
3c	Environmental												
3d	Foreign Interference												
3e	Contamination												
3f	Fire												
3g	Vandalism, Terrorism, or Malicious Acts												
3h	Failed AC Substation Equipment												
3i	Failed AC/DC Terminal Equipment												
3j	Failed Protection System Equipment												
3k	Failed AC Circuit Equipment												
31	Failed DC Circuit Equipment												
3m	Human Error												
3n	Vegetation												
30	Power System Condition												
3p	Unknown												
3q	Other												
्प	NON-AUTOMATIC, Operationa	al Outa	ages fo	or Spe	ecified	Volta	age C	lass		I			
4	Number of Outages												
5	Number of Transformer-Hours Out of Service												
6	Outage Cause (Count)												
6a	Emergency												
6b	System Voltage Limit Mitigation												
6c	System Operating Limit Mitigation (excluding voltage)												
6d	Other Operational Outage												
i i	· -												



OMB No. 1905-0129 Approval Expires: 05/31/2017 Burden: 122 hours

Regional Entity:

	SCHEDULE 7. PART D,	TRANSMIS	SION ELEI	MENT INVE	ENTORY A	ND EVENT	SUMMAR	Y
	(Report f	ollowing da	ata for eac	h applicab	le voltage	class)		
LINE NO.					15 report for vol ansmission elem			
AC Cir	cuit Voltage Class	Less Than 100 kV (a)	100-199 kV (b)	200-299 kV (c)	300-399 kV (d)	400-599 kV (e)	600-799 kV (f)	All Voltages (g)
1	Number of AC Circuits (Total)							
1a	Overhead							
1b	Underground							
2	Number of AC Circuit Miles (Total)							
2a	Overhead							
2b	Underground							
3	Number of AC Multi-Circuit Structure Miles							
DC Cir	cuit Voltage Class	Less Than ± 100 kV (a)	± 100-199 kV (b)	± 200-299 kV (c)	± 300-399 kV (d)	± 400-499 kV (e)	± 500-599 kV (f)	± 600-799 kV (g)
4	Number of DC Circuits (Total)							
4a	Overhead							
4b	Underground							
5	Number of DC Circuit Miles (Total)							
5a	Overhead							
5b	Underground							
Transf	ormer Low-Side Voltage Class	Less Than 100 kV (a)	100-199 kV (b)	200-299 kV (b)	300-399 kV (c)	400-599 kV (d)	600-799 kV (e)	Reserved (f)
6	Number of Transformers							
7	Total Number of Events (all Voltage Classes)		I	I	I	I		I



Regional Entity:

Reporting Party:

SCHEDULE 8. ANNUAL DATA ON GENERATING UNIT OUTAGES, DERATINGS AND PERFORMANCE INDEXES For Conventional Units

SCHEDULE 8. PART A. ANNUAL DATA ON GENERATING UNIT OUTAGE HOURS AND COUNTS

LINE	Conventional Generating Unit	Total Number of GADS	Forced C	Outage	Maintenanc	e Outage	Planned Outage		
NO.	Conventional Cenerating ont	Generator Units	Hours (FOH)	Count (FO)	Hours (MOH)	Count (MO)	Hours (POH)	Count (PO)	
		Α	В	С	D	E	F	G	
			By Unit	Туре					
1	Coal Steam (ST)								
2	Other Fossil Steam (ST)								
3	Nuclear (NUC)								
4	Gas Turbines (GT)								
5	Combined Cycle (CT, CA)								
6	Int. Combus. Engines (IC)								
7	Hydro (HY)								
8	Other								
9	TOTAL								
			By Cap	acity					
10	199 MW and below								
11	200-399 MW								
12	400-699 MW								
13	700 MW and above								
14	TOTAL								
			Coal Units b	y Vintage					
	Units that entered commerci	al operation in							
15	Coal Steam – Subcritical								
16	Coal Steam –Supercritical								
	Units that entered commerci	al operation in	or after 1973		I		1		
17	Coal Steam – Subcritical			1					
18	Coal Steam –Supercritical					1			
	eest clouin ouperentiou	Com	bined Cycle l	Jnits by Vi	ntage	1	1		
	Units that entered commerci								
19	Combined Cycle								
19	Units that entered commerci	al operation in	or ofter 2002	I	I I				
20	Combined Cycle	ai operation in							
20	Combined Cycle								



OMB No. 1905-0129 Approval Expires: 05/31/2017 Burden: 122 hours

Regional Entity:

S	CHEDULE 8. PART B. /	ANNUAL DA	TA ON GE	NERATING	UNIT DER	ATING HOU	IRS AND C	COUNTS
		Forced D	erating	Maintenance	Derating	Planned D	Derating	Equivalent Seasonal
LINE NO.	Conventional Generating Unit	Equivalent Hours (EFDH)	Counts (Unique) (FD)	Equivalent Hours (EMDH)	Counts (Unique) (D4)	Equivalent Hours (EPDH)	Counts (Unique) (PD)	Derating Hours (ESDH)
		Α	В	С	D	E	F	G
				By Unit Type	-			
1	Coal Steam (ST)							
2	Other Fossil Steam (ST)							
3	Nuclear (NUC)							
4	Gas Turbines (GT)							
5	Combined Cycle (CT, CA)							
6	Int. Combus. Engines (IC)							
7	Hydro (HY)							
8	Other							
9	TOTAL							
				By Capacity				
10	199 MW and below							
11	200-399 MW							
12	400-699 MW							
13	700 MW and above							
14	TOTAL							
			Coal	Units by Vint	age			
	Units that entered comm	ercial operati	on in or be	fore 1972				
15	Coal Steam – Subcritical	-						
16	Coal Steam – Supercritical							
	Units that entered comm	ercial operati	on in or aft	er 1973	•	•		
17	Coal Steam – Subcritical	•						
18	Coal Steam –Supercritical							
	•			Cycle Units b	y Vintage			
	Units that entered comm							
19	Combined Cycle						1	
	Units that entered comm	ercial operati	on in or aft	er 2003	•			
20	Combined Cycle						1	
				1	•		1	



OMB No. 1905-0129 Approval Expires: 05/31/2017 Burden: 122 hours

Regional Entity:

Reporting Party: _____

	SCHEDULE 8. PART	C.1. ANN	UAL DATA	ON GENE	RATING UN	III PERFORM	ANCE INDE	EXES
Line No.	Conventional Generating Unit	Net Capacity Factor (NCF)	Net Output Factor (NOF)	Service Factor (SF)	Availability Factor (AF)	Unavailability Factor (UF)	Unit Derating Factor (UDF)	Equivalent Availability Factor (EAF)
		Α	В	С	D	E	F	G
						By Unit Type		
1	Coal Steam (ST)							
2	Fossil Steam (ST)							
3	Nuclear (NUC)							
4	Gas Turbines (GT)							
5	Combined Cycle (CT, CA)							
6	Int. Combus. Engines (IC)							
7	Hydro (HY)							
8	Other							
9	TOTAL							
						By Capacity		
10	199 MW and below							
11	200-399 MW							
12	400-699 MW							
13	700 MW and above							
14	TOTAL							
			Coa	al Units by	Vintage			
	Units that entered comm	ercial oper						
15	Coal Steam – Subcritical							
16	Coal Steam–Supercritical							
	Units that entered comm	ercial oper	ation in or a	fter 1973				
17	Coal Steam – Subcritical							
18	Coal Steam–Supercritical							
		I	Combine	d Cycle Un	nits by Vintag	e		
	Units that entered comm	ercial oper				-		
19	Combined Cycle			<u></u>				
	Units that entered comm	ercial one	ration in or a	ftor 2003				
20	Combined Cycle			2003				
20		1		1				



OMB No. 1905-0129 Approval Expires: 05/31/2017 Burden: 122 hours

Regional Entity:

SCHEDULE 8. PART	C.2. ANNUAL D	ATA ON GENER	RTING UNIT PE	RFORMANCE IN	IDEXES
Conventional Generating Unit	Equivalent Forced Outage Rate (FOR)	Equivalent Maintenance Outage Rate (MOR)	Equivalent Planned Outage Rate (POR)	Forced Outage Rate Demand (FORd)	Equivalent Forced Outage Rate Demand (EFORd)
	Α	В	С	D	E
		By Unit Typ	be		
TOTAL					
		By Capacit	y		
TOTAL					
		Coal Units by V	/intage		
Units that entered comm	ercial operation i	n or before 1972			
Coal Steam – Subcritical					
Coal Steam–Supercritical					
	ercial operation i	n or after 1973			
Coal Steam–Supercritical Units that entered comm Coal Steam – Subcritical	ercial operation i	n or after 1973			
Units that entered comm	ercial operation i	n or after 1973			
Units that entered comm Coal Steam – Subcritical		n or after 1973 nbined Cycle Unit	s by Vintage		
Units that entered comm Coal Steam – Subcritical	Con	nbined Cycle Unit	s by Vintage		
Units that entered comm Coal Steam – Subcritical Coal Steam–Supercritical	Con	nbined Cycle Unit	s by Vintage		
Units that entered comm Coal Steam – Subcritical Coal Steam–Supercritical Units that entered comm	Con ercial operation i	nbined Cycle Unit n or before 2002	s by Vintage		
	Conventional Generating Unit Coal Steam (ST) Fossil Steam (ST) Nuclear (NUC) Gas Turbines (GT) Combined Cycle (CT, CA) Int. Combus. Engines (IC) Hydro (HY) Other TOTAL 199 MW and below 200-399 MW 400-699 MW 700 MW and above TOTAL Units that entered comm Coal Steam – Subcritical	Conventional Generating UnitEquivalent Forced Outage Rate (FOR)Coal Steam (ST)ACoal Steam (ST)Interformed Cycle (CT, CA)Nuclear (NUC)Gas Turbines (GT)Combined Cycle (CT, CA)Int. Combus. Engines (IC)Hydro (HY)OtherTOTALInterformed Cycle (CT, CA)199 MW and below200-399 MW200-399 MWInterformed Cycle (CT, CA)Units that entered commercial operation i Coal Steam – Subcritical	Conventional Generating UnitEquivalent Forced Outage Rate (FOR)Equivalent Maintenance Outage Rate (MOR)ABBBCoal Steam (ST)BFossil Steam (ST)Coal Steam (ST)Nuclear (NUC)Combined Cycle (CT, CA)Gas Turbines (GT)Combined Cycle (CT, CA)Int. Combus. Engines (IC)Sy CapacitHydro (HY)Sy CapacitOtherSy Capacit199 MW and belowSy Capacit200-399 MWSy Capacit700 MW and aboveCoal Units by VTOTALCoal Units by VUnits that entered commercial operation in or before 1972Coal Steam – SubcriticalSy Capacit	Conventional Generating UnitEquivalent Forced Outage Rate (FOR)Equivalent Maintenance Outage Rate (MOR)Equivalent Planned Outage Rate (POR)ABCCoal Steam (ST)ABCFossil Steam (ST)Steam (ST)Steam (ST)Steam (ST)Nuclear (NUC)Steam (ST)Steam (ST)Steam (ST)Gas Turbines (GT)Steam (ST)Steam (ST)Steam (ST)Int. Combus. Engines (IC)Steam (ST)Steam (ST)Steam (ST)OtherSteam (ST)Steam (ST)Steam (ST)TOTALSteam (ST)Steam (ST)Steam (ST)OtherSteam (ST)Steam (ST)Steam (ST)TOTALSteam (ST)Steam (ST)Steam (ST)Units that entered commercial operation in or before 1972Steam (ST)Coal Steam – SubcriticalSteam (ST)Steam (ST)	Conventional Generating UnitForced Outage Rate (FOR)Maintenance Outage Rate (MOR)Planned Outage Rate (POR)Porced Outage Rate Demand (FORd)ABCDBy Unit TypeCoal Steam (ST)Image: Steam (ST)Fossil Steam (ST)Image: Steam (ST)Image: Steam (ST)Nuclear (NUC)Image: Steam (ST)Image: Steam (ST)Gas Turbines (GT)Image: Steam (ST)Image: Steam (ST)Int. Combus. Engines (IC)Image: Steam (ST)Image: Steam (ST)Hydro (HY)Image: Steam (ST)Image: Steam (ST)OtherImage: Steam (ST)Image: Steam (ST)TOTALImage: Steam (ST)Image: Steam (ST)By CapacityBy CapacityTOTALTOTALCoal Units by VintageUnits that entered commercial operation in or before 1972



OMB No. 1905-0129 Approval Expires: 05/31/2017 Burden: 122 hours

Regional Entity:

	SCHEDULE 8. PART D. ANNUAL DATA ON GENERATING UNIT PRIMARY CAUSE OF ACTIVE STATE FORCED OUTAGES													
LINE NO.	Forced Outage and Unplanned Derating Causes	Fossil Steam Units (ST)	Nuclear Units (NUC)	Gas Turbine Units (GT)	Combined Cycle Units (CT, CA)	Internal Combustion Engines (IC)	Hydro/ Pumped Storage Units (HY)	All Other Units	Total Outage Count					
		Α	В	С	D	E	F	G	Н					
			FOR	CED OUT	GE EVENTS									
1	Major Components													
1.a	Boiler													
1.b	Reactor													
1.c	Engine													
1.d	Turbine													
1.e	Generator													
2	Balance of Plant (BoP)													
2.a	Water Systems													
2.a 2.b	Electrical													
2.0 2.c	Power Station Switchyard													
2.d	Auxiliary Systems													
2.e	All Other BoP Systems													
3	Pollution Control Equipment													
4	External													
4.a	Severe Weather													
4.b	Non-weather catastrophes													
4.c	Economic													
4.d	Fuel Quality													
4.e	Transmission System													
4.f	Other External													
	Dogulatom, Cafatu													
5	Regulatory, Safety, Environmental													
5.a	Regulatory													
5.b	Stack Emissions													
5.c	Other Env. Limitations													
5.d	Safety													
6	Personnel or Procedure Errors													
6.a	Personnel Errors													
6.b	Procedural Errors													
6.c	Staff Shortage													
7	Performance													
8	All Other Causes													
9	TOTAL (All Causes)													



Regional Entity:

Reporting Party:

SCHEDULE 9. SMART GRID TRANSMISSION SYSTEM DEVICES AND APPLICATIONS

SCHEDULE 9. PART A. DYNAMIC CAPABILITY RATING SYSTEMS (DCRSs)

		(
LINE NO.	AC Circuit Voltage Class	100- 299 kV (A)	300-799 kV (B)
1	Number of transmission circuits utilizing a dynamic capability rating system		
2	Miles of AC transmission lines utilizing a dynamic capability rating system		
3	Number of station transformers utilizing a dynamic capability rating system		

SCHEDUEL 9. PART B.	PHASOR MEASUREMENT UNITS (PMUs)
---------------------	---------------------------------

LINE NO.	AC Circuit Voltage Class	100- 299 kV (A)	300-799 kV (B)
1	Number of non-networked PMUs		
2	Number of networked PMUs		
3	Number of substations with at least one networked PMU installed		
4	Number of total substations		



OMB No. 1905-0129 Approval Expires: 05/31/2017 Burden: 122 hours

Regional Entity:

Reporting Party:

SCHEDULE 9. PART C. SMART GRID PMU APPLICATIONS LINE **Application Type Application Used** NO. **PMU APPLICATIONS** A. Real-time Operations Applications 1 Indicate whether PMUs are being used to support the following applications: []Yes, []No 1a Wide-area situational awareness 1b []Yes, []No Frequency stability monitoring and trending []Yes, []No 1c Power oscillation monitoring []Yes, []No 1d Voltage monitoring and trending Alarming and setting system operating limits, event detection and 1e []Yes, []No avoidance 1f []Yes, []No • Resource integration 1g State estimation []Yes, []No 1h Dynamic line ratings and congestion management []Yes, []No **1i** []Yes, []No Outage restoration 1j []Yes, []No Operations planning **B. Planning and Off-line Applications** 2 Indicate whether PMUs are being used to support the following applications: Baselining power system performance 2a []Yes, []No 2b []Yes, []No Event analysis 2c []Yes, []No Static system model calibration and validation 2d Dynamic system model calibration and validation []Yes, []No 2e Power plant model validation []Yes, []No **2**f []Yes, []No Load characterization Special protection schemes and islanding 2g []Yes, []No 2h []Yes, []No Primary frequency (governing) response



OMB No. 1905-0129 Approval Expires: 05/31/2017 Burden: 122 hours

Regional Entity:

Reporting Party: _____

SCHEDULE 10. COMMENTS								
LINE NO.	Schedule (A)	Schedule Part (B)	Schedule Line No. (C)	Schedule Column (D)	Schedule Page (E)	Comment (F)		
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								