

414 Nicollet Mall Minneapolis, Minnesota 55401-1993

PUBLIC DOCUMENT TRADE SECRET DATA HAS BEEN EXCISED

April 15, 2013

Dr. Burl W. Haar Executive Secretary Minnesota Public Utilities Commission 121 7th Place East, Suite 350 St. Paul, Minnesota 55101

RE: Petition to the Minnesota Public Utilities Commission Seeking Approval for a Competitive Resource Acquisition Proposal and for a Certificate of Need Docket No. E002/CN-12-1240

Dear Dr. Haar:

Northern States Power Company, doing business as Xcel Energy, submits to the Minnesota Public Utilities Commission this Trade Secret version of Appendix C containing Non-Public operational and cost information pertaining to its proposal in the above-referenced docket to construct three 215 MW combustion turbine generators with inservice dates between 2017 – 2019.

The operational and cost information in Appendix C is designated as Trade Secret pursuant to Minnesota Statute § 13.37, subd. 1(b). The information derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use. This information was compiled as a result of significant investment of time and effort, is unique to Xcel Energy, and would be of economic value if disclosed to others who would otherwise not have access to it.

The Trade Secret version of Appendix C is being served by mail on the Office of the Attorney General and the Department of Commerce subject to the protections from disclosure contained in the Minnesota Government Data Practices Act and the Commission's Revised Procedures for Handling Trade Secret and Privileged Data (September 1, 1999). The Trade Secret version of Appendix C will also be provided to

Dr. Burl Haar April 15, 2013 Docket No. E002/CN-12-1240 Page 2 of 2

those non-government parties who become eligible to review its Non-Public contents pursuant to a non-disclosure agreement with Xcel Energy or a protective order issued in this docket.

Please contact me at james.r.alders@xcelenergy.com or (612) 330-6742 if you have any questions regarding this filing.

Sincerely,

/s/

JAMES R. ALDERS STRATEGY CONSULTANT REGULATORY AFFAIRS

Enclosures

c: Service Lists

Appendix C Project Operational and Cost Data

Table C1a Black Dog Unit 6 Project Generating Capability

Summer	Conditions (95°F,	30% Relative Hum	nidity)		
Capab	ility	Net Heat Rate	Efficiency (%)		
% of Base	MW	(Btu/kWh) (HHV)	(HHV)		
	[TRADE SECRE	T DATA BEGINS.	••		
100 (Full Load)*					
		TRADE SECRE	T DATA ENDSJ		
Winter	Conditions (-5°F,	60% Relative Humi	dity)		
Capab	ility	Net Heat Rate	Efficiency (%)		
% of Base	MW	(Btu/kWh) (HHV)	(HHV)		
	TRADE SECRE	T DATA BEGINS.	••		
100 (Full Load)*					
		TRADE SECRE	T DATA ENDS		
Reference Temp	erature Condition	s (59°F, 60% Relati	ve Humidity)		
Capab	ility	Net Heat Rate	Efficiency (%)		
% of Base	MW	(Btu/kWh) (HHV)	(HHV)		
	[TRADE SECRE	T DATA BEGINS.	••		
50					
60					
70					
80					
90					
100 (Full Load)*					
*The facility will typic	cally run up to its be	est efficiency load po	int.		
		TRADE SECRE	T DATA ENDS		



Table C1b Red River Valley

Project Generating Capability (Applies to Each Unit – 1 and 2)

Summer	Conditions (88°F,	42% Relative Hum	nidity)
Capa	bility	Net Heat	Efficiency (%)
% of Base	MW	Rate	(HHV)
		(Btu/kWh) (HHV)	
	 TRADE SECRE	, ,	
100 (Full Load)*			
100 (100 - 000)		TRADE SECRE	T DATA ENDS
Winter (Conditions (-5°F, 10		
Capa	bility	Net Heat Rate	Efficiency (%) (HHV)
% of Base	MW	(Btu/kWh)	(11111)
		(HHV)	
	[TRADE SECRE	T DATA BEGINS.	••
100 (Full Load)*			
		TRADE SECRE	T DATA ENDSJ
Reference Temp	erature Conditions	(41°F, 70% Relative	ve Humidity)
Capa	bility	Net Heat	Efficiency (%)
% of Base	MW	Rate	(HHV)
		(Btu/kWh) (HHV)	
	[TRADE SECRE	T DATA BEGINS.	••
50			
60			
70			
80			
90			
100 (Full Load)*			
*The facility will typic	cally run up to its bes	st efficiency load po	int.
		TRADE SECRE	T DATA ENDSJ



Table C2a

Project Fuel Requirements - Black Dog Unit 6

Rule	Description	Project Data, per Unit
Reference		
		[TRADE SECRET DATA BEGINS
7849.0320, C(1)	Fuel (Natural Gas) Source	
7849.0320, C(2)	Fuel Requirement	
	•summer, peak (95F)	
	•winter, peak (-5F)	
	•reference temperature, base load (59F)	
	•Annual consumption (59F)	
7849.0320, C(3)	Heat Input (HHV)	
	•summer, peak (95F)	
	•winter, peak (-5F)	
	•reference temperature, base load (59F)	
7849.0320, C(4)	Fuel (natural gas) Heat Value	
7849.0320, C(5)	Fuel Content:	
	Sulfur	
	Ash	
	Moisture Content	
		TRADE SECRET DATA ENDSJ



Table C2b – North Dakota Project Fuel Requirements, per Unit

Rule	Description	Project Data, per Unit
Reference		
		[TRADE SECRET DATA BEGINS
7849.0320, C(1)	Fuel (Natural Gas) Source	
7849.0320, C(2)	Fuel Requirement	
	•summer, peak (88F)	
	•winter, peak (-5F)	
	•reference temperature, base load (41F)	
	•Annual consumption (41F)	
7849.0320, C(3)	Heat Input (HHV)	
	•summer, peak (88F)	
	•winter, peak (-5F)	
	•reference temperature, base load (41F)	
7849.0320, C(4)	Fuel (natural gas) Heat Value	
7849.0320, C(5)	Fuel Content (Gas):	
	Sulfur	
	Ash	
	Moisture Content	
		TRADE SECRET DATA ENDS



Table C3a Project Cost Summary – Black Dog

Item	Black Dog Unit 6								
Unit	6	6 (Option 1)	6 (Option 2)						
In-Service Date	March 2017	March 2018	March 2019						
	[TRADE SECRE	ET DATA BEGINS	•						
Project Base Capacity Cost									
Base Summer Capacity Costs in \$/kW									
Transmission Cost									
Gas Cost									
Base Total Cost in \$/kWh									
Annual Revenue Requirement in \$/kWh (In-Service Year)									
Fuel Costs in \$/kWh (In-Service Year)									
Variable O&M Costs in \$/kWh ((In-Service Year)									
Estimated Effect on Rates \$/kWh (MN & Total System)									
Sunk Costs if Canceled									
Estimated number of construction jobs									
Estimated amount of construction payroll to economy									
Estimated number of operations jobs									
		TRADE SEC	RET DATA ENDSJ						



Table C3b Project Cost Summary – North Dakota

Item	North Dak	ota Units 1 and 2
Unit	1	2
In-Service Date	March 2018	February 2019
	[TRADE SECR	RET DATA BEGINS
Project Base Capacity Cost		
Base Summer Capacity Costs in \$/kW		
Transmission Cost		
Gas Cost		
Base Total Cost in \$/kWh		
Annual Revenue Requirement in \$/kWh (In-Service Year)		
Fuel Costs in \$/kWh (In- Service Year)		
Variable O&M Costs in \$/kWh ((In-Service Year)		
Estimated Effect on Rates \$/kWh (MN & Total System)		
Sunk Costs if Canceled		
Estimated number of construction jobs		
Estimated amount of construction payroll to economy		
Estimated number of operations jobs		
	TRADE	SECRET DATA ENDS



Table C4a Black Dog Unit 6

Rule Reference	Description	Project Data
7849.0250, A(1)	Nominal Generating Capability of each Unit	about 214 MW
7849.0250, A(2)	Operating Cycle	Simple Cycle
7849.0250, A(2)	Expected Average Annual Capacity Factor	4 to 10 percent
7849.0250, C(2)	Service Life	35 Years
7849.0250, C(3)	Estimated Average Annual Availability	> 95 percent
7849.0320, A	Estimated Land Requirements	0 acres (inside existing structure)
7849.0320, E (1)	Estimated Maximum Groundwater Pumping Rate for each Unit Surface Water Appropriation	50 GPM peak, 34 GPM daily average during Summer operation for evaporative cooling 0 cfs for Project, 633 cfs for Site
7849.0320, E (2)	Estimated Annual Project Groundwater Appropriation (assuming RO purification process) for existing Units 2 and 5	1.2 million gallons/year or 3.7 acre-feet/year (X% of site appropriation)
7849.0320, E (3)	Annual Project Surface Water Consumption Unit 6	215,100 acre-feet (50% of site appropriation) for existing Units 2 and 5



Table C4b Red River Valley Units 1 and 2

Rule Reference	Description	Project Data
7849.0250, A(1)	Nominal Generating Capability of each Unit	about 214 MW
7849.0250, A(2)	Operating Cycle	Simple Cycle
7849.0250, A(2)	Expected Annual Capacity Factor	4 to 10 percent
7849.0250, C(2)	Service Life	35 Years
7849.0250, C(3)	Estimated Average Annual Availability	> 95 percent
7849.0320, A	Estimated Land Requirements	< 35 acres on site of approximately 160 acres
7849.0320, E (1)	Estimated Maximum Groundwater Pumping Rate for each Unit	50 GPM peak, 34 GPM daily average during Summer operation for evaporative cooling
	Surface Water Appropriation	0 cfs for Project, 633 cfs for Site
7849.0320, E (2)	Estimated Annual Project Groundwater Appropriation (assuming RO purification process)	1.2 million gallons/year or 3.7 acrefeet/year 0 if water is brought in by truck
7849.0320, E (3)	Annual Project Surface Water Consumption Unit 1 Unit 2	0 0



Strate	gist Assumptions D	ocum	entati	on -	Unit P	'erfo	rman	ice &	Cost	Estim	ate	
PROJECT:	Black Dog Unit 6 CT (2017)				PREPARED	BY:	Greg	Ford/Eli.	zabeth I	(arels		
		i						4/8/2				
PROJECT/UNIT DESCRIPT	TON AND COURCE DOCUMENTATION.							, .		Ī		
PROJECT/UNIT DESCRIPT	TION AND SOURCE DOCUMENTATION: [TRADE SECRET DATA BEGINS											
												1
			-							.TRADE SEC	RET ENDS]	_
IN-SERVICE DATE:	3/1/2017	In-ser	rvice: Strategi	ist will assi	ıme in-servic	o at the 1s	ct of the mo	onth				
RETIREMENT DATE:	12/31/2051		ement: Strategi									
NET CAPACITY :	Ambient Conditions Assumptions	Summer 95F	Average 59 F	Winter -5 F	٦							
NET CALACIT.	Affiblent Conditions Assumptions		CRET DATA BE		Minin	num Capac	city: For a c	combined cy	cle unit it s	hould be the	e minimun	n
	Minimum Capacity (50%)				genera	ation in co	ombined cyc	cle configura	tion. Not 0	T only using	bypass sta	acks.
	Load Point 2 (60%)		<u> </u>			mum Capao	•	d be the max	imum net i	generation v	vithout du	ct firing.
	Load Point 3 (70%) Load Point 4 (80%)	 	 	<u> </u>				egist will not	dispatch a	unit at this	level, but	the unit
	Load Point 4 (80%) Load Point 5 (90%)	 		 	_		•	city for loads	•			
	Maximum Capacity (100%)	<u> </u>		<u> </u>	comm	ionly used	for coal pla	nts with "ga	s topping".			
		TRA	DE SECRET DA	ATA ENDS]	Ī							
		Average										
	[TRADE SECRET DATA				egist can only							
HEAT RATE:	Minimum Capacity (50%)	 '			riate. For inte			oad plants th	e average	conditions ar	re appropr	riate.
	Load Point 2 (60%)		Load P	oints: Plea	ase provide a	s many as	available.					
	Load Point 3 (70%)	 '		_								
	Load Point 4 (80%) Load Point 5 (90%)	 '	·	1								
	Maximum Capacity (100%)	<u> </u>	1 '	1								
	Maximum With Ducts		j '	1								
	TRADE SECRET D	ATA ENDS]	·		ble O&M: Ty							
VARIABLE O&M:	[TRADE SECRET DATA BEGINS	1		Strate	egist will use a	a inflation	rate, based	l on non-labo	or rates to	escalate this	value.	
VARIABLE GOIVI.		_										
Ramp Rate:				Ramp	Rate : Strate	egist will u	ise this inpu	t to calculate	e the units	contribution	to spinnir	ng reserve.
Start Time:		<u> </u>			Time: This in						ю эр	15 1 0 0 0 1
	TRADE SECRET DATA ENDS]											
FIXED O&M:	2013 dollars, \$thousands	Ī	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
		•	[TRADE SECR	RET DATA E	BEGINS							
		I										Ι
												PATA ENDS]
			&M: This cos			nnual labo	r expenses.	. Strategist	will use an	inflation rate	e,	
		based o	on labor rates	to escarate	this value.							
MAINTENANCE SCHEDUL	.E Weeks / Year	Ī	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
		•	[TRADE SECR	RET DATA E	BEGINS					·		
		I										Ι
	[TRADE SECRET DATA BEGINS				-					TRADE	SECRET D	DATA ENDS]
FORCED OUTAGE RATE:	[TRADE SECRET DATA DEGREES		enance Sched d Outage Rate				•	•	~			
		FOICE	Outage nate	: A simple	. 70 that renev	cts the pro	Juaninty of C	ulipiaiiiieu o	Utages.			
INITIAL CARITAL COSTS		1	2014	2015	2016	2017	2010	2010	2020	2024	2022	2022
INITIAL CAPITAL COSTS:	TRADE SECRET DATA ENDS]	1 !	2014 [TRADE SECR	2015 RET DATA B	2016 BEGINS	2017	2018	2019	2020	2021	2022	2023
	\$thousands	Ī	[INABL CLC	Libani	LGIII		T					
										TRADE	SECRET D	ATA ENDS]
	Capital Notes: estimate in nominal		Capital: Capit				-					
	dollars to COD in March 2017		onnection but						-			
		compa	onnection but any.	not addition	onai pipeiirie	upgraues	that will be	Palu by elli	iei vcei s 8	as operation	S OF AHOUR	er gas



2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 [TRADE SECRET DATA BEGINS.. ON-GOING CAPITAL COST! 2013 dollars, \$thousands, ...TRADE SECRET DATA ENDS] or % of initial capital On-Going Capital: Annual capital expenditures for regular maintenance and overhauls. On-Going Capital Notes: 2013 Dollars; escalation should be applied at approved Corporate rates Average Emission Rates Emissions Data: lbs/mmBtu Emissions Data: Data should reflect average emission rates stated in lbs/mmBtu using the units primary [TRADE SECRET DATA BEGINS... fuel. If lbs/mmbtu is not available Strategist does have the ability to model emissions as lbs/MWh. lbs/mmBtu NOx CO2 G Based on full load data PM_10 CO voc ..TRADE SECRET DATA ENDS) Average Water Consumption gallons/MWh Water Consumption: Data should reflect average water consumption per MWh. Water Usage [TRADE SECRET DATA BEGINS... gallons/MWh Water Consumption SOx, NOx,CO2, and Hg inputs are manditory for all OpCos ..TRADE SECRET DATA ENDS]



PROJECT:	Black Dog Unit 6 CT (2017)]			PR	EPARED BY	Greg	Ford/Eli. 4/8/		(arels]	
PROJECT DESCRIPTION AN	ID SOURCE DOCUMENTATION: [TRADE SECRET DATA BEGINS											1
										TRADE SEC	COST SAIDS!	
PROJECT INFORMATION	ON								***	. IKADE SEC	CRET ENDS]	
IN-SERVICE:	3/1/2017	In-service:	: Strategi	st will assum	ne in-servi	ce at the 1s	t of the mo	nth.				
		_	verage	Winter								
NET CAPACITY:	Maximum Capacity				Maxin	num Capaci	ty: Should b	e the maxir	num net ge	eneration w	ithout duct	firing.
	Maximum With Ducts		Maximum With Ducts: Maximum with duct firing Emergency Capacity: This input is commonly used for coal plants with "gas									
	Emergency Capacity						ity: This ir	put is com	monly used	for coal pla	ants with "g	as
	[TRADE SECRET DATA BEGINS	TRADE S	ECRET D	ATA ENDS]	toppir	ıg".						
EXPECTED CAPACITY FACT	·	Expected Ca	nacity Fa	ctor: Based	on Strate	gist simulat	ions					
	<u> </u>	Ехрестей си	pacity ra	ctor: buseu	on strate	gist sirridiat	10113.					
INITIAL CAPITAL COSTS:		, –	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
INTIAL CALITAL COSTS.	TRADE SECRET DATA ENDS			RET DATA BE		2017	2010	2013	2020	2021	2022	2023
	\$thousands											
	Capital Notes: Nominal Dollars					•	•	•	•	TRAD	E SECRET D	ATA ENDS
	capital notes. Notified	Grid Upgrade this project.	e Costs:	The capital c	osts for a	dditional gri	d upgrades	needed to	support the	e increment	al generatio	on of
			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
ON-GOING ANNUAL	2013 dollars, \$thousands,	[TRA	ADE SECR	ET DATA BE	GINS	•	•	•	•	•	,	
EXPENSES:	or % of initial capital											
	On-Going Expenses Notes:									TRAD	E SECRET D	ATA ENDS
		On-Going Cos	sts: Annu	ual cost for n	naintenan	ce of propo	sed transmi	ssion infras	tructure.			



Strategist	t Assumptions Do	ocumen	itation	ı - Ga	s Sup	ply						
PROJECT:	Black Dog Unit 6 CT (2017)	ı			PRE	PARED BY:	R	ichard D 2/5/		ry		
PROJECT DESCRIPTION AND SO												
İ	[TRADE SECRET DATA BEGINS											1
										.TRADE SEC	RET ENDS]	
DPOIECT INFORMATION:	if additional project data is peeded a	lagga contact Ba	source Planni	na Analytic	_							
IN-SERVICE:	if additional project data is needed p 3/1/2017					+h = 1 = + = £ +1	h aa					
IN-SERVICE.	3/1/2017	Summer	Strategist w Average	Winter	i-service at	the 1st of th	ne monun.					
Ì		[TRADE SECRET										
NET CAPACITY :	Maximum Capacity				Maxim	um Capacit	y: Should b	e the maxii	mum net ge	eneration w	ithout duct	firing.
1	Maximum With Ducts				Maxim	um With D	ucts: Maxin	num with d	uct firing			
· ·			DE SECRET D	ATA ENDS]								
Ì	•	Average										
	[TRADE SECRET	DATA BEGINS			te: This valu	ue multiplie	d by the ma	aximum cap	acity equa	ls the peak f	uel consum	nption
HEAT RATE:	Maximum Capacity	(mmbtu/hour)										
	Maximum With Ducts	ET DATA ENDS]										
İ	TRADE SECRET DATA BEGINS	ET DATA ENDSJ										
EXPECTED CAPACITY FACTOR	[TRADE SECRET DATA BEGINS	Evenetad (Capacity Fact	or Dacada	n Ctratagic	t cimulation	· c					
EXILECTED CALACITY FACTOR	TRADE SECRET DATA ENDS]	Expected	capacity ract	DI: Daseu U	ii strategis	t Siiiiuiatioii	15.					
	,											
ANNUAL FIXED FUEL CHARGE	2013 dollars, \$thousands	ĺ	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
1		l <u>l</u>	[TRADE SECR	ET DATA B	GINS						·	
İ	Fixed Charge Notes:											
İ	rixed charge Notes.											
ı												
1		•								TRAD	E SECRET D	ATA ENDS
		Annual Fixed	l Charge: Ann	ual cost tha	at do not va	iry by volum	ne of gas bu	irned in a g	iven year.			
		İ	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
VOLUMETRIC CHARGE:	2013 dollars, \$/mmbtu	Supply Point	NNG	NNG	NNG	NNG	NNG	NNG	NNG	NNG	NNG	NNG
Ì			[TRADE SECR	ET DATA B	GINS							
		Fuel %										
		Variable - \$/Dth										
		Variable - \$/Dth										
	Volumetric Charge Notes:									TRAD	E SECRET D	ATA ENDS
	volumente charge notes.	Volumetric Cl sure to note t	-				a priced dist	tribution hu	ıb (Ventura	a, CGI, Henr	y, etc). Plea	ase be



Strategi	st Assumptions Do	cumentatio	on - <i>Co</i>	apital .	Asset	Acco	untin	g				
PROJECT:	Black Dog Unit 6 CT (2017)			PRE	EPARED BY:		Elizabet					
							3/6/					
PROJECT INFORMATIO	N											
IN-SERVICE:	3/1/2017	In-service: Strateg	ist will assum	ne in-service a	it the 1st of	the month.						
UNIT TYPE	Combustion Turbine											
•		Summer Average	Winter									
NET CAPACITY :	Maximum Capacity]								
EXPECTED CAPACITY FACTO	[TRADE SECRET DATA BEGINS R	TRADE SECRET Expected Capacity F		d on Strategist	t simulation	S.						
NEW UNIT CAPITAL COSTS	TRADE SECRET DATA ENDS]	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
NEW ONIT CAPITAL COSTS	\$thousands,		RET DATA BE		2017	2016	2019	2020	2021	2022	2023	
									TRAD	DE SECRET D	OATA ENDS]	
	Capital Notes:	Initial Capital: Capital	al costs shoul	d include eve	rything "ins	ide the fenc	e".					
		2017	2018	2019	2020	2021	2022	2022	2024	2025	2026	
			RET DATA BE		2020	2021	2022	2023	2024	2025	2026	
ON-GOING CAPITAL COSTS	2013 dollars, \$thousands, or % of initial capital								TRAF	OF SECRET I	DATA FNDSI	
	or % of initial capitalTRADE SECRET DATA ENDS] n-Going Capital Notes: On-Going Capital: Annual capital expenditures for regular maintenance and overhauls.											
TRANSMISSION CARITAL	2012 dellare Charrendo	_	1		ı	ı	1	1				
TRANSMISSION CAPITAL COSTS:	2013 dollars, \$thousands, or % of initial capital	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
		[TRADE SEC	RET DATA BE	GINS								
				l					TRAD	E SECRET D	ATA ENDS]	
	Transmission Capital Notes:	Grid Upgrade Costs:	The cost of a	dditional grid	upgrades n	eeded to su	pport the ii	ncremental	generation (of this proje	ect.	
UNIT DEPRECIATION:	[TRADE SECRET DATA BEGINS											
BOOK LIFE BOOK DEPRECIATION												
TAX LIFE												
TAX DEPRECIATION												
DECOMMISSIONING EXPENSE:												
EAT ENGE.												
TRANSMISSION INVESTMEN	IT DEPRECIATION:											
BOOK DERRECIATION												
BOOK DEPRECIATION TAX LIFE												
TAX DEPRECIATION												
OTHER CAPITAL RELATED IN	IPUTS											
AFUDC / CWIP:		AFUDC / CWIP: This	input should	be coordinat	ed with Rat	es and Reso	urce Planni	ng				
]												
PROPERTY TAX RATE:	TRADE SECRET DATA ENDS]	PROPERTY TAXES :	Property Tax	inputs should	be coordin	ated with Ta	ax Services					



Strate	gist Assumptions D	ocum	ientati	on - L	Jnit F	Perfoi	rman	ce &	Cost	Estim	ate	
PROJECT:	Black Dog Unit 6 CT (2018)]			PREPAREC	D BY:	Greg	Ford/Eli 4/8/		Karels		
PROJECT/UNIT DESCRIP	TION AND SOURCE DOCUMENTATION: [TRADE SECRET DATA BEGINS											
	[TRADE SECRET DATA BEGINS											
										TRADE SEC	CRET ENDS)	
IN-SERVICE DATE: RETIREMENT DATE:	3/1/2018 12/31/2052		ervice: Strategi rement: Strate									
NET CAPACITY :	Ambient Conditions Assumptions	Summer 95F	Average 59 F	Winter -5 F	B.411-	6	F			ملف ما ادار د ماد	!!	
CAPACITY.	Ambient Conditions Assumptions		CRET DATA BI							should be th CT only usin		
	Minimum Capacity (50%)				_			_		generation		
	Load Point 2 (60%				Maxi	mum With	Ducts:					
	Load Point 3 (70%									a unit at this		
	Load Point 4 (80%	4								urce calculat	tions. This i	input is
	Load Point 5 (90%				comn	nonly used	tor coai pia	nts with "ga	s topping"	•		
	Maximum Capacity (100%	•	ADE CECOET D	474 FNDS1								
		TR	ADE SECRET DA	ATA ENDSJ								
		Average										
	[TRADE SECRET DA			Rate: Strate								
HEAT RATE:	Minimum Capacity (50%)	_	profile	e is appropri Points: Pleas				oad plants ti	ne average	conditions	are approp	riate.
	Load Point 2 (60%		Loau	roilles. Fied:	se provide	as illally as	available.					
	Load Point 3 (70%											
	Load Point 4 (80%		1									
	Load Point 5 (90%			Variabl	e O&M: ⊺	ypically che	micals and	water only.				
	Maximum Capacity (100%	<u>)</u>		Strateg	ist will use	a inflation	rate, based	on non-lab	or rates to	escalate thi	s value.	
	Maximum With Ducts											
	TRADE SECRET	DATA ENDS										
	[TRADE SECRET DATA BEGINS			-								
VARIABLE O&M:												
Ramp Rate:												
Start Time:										contributio	n to spinnir	ng reserve.
Start rime.	TRADE SECRET DATA ENDS			Start Ti	me: This i	nput used t	o determin	e quick star	t ability of	unit.		
FIXED O&M:	2013 dollars, \$thousands		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
			[TRADE SECR	RET DATA BE	GINS							
										TRAD	E SECRET D	ATA ENDS]
				: This cost s tes to escala			nual labor e	expenses. S	Strategist v	vill use an in	flation rate	e, based
MAINTENANCE SCHEDU	LE Weeks / Year		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
			[TRADE SECR	RET DATA BE	GINS							
			<u> </u>									
	(TD 4 D 5 6 5 6 D 5 T D 4 T 4 D 5 6 D 4 C									TRAD	E SECRET D	ATA ENDS]
FORCED OUTAGE RATE:	[TRADE SECRET DATA BEGINS		enance Schedu I Outage Rate:									
		7	2011	2017	2010	2017	2010	2012	2022	2001	2022	2000
INITIAL CAPITAL COSTS:		1	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	TRADE SECRET DATA ENDS		[TRADE SECR	E I DATA BE	GINS	1		1	1		1	1
	\$thousands	ı]			I		<u> </u>	TOAD	E SECRET O	ATA FADCI
	Capital Notes: estimate in nominal											ATA ENDS]
	dollars to COD in March 2017	interco	Capital: Capita nnection but n nnection but n ny.	ot other grid	d upgrades	(these will	be provide	d by Transn	nission). G	as costs sho	uld include	



		_										
		L	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
		<u>1</u>	TRADE SECI	RET DATA B	EGINS							
ON-GOING CAPITAL COST:	2013 dollars, \$thousands,											
	or % of initial capital									TRADI	E SECRET D	ATA ENDS]
	On-Going Capital Notes: 2013 Dollars; escalation should be applied at approved Corporate rates	On-Going	Capital: An	nual capita	l expenditur	res for regu	lar mainten	ance and o	verhauls.			
Emissions Data :	Aver:	age Emission R Ibs/mmBtu FA BEGINS	Emissio	ns Data: Da			•					,
lbs/mmBtu	SOx		ruei. II	lbs/mmbtu	is not availa	able Strate	ist does na	ve the abiiii	ty to model	emissions a	is ids/ivivvn	•
	NOx											
	CO2											
	HG		Based o	n full load o	lata							
	PM_10											
	СО											
	VOC											
	Pb											
	TRADE SECRET L	DATA ENDS]										
		e Water Consu	mption									
Water Usage	[TRADE SECRET DAT	gallons/MWh FA BEGINS	Water	Consumption	on: Data sh	ould reflec	t average w	ater consu	mption per	MWh.		
gallons/MWh	Water ConsumptionTRADE SECRET E	DATA FNDSI	SOx, N	Ox,CO2, and	d Hg inputs	are mandit	ory for all O	pCos				



Strateg	ist Assumptions Do	ocument	ation - 1	Transi	missi	on Pro	oject,	/Grid	Upgr	rades	
PROJECT:	Black Dog Unit 6 CT (2018)]		PRI	EPARED BY	Greg		izabeth i '2013	Karels		
PROJECT DESCRIPTION AN	ND SOURCE DOCUMENTATION: [TRADE SECRET DATA BEGINS								TRADE SEC	CRET ENDS]	
PROJECT INFORMATION	ON										
IN-SERVICE:	3/1/2018		Strategist will ass erage Winter DATA BEGINS		ce at the 1s	t of the mo	nth.				
<u>NET</u> CAPACITY :	Maximum Capacity Maximum With Ducts Emergency Capacity			Maxim Emerg	num With D ency Capac	ucts: Maxin	num with d	luct firing	eneration w I for coal pla		
EXPECTED CAPACITY FACT	[TRADE SECRET DATA BEGINS OR	-	acity Factor: Bas			ions.					
INITIAL CAPITAL COSTS:		2	014 2015	2016	2017	2018	2019	2020	2021	2022	2023
	TRADE SECRET DATA ENDS]	[TRAI	DE SECRET DATA	BEGINS							
	\$thousands										
	Capital Notes: Nominal Dollars	Grid Upgrade this project.	Costs: The capita	al costs for a	dditional gri	id upgrades	needed to	support the		al generation	
		2	014 2015	2016	2017	2018	2019	2020	2021	2022	2023
ON-GOING ANNUAL	2013 dollars, \$thousands,		DE SECRET DATA								
EXPENSES:	or % of initial capital										
	On-Going Expenses Notes:								TRAD	E SECRET D	ATA ENDS]
	Oil-doing Expenses Notes.	On-Going Cost	s: Annual cost fo	r maintenan	ce of propo	sed transmi	ssion infras	structure.			



Strategist	t Assumptions D	ocumen	tation	า - <i>Ga</i> .	s Sup	ply						
PROJECT:	Black Dog Unit 6 CT (2018)			PR	EPARED BY:	R		Derryber '2013	ry		
PROJECT DESCRIPTION AND SO	OURCE DOCUMENTATION: [TRADE SECRET DATA BEGINS											
	MADE SECRET DATA DEGINS									TRADE SEG	CRET ENDS)]
PROJECT INFORMATION:	if additional project data is needed (nlease contact Res	source Plann	ina Analytic	s							
IN-SERVICE:	3/1/2018			ill assume ir		t the 1st of t	he month					
IN SERVICE.	3/1/2010	Summer	Average	Winter	i-sei vice a	t tile 13t Of t	ne month.					
		[TRADE SECRET	-									
NET CAPACITY:	Maximum Capacity	ĺ			Maxir	num Capacit	ty: Should b	e the maxi	mum net ge	eneration w	ithout duct	firing.
	Maximum With Ducts					num With D						J
HEAT RATE: EXPECTED CAPACITY FACTOR	[TRADE SECRET Maximum Capacity Maximum With DuctsTRADE SECRET DATA BEGINSTRADE SECRET DATA ENDS]	Average DATA BEGINS RET DATA ENDS	Expec (mmb	ted Heat Rat tu/hour)				aximum cap	pacity equal	is the peak t	fuel consun	nption
	,	_										
ANNUAL FIXED FUEL CHARGE	2013 dollars, \$thousands	[2018 [TRADE SEC	2019 RET DATA B	2020 EGINS	2021	2022	2023	2024	2025	2026	2027
	Fixed Charge Notes:] ,										
		L										ATA ENDS
		Annual Fixed	Charge: An	nual cost tha	at do not v	ary by volun	ne of gas bu	irned in a g	iven year.			
		ľ	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
VOLUMETRIC CHARGE:	2013 dollars, \$/mmbtu	Supply Point	NNG	NNG	NNG	NNG	NNG	NNG	NNG	NNG	NNG	NNG
VOLUMETRIC CHARGE.	2013 dollars, şyriiribta			RET DATA B		INING	INING	INING	INING	INING	INING	INING
		Fuel %		1							l	
		Variable - \$/Dth										
		Variable - \$/Dth										
				•	•	•		•	•	TRAD	E SECRET D	ATA ENDS]
	Volumetric Charge Notes:	Volumetric Ch sure to note th					a priced dis	tribution h	ub (Ventura	a, CGI, Henr	y, etc). Ple	ase be

Strategi	st Assumptions Do	cumentation - Capital As	set .	Αςςοι	ıntin	g			
PROJECT:	Black Dog Unit 6 CT (2018)	PREPAR	RED BY:	I	Elizabeti 3/6/2	h Karels 2013			
PROJECT INFORMATIO	N		-					ı	
IN-SERVICE:	3/1/2018	In-service: Strategist will assume in-service at the	e 1st of th	ne month.					
UNIT TYPE	Combustion Turbine								
•		Summer Average Winter							
NET CAPACITY :	Maximum Capacity	TRADE SECRET DATA BEGINS							
EXPECTED CAPACITY FACTO	[TRADE SECRET DATA BEGINS DR	TRADE SECRET DATA ENDS] Expected Capacity Factor: Based on Strategist sim	nulations.						
•	TRADE SECRET DATA ENDS]			2040	2010	2020	2024	2022	2022
NEW UNIT CAPITAL COSTS	\$thousands,	2014 2015 2016 2 [TRADE SECRET DATA BEGINS	2017	2018	2019	2020	2021	2022	2023
							TRAD	E SECRET D	ATA FNDSI
	Capital Notes:	Initial Capital: Capital costs should include everythin	ing "inside	e the fence'	'.		/ ////	L SECKET D	ATA ENDO
		2018 2019 2020 2	2021	2022	2023	2024	2025	2026	2027
		[TRADE SECRET DATA BEGINS	2021	2022	2023	2024	2023	2020	2027
ON-GOING CAPITAL COSTS	2013 dollars, \$thousands, or % of initial capital						TRAD	E SECRET D	ATA ENDS)
	On-Going Capital Notes:	On-Going Capital: Annual capital expenditures for re	egular ma	aintenance	and overha	ıuls.			-
TRANSMISSION CAPITAL	2013 dollars, \$thousands,		T						
COSTS:	or % of initial capital	2014 2015 2016 2 [TRADE SECRET DATA BEGINS	2017	2018	2019	2020	2021	2022	2023
		[TRADE SECRET DATA BEGINS							
	Transmission Capital Notes:	Cold Harmada Caster The cast of additional acid are						E SECRET D	
		Grid Upgrade Costs: The cost of additional grid upg	grades ne	eaea to sup	port the in	cremental	generation (of this proje	ct.
UNIT DEPRECIATION: BOOK LIFE	[TRADE SECRET DATA BEGINS								
BOOK DEPRECIATION									
TAX LIFE TAX DEPRECIATION									
DECOMMISSIONING									
EXPENSE:									
TRANSMISSION INVESTMEN BOOK LIFE	NT DEPRECIATION:								
BOOK DEPRECIATION TAX LIFE									
TAX DEPRECIATION									
OTHER CAPITAL RELATED IN	NPUTS								
AFUDC / CWIP:		AFUDC / CWIP: This input should be coordinated w	with Patas	and Posco	rce Dlaneir	ng .			
]						15			
PROPERTY TAX RATE:	TRADE SECRET DATA ENDS]	PROPERTY TAXES: Property Tax inputs should be o	coordinat	ed with Tax	Services				



Strate	gist Assumptions D	ocum	entati	on - l	Jnit F	Perfoi	rman	ce & (Cost	Estim	ate	
PROJECT:	Black Dog Unit 6 CT (2019)	I			PREPARED	BY:	Greg	Ford/Eliz		Karels	ĺ	
								4/9/2	2013		İ	
PROJECT/UNIT DESCRI	PTION AND SOURCE DOCUMENTATION:											
	[TRADE SECRET DATA BEGINS											7
										TRADE SEC	RET ENDS	. 1
IN-SERVICE DATE:	3/1/2019	In-se	rvice: Strateg	ict will accur	na in-carvi	a at the 1s	t of the mor	nth				
RETIREMENT DATE:	12/31/2053		ement: Strate									
		Cummor	Average	Winter								
NET CAPACITY:	Ambient Conditions Assumptions	Summer 95F	Average 59 F	Winter -5 F	Minin	num Capac	itv: For a co	ombined cv	cle unit it s	hould be the	e minimun	1
	·	[TRADE SE	CRET DATA B	EGINS	gener	ation in co	mbined cycl	le configurat	tion. Not 0	CT only using	g bypass st	acks.
	Minimum Capacity (50%) Load Point 2 (60%)	-				mum Capad mum With		be the max	imum net	generation v	vithout du	ct firing.
	Load Point 2 (60%)							egist will not	: dispatch a	unit at this	level, but	the unit
	Load Point 4 (80%)	t	1		will b	e accredite	d this capac	ity for loads	and resou	rce calculati		
	Load Point 5 (90%)				comn	nonly used	for coal plai	nts with "ga	s topping".			
	Maximum Capacity (100%		105 556057 0	ATA SAIDS!								
		184	ADE SECRET D	ATA ENDS								
		Average	Heat	Rate: Strate	gist can on	ly model a s	single heat i	rate curve p	er unit. Fo	r peakers a	summer h	eat rate
	[TRADE SECRET DAT	A BEGINS			_	-	_			conditions a		
HEAT RATE:	Minimum Capacity (50%) Load Point 2 (60%)	-	Load	Points: Plea	se provide	as many as	available.					
	Load Point 3 (70%)											
	Load Point 4 (80%)											
	Load Point 5 (90%)			Variab	le O&M: T	ypically che	micals and	water only.				
	Maximum Capacity (100%)	4	Strateg	ist will use	a inflation	rate, based	on non-labo	or rates to	escalate this	value.	
	Maximum With DuctsTRADE SECRET D	ATA FNDSI	J									
	[TRADE SECRET DATA BEGINS			4								
VARIABLE O&M:												
Ramp Rate:	T										_	
Start Time:								to calculate e quick start		contribution	ı to spinnir	ng reserve.
	TRADE SECRET DATA ENDS]	•		Start II	ille. IIIIs II	iput useu t	o determine	e quick start	ability of t	mit.		
FIXED O&M:	2012 dellere Characada		2010	2020	2021	2022	2022	2024	2025	2026	2027	2020
FIXED O&IVI:	2013 dollars, \$thousands		2019 [TRADE SECI	2020 RET DATA BI	2021 EGINS	2022	2023	2024	2025	2026	2027	2028
			[110.152.020.				1					T
										TRADI	SECRET D	ATA ENDS]
			Fixed O&N	1: This cost	should prin	narily be an	nual labor e	expenses. S	trategist w	vill use an in	flation rate	e, based
			on labor ra	tes to escala	ite this valu	ie.						
MAINTENANCE SCHEDI	ULE Weeks / Year		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
IVIAIIVI EIVAIVEE SEITED	VEEKS/ TEUT		[TRADE SECI			2022	2023	2024	2023	2020	2027	2028
										TRADE	SECRET D	ATA ENDS]
FORCED OUTAGE RATE	[TRADE SECRET DATA BEGINS		enance Sched									
TORCED OUTAGE RATE	·	Forced	Outage Rate:	: A simple %	that reflec	ts the prob	ability of ur	nplanned ou	tages.			
INITIAL CAPITAL COSTS		T	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
INTIAL CAPITAL CUSTS	TRADE SECRET DATA ENDS]	1	[TRADE SECI			2010	2019	2020	2021	2022	2023	2024
	\$thousands											
	Capital Notes: estimate in nominal									TRADI	SECRET D	ATA ENDS]
	dollars to COD in March 2017		Capital: Capita									
			nnection but n									
		compar	nnection but r nv.	ot additiona	ıı pipeline t	apgrades th	iat Will be p	aid by eithe	r xcers gas	operations	or another	gas
		23pui	,									



		_										
			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
		<u>[1</u>	TRADE SECH	RET DATA B	EGINS							
ON-GOING CAPITAL COST:	2013 dollars, \$thousands,											
	or % of initial capital									TRAD	E SECRET D	ATA ENDS]
	On-Going Capital Notes: 2013 Dollars; escalation should be applied at approved Corporate rates	On-Going (C apital: An	nual capital	expenditur	res for regu	lar mainten	ance and o	verhauls.			
Emissions Data :	Avera	age Emission R Ibs/mmBtu FA BEGINS	Emissio	ns Data: Da			_			_		
lbs/mmBtu	SOx		fuel. If	lbs/mmbtu	is not availa	able Strate	gist does ha	ve the abili	ty to model	emissions a	as lbs/MWh	•
	NOx											
	CO2											
	HG		Based o	n full load o	lata							
	PM_10											
	СО											
	VOC											
	Pb											
	TRADE SECRET D	DATA ENDS]										
		e Water Consur	mption									
Water Usage	[TRADE SECRET DAT	gallons/MWh	Water	Consumption	on: Data sh	ould reflec	t average w	ater consu	mption per	MWh.		
gallons/MWh	Water Consumption		SOx. NO	Ox,CO2, and	Ha inputs	are mandit	on for all O	nCos				



Strateg	ist Assumptions D	ocum	entati	on - <i>T</i>	ransı	nissi	on Pr	oject,	/Grid	Upgi	rades	
PROJECT:	Black Dog Unit 6 CT (2019)]			PRE	PARED BY:	Greg	Ford/Ell 4/9/	izabeth '2013	Karels]	
PROJECT DESCRIPTION AN	ID SOURCE DOCUMENTATION: [TRADE SECRET DATA BEGINS									TRADE SEG	CRET ENDS)	
PROJECT INFORMATION	ON											
IN-SERVICE:	3/1/2019	Summer	rvice: Strateg Average CCRET DATA B	Winter	me in-servi	ce at the 1s	t of the mo	nth.				
<u>NET</u> CAPACITY :	Maximum Capacity Maximum With Ducts Emergency Capacity	70	ADE SECRET D	ATA SNOCL	Maxim	um With D ency Capac	ucts: Maxir	num with d	uct firing	eneration w		
EXPECTED CAPACITY FACT	[TRADE SECRET DATA BEGINS OR	_	ed Capacity Fa				ions.					
INITIAL CAPITAL COSTS:		7	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	TRADE SECRET DATA ENDS)	1	[TRADE SEC			2017	2010	2015	2020	2021	2022	2023
	\$thousands											
	Capital Notes: Nominal Dollars	1								TRAD	E SECRET D	ATA ENDS]
	copical Notes. Notifinal Bollois	Grid Up this pro	ograde Costs: ject.	The capital	costs for ac	lditional gri	d upgrades	needed to	support th	e increment	al generatio	on of
			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
ON-GOING ANNUAL	2013 dollars, \$thousands,		[TRADE SEC									
EXPENSES:	or % of initial capital											
	On-Going Expenses Notes:	1								TRAD	E SECRET D	ATA ENDS]
	- 25 Type 1860 Total	On-Goir	ng Costs: Ann	ual cost for	maintenand	e of propo	sed transm	ission infras	structure.			



Strategist	t Assumptions Do	ocumen	tatior	1 - <i>Ga</i> .	s Sup	ply						
PROJECT:	Black Dog Unit 6 CT (2019	j			PR	EPARED BY:	R		Derryberi '2013	ry		
PROJECT DESCRIPTION AND SO												
	[TRADE SECRET DATA BEGINS									.TRADE SEC	RET ENDS)	
PROJECT INFORMATION:	if additional project data is needed p	lease contact Re	source Plann	ina Analytic	s							
IN-SERVICE:	3/1/2019	In-service: Summer	Strategist w Average	ill assume ir Winter		t the 1st of t	he month.					
<u>NET</u> CAPACITY :	Maximum Capacity Maximum With Ducts		DATA BEGIN			num Capacit num With D				neration w	ithout duct	firing.
HEAT RATE:	[TRADE SECRET Maximum Capacity Maximum With DuctsTRADE SECRET [TRADE SECRET DATA BEGINS	Average DATA BEGINS ET DATA ENDS		t ed Heat Ra t tu/hour)	te: This va	lue multiplie	d by the ma	aximum cap	pacity equals	s the peak f	uel consun	nption
EXPECTED CAPACITY FACTOR	TRADE SECRET DATA ENDS]	Expected (Capacity Fact	or: Based o	n Strategi:	st simulation	S.					
ANNUAL FIXED FUEL CHARGE	2013 dollars, \$thousands	I	2019 [TRADE SECI	2020 RET DATA BI	2021 EGINS	2022	2023	2024	2025	2026	2027	2028
	Fixed Charge Notes:									TRAD	E SECRET D	DATA ENDS]
		Annual Fixed	Charge: An	nual cost tha	at do not v	ary by volum	ne of gas bu	irned in a g	iven year.		SECRET S	
			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
VOLUMETRIC CHARGE:	2013 dollars, \$/mmbtu	Supply Point	NNG	NNG	NNG	NNG	NNG	NNG	NNG	NNG	NNG	NNG
		Fuel % Variable - \$/Dth Variable - \$/Dth	[TRADE SEC	RET DATA BI	EGINS							
	Volumetric Charge Notes:	Volumetric Ch sure to note t	_				a priced dis	tribution h	ub (Ventura			ase be



PROJECT:									
- Nozer	Black Dog Unit 6 CT (2019)	PREP/	ARED BY:		Elizabet 3/6/2				
			L		-, -,				
PROJECT INFORMATION IN-SERVICE:	3/1/2019	In-service: Strategist will assume in-service at t	he 1st of t	he month.					
UNIT TYPE	Combustion Turbine								
_		Summer Average Winter TRADE SECRET DATA BEGINS							
NET CAPACITY:	Maximum Capacity								
EXPECTED CAPACITY FACTOR		TRADE SECRET DATA ENDS] Expected Capacity Factor: Based on Strategist si	imulations						
NEW UNIT CAPITAL COSTS	TRADE SECRET DATA ENDS]	2015 2016 2017	2018	2019	2020	2021	2022	2023	2024
	\$thousands,	[TRADE SECRET DATA BEGINS	1						
	Capital Notes:						TRAD	E SECRET D	ATA ENDS]
		Initial Capital: Capital costs should include everyt	hing "insic	le the fence	".				
		2019 2020 2021	2022	2023	2024	2025	2026	2027	2028
ON-GOING CAPITAL COSTS	2013 dollars, \$thousands,	[TRADE SECRET DATA BEGINS							
	or % of initial capital						TRAD	E SECRET D	ATA ENDS]
	On-Going Capital Notes:	On-Going Capital: Annual capital expenditures for	regular m	naintenance	and overha	iuls.			
TRANSMISSION CAPITAL COSTS:	2013 dollars, \$thousands, or % of initial capital	2014 2015 2016 [TRADE SECRET DATA BEGINS	2017	2018	2019	2020	2021	2022	2023
							TDAD	E SECRET D	ATA FAIDCI
	Transmission Capital Notes:	Grid Upgrade Costs: The cost of additional grid up	pgrades ne	eeded to sup	oport the in	cremental _i			
UNIT DEPRECIATION: [1	TRADE SECRET DATA BEGINS								
BOOK LIFE BOOK DEPRECIATION									
TAX LIFE TAX DEPRECIATION									
DECOMMISSIONING									
EXPENSE:									
TRANSMISSION INVESTMENT	T DEPRECIATION:								
BOOK LIFE BOOK DEPRECIATION									
TAX LIFE									
TAX DEPRECIATION									
OTHER CAPITAL RELATED INF	PUTS								
AFUDC / CWIP:		AFUDC / CWIP: This input should be coordinated	l with Rate	es and Resou	urce Plannir	ng			
PROPERTY TAX RATE:	TRADE SECRET DATA ENDS]	PROPERTY TAXES: Property Tax inputs should be	e coordina	ted with Ta	x Services				



Strate	gist Assumptions D	ocum	entati	on - l	Jnit Perfo	orman	ce & (Cost	Estim	ate	
PROJECT:	Hankinson 1 CT (2018)	Ī			PREPARED BY:	Greg	Ford/Eliz	abeth I	(arels		
		4					4/9/2	013			
DDOIECT/LINIT DESCRIPT	TION AND SOURCE DOCUMENTATION:					l-					
PROJECT/ONLY DESCRIP	[TRADE SECRET DATA BEGINS										
											1
									TRADE SEC	RET ENDS]	_
IN-SERVICE DATE:	3/1/2018	In-ser	vice: Strategi	st will assu	me in-service at the	1st of the mo	nth.				
RETIREMENT DATE:	12/31/2052	Retire	ment: Strate	gist will ass	ume retirement on t	the last day of	the month.				
		Summer	Average	Winter							
NET CAPACITY:	Ambient Conditions Assumptions	88F	41 F	-5 F	Minimum Cap	acity: For a c	ombined cyc	le unit it s	hould be the	minimum	1
	1500)	[TRADE SEC	RET DATA BE	GINS	generation in		_				
	Minimum Capacity (50%) Load Point 2 (60%)				Maximum Cap Maximum Wit		be the maxii	mum net į	generation v	nthout duc	et firing.
	Load Point 3 (70%)				Emergency Ca		_				
	Load Point 4 (80%)				will be accredi commonly use				rce calculati	ons. This i	nput is
	Load Point 5 (90%) Maximum Capacity (100%)	<u> </u>			commonly use	d for coar pia	iits witii gas	topping .			
	Waximum capacity (100%)		DE SECRET DA	ATA ENDS]							
	[TRADE SECRET DAT	Average A BEGINS			gist can only model	-					
HEAT RATE:	Minimum Capacity (50%)				iate. For intermedia se provide as many		ad plants the	e average	conditions a	re appropr	riate.
	Load Point 2 (60%)				p,						
	Load Point 3 (70%) Load Point 4 (80%)			1							
	Load Point 5 (90%)			Variab	le O&M: Typically o	hemicals and	water only.				
	Maximum Capacity (100%))			ist will use a inflatio			r rates to	escalate this	value.	
	Maximum With DuctsTRADE SECRET D	ATA ENDS									
	[TRADE SECRET DATA BEGINS	ATA ENDS									
VARIABLE O&M:		<u> </u>									
Ramp Rate:	1	1									
Start Time:					Rate: Strategist will					to spinnin	ig reserve.
	TRADE SECRET DATA ENDS]	•		Start i	ime: This input used	a to determin	e quick start	ability of t	iiiic.		
FIXED O&M:	2012 dollars Éthousands	ı	2018	2019	2020 2021	2022	2022	2024	2025	2026	2027
FIXED OQIVI:	2013 dollars, \$thousands		[TRADE SECR			2022	2023	2024	2025	2026	2027
			-								
									TRADE	SECRET D	ATA ENDS]
					should primarily be	annual labor e	expenses. St	trategist w	ill use an inf	lation rate	, based
			on labor rat	es to escala	ate this value.						
MAINTENANCE SCHEDU	LE Weeks / Year		2018	2019	2020 2021	2022	2023	2024	2025	2026	2027
			[TRADE SECR	ET DATA B	EGINS						
									TRADE	SECRET D	ATA ENDS
	[TRADE SECRET DATA BEGINS	Mainter	nance Schedu	ı le • This vea	rly profile should re	flect periodic	major outage	ec	TRADE	SECKET DI	ATA ENDOJ
FORCED OUTAGE RATE:					that reflects the pr						
INITIAL CAPITAL COSTS:		[2014	2015	2016 2017	2018	2019	2020	2021	2022	2023
	TRADE SECRET DATA ENDS]	- '	[TRADE SECR	ET DATA B	EGINS		, ,				
	\$thousands								TPADE	SECPET D	ATA ENDS]
	Capital Notes: estimate in nominal dollars to COD in March 2017	Initial Ca	nital: Canita	Losts show	ld include everythin	ıg "incida tha f	fence" Tra-	nemierion			ATA ENUS
	Solidi S to COD III Will till 2017				d upgrades (these w						
		intercon	nection but n		al pipeline upgrades						
		company	<i>[</i> .								



			2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
			[TRADE SEC	RET DATA B	EGINS							
ON-GOING CAPITAL COST	2013 dollars, \$thousands,											
	or % of initial capital									TRAD	E SECRET D	ATA ENDS
	On-Going Capital Notes: 2013 Dollars; escalation should be applied at approved Corporate rates	On-Goin	g Capital: Ar	nnual capital	expenditu	res for regu	lar mainter	ance and o	verhauls.			
Emissions Data :		nge Emissior Ibs/mmBtu A BEGINS	Emissi	ons Data: D			-					
lbs/mmBtu	SOx						0		,			
	NOx		1									
	CO2											
	HG		Based	on full load	data							
	PM_10											
	CO											
	VOC											
	Pb											
'	TRADE SECRET DA	ATA ENDS]	1									
	Average	Water Con	sumption									
Water Usage	[TRADE SECRET DATA	gallons/MW A BEGINS	/h Water	Consumption	on: Data sh	ould reflec	t average w	ater consu	mption per	MWh.		
gallons/MWh	Water Consumption		SOx, N	Ox,CO2, and	Hg inputs	are mandit	ory for all C	pCos				
· '	TRADE SECRET DA	ATA ENDS]	1									



Strateg	ist Assumptions Do	Ocumentation - Transmission Project/Grid Upgrades
PROJECT:	Hankinson 1 CT (2018)	PREPARED BY: Greg Ford/Elizabeth Karels 4/9/2013
PROJECT DESCRIPTION AN	ID SOURCE DOCUMENTATION: [TRADE SECRET DATA BEGINS	TRADE SECRET ENDS]
PROJECT INFORMATION IN-SERVICE:	ON 3/1/2018	In-service: Strategist will assume in-service at the 1st of the month. Summer Average Winter
NET CAPACITY: EXPECTED CAPACITY FACT INITIAL CAPITAL COSTS:	TRADE SECRET DATA ENDS] \$thousands	Maximum Capacity: Should be the maximum net generation without duct firing. Maximum With Ducts: Maximum with duct firing. Emergency Capacity: This input is commonly used for coal plants with "gas topping". Expected Capacity Factor: Based on Strategist simulations. 2014
	Capital Notes: Nominal Dollars	Grid Upgrade Costs: The capital costs for additional grid upgrades needed to support the incremental generation of this project.
ON-GOING ANNUAL EXPENSES:	2013 dollars, \$thousands, or % of initial capital	year year year year year year year year
	On-Going Expenses Notes: No ongoing expenses expected.	TRADE SECRET DATA EN On-Going Costs: Annual cost for maintenance of proposed transmission infrastructure.



O Strategis	st Assumptions Do	ocume	ntatior	1 - <i>Ga</i> :	s Sup	ply						
PROJECT:	Hankinson 1 CT (2018)				PRE	PARED BY:	R	ichard E 4/4/	erryber 2014	ry		
PROJECT DESCRIPTION AND	SOURCE DOCUMENTATION: [TRADE SECRET DATA BEGINS											
	<u> </u>									TRADE SEC	RET ENDS]	<u>.</u>
PROJECT INFORMATIO	N: if additional project data is needed p	lease contact F	Resource Plann	ing Analytics	;							
IN-SERVICE:	3/1/2018		e: Strategist w		-service at	the 1st of t	he month.					
		Summer [TRADE SECRE	Average	Winter								
NET CAPACITY :	Maximum Capacity	[TRADE SECRE	T DATA BEGIN	3	Maxim	um Capacit	v: Should be	e the maxir	num net ge	eneration wi	ithout duct	firing.
	Maximum With Ducts						ucts: Maxim					Ţ.
			ADE SECRET D	ATA ENDS]	•							
	[TRADE SECRET	Average DATA BEGINS	Expect	ed Heat Rat	e: This valu	ie multiplie	d by the ma	ximum cap	acity equal	s the peak f	uel consum	ption
HEAT RATE:	Maximum Capacity			u/hour). Ple								
	Maximum With Ducts											
	TRADE SECR [TRADE SECRET DATA BEGINS	ET DATA ENDS]									
EXPECTED CAPACITY FACTO		Expected	l Capacity Fact	or: Based o	n Strategist	simulation	ıs.					
INITIAL CAPITAL COSTS:			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
INTIAL CAPITAL COSTS.	TRADE SECRET DATA ENDS]			RET DATA BI		2017	2018	2013	2020	2021	2022	2023
	Capital Notes: Nominal dollars									TRAD	E SECRET D	ATA ENDS]
ANNUAL O&M COSTS	Nominal dollars		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
			[TRADE SEC	RET DATA BI	GINS	_						
	Notes: Minor annual O&M to											
	maintain pipeline servicing facility.											
	, acty.					•			•	TRAD	E SECRET D	ATA ENDS]
			2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
				RET DATA BI		2021	2022	2023	2024	2023	2020	2027
VOLUMETRIC CHARGE:	2013 dollars, \$/mmbtu	Pricing Basis										
	Volumetric Charge Notes:									TRAD	E SECRET D.	ATA ENDS]
		Volumetric	Charge:									



Strategi	st Assumptions Do	cumentation - Capital Ass	set A	ccountin	g					
PROJECT:	Hankinson 1 CT (2018)	PREPARED	D BY:							
				3/7/.	2013					
PROJECT INFORMATIO IN-SERVICE:	N 3/1/2018		4							
]		In-service: Strategist will assume in-service at the 1:	1st of the m	nontn.						
UNIT TYPE	Combustion Turbine	Summer Average Winter								
NET CAPACITY :	Maximum Capacity	TRADE SECRET DATA BEGINS								
EXPECTED CAPACITY FACTO	[TRADE SECRET DATA BEGINS	TRADE SECRET DATA ENDS] Expected Capacity Factor: Based on Strategist simula	lations							
•	TRADE SECRET DATA ENDS]			2010	2020	2021	2022	2022		
NEW UNIT CAPITAL COSTS	\$thousands,	2014 2015 2016 201 [TRADE SECRET DATA BEGINS)17 20	018 2019	2020	2021	2022	2023		
	Capital Notes:					TRAD	E SECRET D	ATA ENDS]		
	Cupital Notes.	Initial Capital: Capital costs should include everything	g "inside the	e fence".						
		2018 2019 2020 202)21 20	022 2023	2024	2025	2026	2027		
ON-GOING CAPITAL COSTS	2013 dollars, \$thousands,	[TRADE SECRET DATA BEGINS								
	or % of initial capital	On-Going Capital: Annual capital expenditures for regu	zular mainte	ananca and awarh	aulc	TRAD	E SECRET D	ATA ENDS]		
	On-Going Capital Notes:	On-Going Capital. Annual Capital experiutures for regu	guiai illallite	enance and overn	auis.					
TRANSMISSION CAPITAL	2013 dollars, \$thousands,				<u> </u>					
COSTS:	or % of initial capital	2014 2015 2016 201 [TRADE SECRET DATA BEGINS)17 20	018 2019	2020	2021	2022	2023		
		[TRADE SECRET DATA BEGINS								
	Transmission Capital Notes:	Grid Upgrade Costs: The cost of additional grid upgrade	ades neede	d to support the ir	ncremental ge		of this proje			
UNIT DEPRECIATION:	[TRADE SECRET DATA BEGINS									
BOOK LIFE BOOK DEPRECIATION										
TAX LIFE										
TAX DEPRECIATION										
DECOMMISSIONING EXPENSE:										
-										
TRANSMISSION INVESTMEN BOOK LIFE	NT DEPRECIATION:									
BOOK DEPRECIATION TAX LIFE										
TAX DEPRECIATION										
OTHER CAPITAL RELATED IN	IPUTS									
AFUDC / CWIP:		AFUDC / CWIP: This input should be coordinated with	th Rates and	d Resource Planni	ng					
PROPERTY TAX RATE:		PROPERTY TAXES: Property Tax inputs should be coo	ordinated v	with Tax Services						
	TRADE SECRET DATA ENDS]	and the court of the state of t	. D. a acca (JCT VICES						



Strate	gist Assumptions D	ocum	entati	on - l	Jnit P	Perfoi	rman	ce & (Cost	Estim	ate			
PROJECT:	Hankinson 2 CT (2019)	PRE			PREPARED	BY:	Greg	Greg Ford/Elizabeth Karels 4/8/2013						
			4/8/2013											
PROJECT/UNIT DESCRIP	PTION AND SOURCE DOCUMENTATION: [TRADE SECRET DATA BEGINS													
												1		
										.TRADE SEC	RET ENDS)	l .		
IN-SERVICE DATE:	2/1/2019 In-service: Strategist will assume in-service at the 1st of the month. 12/31/2053 Retirement: Strategist will assume retirement on the last day of the month.													
RETIREMENT DATE:	12/31/2053 Retirement: Strategist will assume retirement on the last day of the month.													
	Summer Average Winter													
NET CAPACITY:	Ambient Conditions Assumptions	88F	41 F CRET DATA BI	-5 F				ombined cyole configuration						
	Minimum Capacity (50%)	[TRADE SE	CRET DATA DI	01143	_			be the max						
	Load Point 2 (60%)					mum With								
	Load Point 3 (70%)	-			_			egist will not city for loads						
	Load Point 4 (80%) Load Point 5 (90%)	 					-	nts with "ga				,,,,,,		
	Maximum Capacity (100%													
		TRA	ADE SECRET D	ATA ENDS]										
		Average	Heat	Pate: Strate	gist can onl	ly model a s	single heat	rate curve p	erunit Fo	r neakers a	summer h	eat rate		
	[TRADE SECRET DAT	A BEGINS						ad plants th						
HEAT RATE:	Minimum Capacity (50%) Load Point 2 (60%)		Load	Points: Plea	se provide a	as many as	available.							
	Load Point 3 (70%)													
	Load Point 4 (80%)													
	Load Point 5 (90%)		4					water only.						
	Maximum Capacity (100% Maximum With Ducts) 	1	Strate	gist will use	a inflation	rate, based	on non-labo	or rates to	escalate this	value.			
	TRADE SECRET D	ATA ENDS]	ITA ENDS]											
VARIABLE O&M:	[TRADE SECRET DATA BEGINS	T		-										
VARIABLE O&IVI:														
Ramp Rate:				Ramp	Rate : Strate	egist will us	e this input	to calculate	the units	contribution	n to spinnir	ng reserve.		
Start Time:	TRADE SECRET DATA ENDS]							e quick start						
	I NADE SECRET DATA ENDS													
FIXED O&M:	2013 dollars, \$thousands		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028		
			[TRADE SEC	RET DATA B	EGINS	ı								
										TRADI	SECRET D	PATA ENDS]		
			Fixed O&N	: This cost	should prim	narily be an	nual labor e	expenses. S	trategist w	vill use an in	flation rate	e, based		
			on labor ra	tes to escal	ate this valu	ie.								
MAINTENANCE SCHEDU	JLE Weeks / Year		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028		
WAINTENANCE SCHEDO	Weeks/ rear		[TRADE SEC			2022	2023	2024	2023	2020	2027	2028		
	[TRADE SECRET DATA BEGINS									TRADI	SECRET D	DATA ENDS]		
FORCED OUTAGE RATE			enance Schedu Outage Rate:											
							,	.,	8					
INITIAL CAPITAL COSTS	:	I	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		
	TRADE SECRET DATA ENDS]		[TRADE SEC	RET DATA B	EGINS									
	\$thousands				<u> </u>	İ	<u>I</u>	<u>i</u>		TRADI	E SECRET I	DATA ENDS		
	Capital Notes: estimate in nominal dollars to COD in March 2017	Initial C	apital: Capita	l costs shou	ıld include e	everything '	inside the f	fence". Tra	nsmission					
		intercor	nnection but n	ot other gri	d upgrades	(these will	be provided	d by Transm	ission). Ga	s costs shou	uld include			
			nnection but n	ot addition	al pipeline u	pgrades th	at will be p	aid by eithe	r Xcel's gas	operations	or another	r gas		
		compan	ıy.											



			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
		[TI	RADE SECI	RET DATA B	EGINS							
ON-GOING CAPITAL COST	2013 dollars, \$thousands,											
	or % of initial capital									TRAD	E SECRET D	ATA ENDS
	On-Going Capital Notes: 2013 Dollars; escalation should be applied at approved Corporate rates	On-Going Ca	apital: An	nual capita	l expenditur	res for regu	llar mainter	nance and o	verhauls.			
Emissions Data :	Avera [TRADE SECRET DAT	age Emission Ra Ibs/mmBtu TA BEGINS	Emissio				-			nmBtu using		
lbs/mmBtu	SOx								,			
· _	NOx											
	CO2											
	HG		Based on full load data									
	PM_10											
	CO											
	VOC											
	Pb											
·	TRADE SECRET L	DATA ENDS]										
	Average	Water Consum	nption									
Water Usage	[TRADE SECRET DAT	gallons/MWh A BEGINS	Water	Consumpti	on: Data sh	ould reflec	t average w	ater consu	mption per	MWh.		
gallons/MWh	Water Consumption		SOx, N	Ox,CO2, and	d Hg inputs	are mandit	ory for all C	pCos				
	TRADE SECRET D	DATA ENDS]										



Strateg	ist Assumptions Do	ocumentation - <i>Transmission Project/Grid Upgrades</i>
PROJECT:	Hankinson 2 CT (2019)	PREPARED BY: Greg Ford/Elizabeth Karels 4/8/2013
PROJECT DESCRIPTION AN	ID SOURCE DOCUMENTATION: [TRADE SECRET DATA BEGINS	TRADE SECRET ENDS]
PROJECT INFORMATION IN-SERVICE:	2/1/2019	In-service: Strategist will assume in-service at the 1st of the month. Summer Average Winter
NET CAPACITY:	Maximum Capacity Maximum With Ducts Emergency Capacity [TRADE SECRET DATA BEGINS OR	Maximum Capacity: Should be the maximum net generation without duct firing. Maximum With Ducts: Maximum with duct firing Emergency Capacity: This input is commonly used for coal plants with "gas topping". Expected Capacity Factor: Based on Strategist simulations.
INITIAL CAPITAL COSTS:	TRADE SECRET DATA ENDS] \$thousands Capital Notes: Nominal Dollars	TRADE SECRET DATA BEGINS Grid Upgrade Costs: The capital costs for additional grid upgrades needed to support the incremental generation of this project.
ON-GOING ANNUAL EXPENSES:	2013 dollars, \$thousands, or % of initial capital	year year year year year year year year
	On-Going Expenses Notes: No ongoing expenses expected.	TRADE SECRET DATA END On-Going Costs: Annual cost for maintenance of proposed transmission infrastructure.



O Strategis	st Assumptions Do	ocume	ntatior	ı - Gas	Sup	ply						
PROJECT:	Hankinson 2 CT (2019)				PRI	EPARED BY:	R		Derryber /2014	ry]	
PROJECT DESCRIPTION AND	SOURCE DOCUMENTATION: [TRADE SECRET DATA BEGINS]
										TRADE SEC	CRET ENDS]	.
PROJECT INFORMATION	: if additional project data is needed p	lease contact F	Pesource Plann	ina Analytics								
IN-SERVICE:	2/1/2019		e: Strategist w Average	ill assume in- Winter	service at	the 1st of t	he month.					
<u>NET</u> CAPACITY :	Maximum Capacity Maximum With Ducts						ty: Should b ucts: Maxin			eneration w	ithout duct	firing.
HEAT RATE:	[TRADE SECRET	Average		ed Heat Rate								nption
HEAT RATE:	Maximum Capacity Maximum With Ducts TRADE SECRET DATA BEGINS	ET DATA ENDS		aynoury. The	ase see Er	егду эйррг	y data for a		pacity and	neut rute ut	10.	
EXPECTED CAPACITY FACTOR	<u> </u>	Expected	l Capacity Fact	or: Based or	Strategis	t simulatior	IS.					
INITIAL CAPITAL COSTS:	TRADE SECRET DATA ENDS]		2014 [TRADE SEC	2015 RET DATA BE	2016 GINS	2017	2018	2019	2020	2021	2022	2023
	Capital Notes: Nominal dollars									TRAD	DE SECRET D	ATA ENDS
ANNUAL O&M COSTS	Nominal dollars		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Notes: Minor annual O&M to			RET DATA BE								
	maintain pipeline servicing facility.									TRAD	DE SECRET D	ATA ENDS)
			2018 [TRADE SEC	2019 RET DATA BE	2020 GINS	2021	2022	2023	2024	2025	2026	2027
VOLUMETRIC CHARGE:		Pricing Basis								TRAD	E SECRET D	ATA ENDS
	Volumetric Charge Notes:	Volumetric (Charge:							-		

Strategi	st Assumptions Do	cumentation - Capital As.	set A	4 <i>ccou</i>	ıntin	g				
PROJECT:	Hankinson 2 CT (2019)	PREPARI	RED BY:							
			L		3/7/2	2013				
PROJECT INFORMATIO										
IN-SERVICE:	2/1/2019	In-service: Strategist will assume in-service at the	e 1st of th	e month.						
UNIT TYPE	Combustion Turbine	Summer Average Winter								
NET CAPACITY :	Maximum Capacity	TRADE SECRET DATA BEGINS								
	[TRADE SECRET DATA BEGINS	TRADE SECRET DATA ENDS								
-	TRADE SECRET DATA ENDS]	Expected Capacity Factor: Based on Strategist simu								
NEW UNIT CAPITAL COSTS	\$thousands,	2014 2015 2016 2016 2016 2016 2016 2016 2016 2016	2017	2018	2019	2020	2021	2022	2023	
	[a :: / N : .						TRAD	E SECRET D	ATA ENDS]	
	Capital Notes:	Initial Capital: Capital costs should include everythin	ng "inside	the fence".					-	
			2022	2023	2024	2025	2026	2027	2028	
ON-GOING CAPITAL COSTS	2013 dollars, \$thousands,	[TRADE SECRET DATA BEGINS								
	or % of initial capital						TRAD	E SECRET D	ATA ENDS]	
	On-Going Capital Notes:	On-Going Capital: Annual capital expenditures for re	eguiar ma	intenance a	nd overna	uls.				
TRANSMISSION CAPITAL	2013 dollars, \$thousands,									
COSTS:	or % of initial capital		2017	2018	2019	2020	2021	2022	2023	
		TRADE SECRET DATA BEGINS								
	Transmission Capital Notes:	Grid Upgrade Costs: The cost of additional grid upgr	rados nos	dod to supr	ort the in	cromontal a		E SECRET D		
		Gita Opprave Costs. The cost of additional gifa upgr	raues nee	eueu to supp	ort the in	crementar	generation	n tilis proje	ct.	
UNIT DEPRECIATION:	[TRADE SECRET DATA BEGINS									
BOOK LIFE BOOK DEPRECIATION	•									
TAX LIFE										
TAX DEPRECIATION										
DECOMMISSIONING EXPENSE:										
TRANSMISSION INVESTMEN BOOK LIFE	NT DEPRECIATION:									
BOOK DEPRECIATION										
TAX LIFE TAX DEPRECIATION										
OTHER CAPITAL RELATED IN	IPUTS									
AFUDC / CWIP:	1	AFUDC / CWIP: This input should be coordinated wi	vith Rates	and Resour	ce Plannir	g				
PROPERTY TAX RATE:		PROPERTY TAXES: Property Tax inputs should be co								
	TRADE SECRET DATA ENDS]	TROPERTY TAKES . Property Tax inputs snould be of	Journate	ed Will IdX	Sel vices					

