

# SOAPP-CT.25

- Developed by Electric Power Research Institute (EPRI)
- Primary use: Conceptual design of industrial gas turbine applications with/without HRSG
- Provides baseline comparison in the form of avoided cost
- Data libraries: Gas turbines, HRSG
- CHP applications: Process steam
- Analysis duration/time step: up to 40 years; up to monthly
- Economic analyses: cash flow, payback, NPV, IRR
- Cost: \$7,500 (<http://www.soapp.com/soapp/dg/>)
- No free trial or demo versions

# Input to SOAPP-CT.25 Is Through On-Screen Windows

**QuickStart Tool - Step 2 of 7**

Cycle Type:

Site Location:

Combustion Turbine

Model:

Frequency:

Number of CT's:  (Range: 1 to 6)

HP Steam Pressure:  (Range: 20.0 to 1465.0)

HP Steam Temperature:  (Range: 506.0 to 970.0)

Exit Back Next Finish

# SOAPP-CT.25 Provides Detailed Text Output Through On-screen Windows and Printed Reports

Available Reports		SOAPP-CT.25 WorkStation										
Performance		Capital Cost Report										
<ul style="list-style-type: none"> <li>Combustion Turbine                             <ul style="list-style-type: none"> <li>Primary Fuel, Maximum</li> <li>Primary Fuel, Performance</li> <li>Primary Fuel, Minimum</li> </ul> </li> <li>Heat Recovery Steam Generators                             <ul style="list-style-type: none"> <li>Primary Fuel, Maximum</li> <li>Primary Fuel, Performance</li> <li>Primary Fuel, Minimum</li> </ul> </li> </ul>		Project: Sample Cases - Onsite Customers										
<ul style="list-style-type: none"> <li>Equipment                             <ul style="list-style-type: none"> <li>Equipment List</li> <li>Performance Summary</li> <li>Emissions Summary</li> <li>Motor List/Aux Power</li> <li>Site Parameters List</li> </ul> </li> <li>Schedule                             <ul style="list-style-type: none"> <li>Schedule Summary</li> </ul> </li> <li>Capital Cost                             <ul style="list-style-type: none"> <li>Capital Cost Breakdown</li> </ul> </li> <li>Operations &amp; Maintenance                             <ul style="list-style-type: none"> <li>O&amp;M Summary</li> </ul> </li> <li>Financial                             <ul style="list-style-type: none"> <li>Return on Equity</li> <li>Base Year</li> <li>Capital Outlay Schedule</li> <li>Project IRR</li> </ul> </li> </ul>		Conceptual Design: Cogen, 1 x 27 MW, NG, Quarterly										
		System/Subsystem/Equip System	Account	Equip Description	Quantit	Units	Equip (\$)	Material	Material (\$)	Labor (hrs)	Labor Code	Labor (\$)
		<b>Heat Recovery Steam Generators</b>										
		<b>HRSG System</b>										
		Heat Recovery Steam Generators										
		111.1.1.00		HRSG incl surfaces, galleries, steel	1	each	2,385,500	na	0	6,184	SGEN	417,173
		111.1.1.01		Duct Burner System	1	each	78,000	na	0	290	SGEN	19,563
		Ductwork										
		111.1.2.01		Bypass Stack	1	each	451,100	na	0	711	SGEN	47,964
		Feedwater and Water Supply System										
		111.1.3.01.1		HP Feedwater Pumps and Motors	1	each	25,300	na	0	19	PUMP	998
		111.1.3.01.3		LP Feedwater Pumps and Motors	1	each	800	na	0	2	PUMP	105
		111.1.3.02.1		Condensate Heater	1	each	0	na	0	na	na	0
		111.1.3.02.2		Deaerator	1	each	41,900	na	0	359	SGEN	24,218
		Misc Equipment and Systems										
		111.1.6.00		Cycle Water Make-up Pumps and Motors	2	each	251,800	na	0	240	PUMP	12,605
		111.1.6.01		Chemical Feed System (incl pumps and tanks)	1	each	169,500	na	0	775	WTRT	40,362
		111.1.6.03		HRSG Blowdown Tank(s)	1	lot	0	na	45,000	186	TANK	10,396
		111.1.6.04		HRSG Area Duplex Sump Pump Units	2	each	22,000	na	0	72	PUMP	3,781
		Water Sampling System										
		111.1.7.00		Water Sampling System	1	each	69,600	na	0	325	WTRT	16,926
		Piping Systems (inc hangers and fittings)										
		111.1.8.01.11		High Pressure HRSG Steam Header Piping	56	LF	0	Pipe8A106B	2,400	86	SPNG	5,252
		111.1.8.01.12		High Pressure HRSG Steam Leads Piping	167	LF	0	Pipe8A106B	7,100	256	SPNG	15,634
		111.1.8.01.41		Condensate Header Piping	214	LF	0	Pipe4A106B	4,900	363	SPNG	22,168
		111.1.8.01.51		High Pressure Feedwater Header Piping	241	LF	0	Pipe4A106B	5,600	409	SPNG	24,978
		111.1.8.01.52		High Pressure Feedwater Leads Piping	256	LF	0	Pipe4A106B	5,900	435	SPNG	26,565
		111.1.8.01.71		Low Pressure Feedwater Header Piping	241	LF	0	Pipe4A106B	5,600	356	SPNG	21,741
		111.1.8.01.72		Low Pressure Feedwater Leads Piping	256	LF	0	Pipe4A106B	5,900	378	SPNG	23,084
		111.1.8.02		Valves	1	lot	0	na	52,300	305	SPNG	18,626
		111.1.8.03		Piping Thermal Insulation	1	lot	0	na	6,300	545	PINS	26,302
		<b>Condensing System</b>										
		Condensate Pumps and Motors										
		111.3.2.00		Condensate Pumps and Motors	1	each	7,500	na	0	18	PUMP	945
		<b>Structures for Combustion Turbine Area</b>										
		<b>On-site Improvements</b>										
		Earthwork										
		210.2.1.01		Clear and Grub	2	acres	0	na	0	36	ETWK	5,229
		210.2.1.02		Site Drainage incl Storm Sewer System	1	lot	0	na	1,200	28	YDRN	1,705
		210.2.1.03		Grading incl Cut and Fill	2	acres	0	na	0	10	ETWK	1,453
		210.2.1.04		Site Fencing	1,246	LF	0	Fence	0	262	LAND	11,195
		210.2.1.06		Landscaping	1	lot	0	na	200	27	LAND	1,154
		On-site Roads and Parking Areas										
		210.2.2.01		Permanent Roadways	160	LF	0	Road	0	368	PBIT	24,958
		210.2.2.02		Permanent Parking Areas	1,478	SY	0	Parking	0	739	PBIT	50,119
		Outdoor Tanks and Foundations										
		210.2.3.01.1		Fuel Oil Storage Tank - Earthwork	1	lot	0	na	0	0	EXFD	0
		210.2.3.01.2		Fuel Oil Storage Tank - Concrete Ring Foundation	1	lot	0	na	0	0	FORM	0
		210.2.3.01.3		Fuel Oil Storage Tank - Erosion Control on Dike	1	lot	0	na	0	0	MSTR	0
		210.2.3.02.1		Treated Water Tank - Earthwork	2,416	SF	0	na	0	97	EXFD	7,179
		210.2.3.02.2		Treated Water Tank - Concrete Ring Foundation	1	lot	0	na	13,400	943	FORM	42,944
		210.2.3.03.1		Waste Neutralization Tank - Earthwork	324	SF	0	na	0	15	EXFD	1,110
		210.2.3.03.2		Waste Neutralization Tank - Concrete Ring End	1	lot	0	na	800	87	FORM	3,734

# SOAPP-CT.25 Output

- Text output to screen or printer
- 33 individual reports in the seven categories:
  - Design Inputs
  - Heat Balance Results
  - Equipment Design Information
  - Project Schedule
  - Capital Cost Estimate
  - O&M Cost Estimate
  - Financial Analysis and Cash Flow