

Integrated Resource Plan



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Integrated Resource Plan



Study Recommendations

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Recommendations



- 1) Pursue the future outlined in the regulated carbon future with Demand Side Management.

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Table ES-6: CO₂ Cap and Trade Case Supply Only and Integrated Portfolio Comparison

Year	Supply Only Resource (MW)	Integrated Resource (MW)
2008	Market(1)	Load Management ¹
2009	Market(1)	DSM Portfolio A ²
		DSM Portfolio B ²
		DSM Portfolio C ²
2010	Market(1)	Market(1)
2011	Market(17) CHP(5)	Market(17) CHP(5)
2012	Market(33) Market(42)	Market(33) Market(19)
2013	Market(33)	Market(33)
2014	Market(33)	Market(33)
2015	Market(33) WIND(50)	Market(33) WIND(50)
2016	Market(33) WIND(50)	Market(33) WIND(50)
2017	Market(23) WIND(50)	Market(23) WIND(50)
2018	Market(21) WIND(50)	Market(21) WIND(50)
2019	Market(32) WIND(50)	Market(14) WIND(50)
2020	Market(32) WIND(50)	Market(11) WIND(50)
2021	Market(37) WIND(50)	Market(18) WIND(50)
2022	Market(40) WIND(50)	Market(21) WIND(50)
2023	Market(47) WIND(50)	Market(28) WIND(50)
2024	Market(54) WIND(50)	Market(35) WIND(50)
2025	Market(62) WIND(50)	Market(43) WIND(50)
2026	Market(70) WIND(50)	Market(51) WIND(50)
2027	Market(77) WIND(50)	Market(59) WIND(50)
20-Year NPV @ 5.5%	\$1,412,511	\$1,369,104
20-Year CO ₂ Emission ²	17,263,000	18,658,524
Total (Total)	17,263,000	18,658,524

¹ DSM program has varying peak demand savings over time.
² Total CO₂ emissions include demand side market emissions.

Recommendations



- 2) Work with the City to improve building code standards for commercial and residential structures that have a minimum energy consumption goal of an Energy Star rating.

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Recommendations



- 3) Continue our aggressive pursuit of demand side management by the deployment of time of use metering and pricing structure to customers.

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Time of Use Program



Visiting with Large Customers about a Pilot Program
Potential Customer – New Data Center
HTE Software - \$45,000 plus \$6,000 per year maintenance

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Recommendations



- 4) Prepare in early 2010 to install two engine generator sets of approximately 8 MW each for a commercial operating date of 2012.

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Wartsila Engine



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New Generation Options



Wartsila Engines:	Comb. Tur. at CEC:
2 - 8.4 MW units	1 - 36 MW unit
\$1,155/kW	\$500/kW
\$19.4 million	\$18.0 million
8,642 Btu's/kWh	12,793 Btu's/kWh

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Recommendations



- 5) Determine if there is sufficient interest from other utilities in the state to develop the biomass repowering project at Columbia's local power plant.

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2008 Petition Amendment



IOU Renewable Requirements:

- 2% for 2011 through 2013
- 5% for 2014 through 2017
- 10% for 2018 through 2020
- 15% beginning in 2021
(2% from be derived from solar energy)

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Biomass Repowering



Columbia Power Plant:

73.5 MW Circulating Fluidized Bed
 Units 5, 7, and 8 at the Plant
 \$2,940 per kW
 \$216,090,000 Capital Cost
 Heat Rate - 11,085 Btu's/kWh

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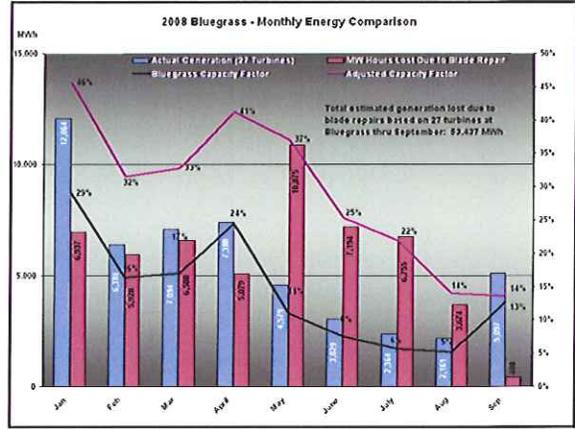
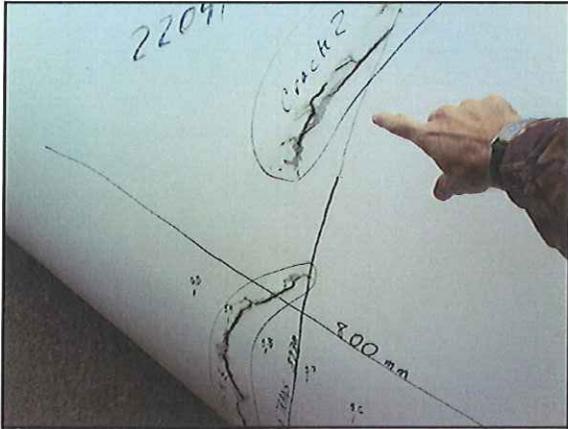
Recommendations



- 6) Acquire additional wind energy (or equivalent priced other renewable energy) in the quantities and on the time line as shown in the study.

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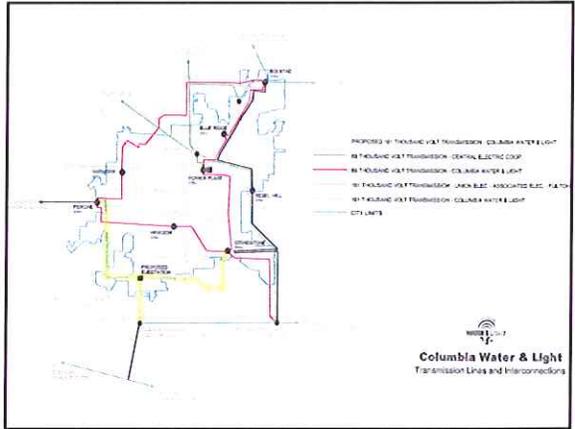


Recommendations



7) Pursue the transmission projects with AECl necessary to improve the firm import capability.

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Recommendations



8) Update the integrated resource plan in 2012 to 2013.

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Recommendations



9) Implement the demand side management programs as outlined.

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Energy Services Budget



- 8 Full Time Employees
- 2 Part Time or Seasonal Employees
- \$1,350,474 FY08 Expenditures
- \$795,647 in Outstanding Loans
- \$366,236 Load Management Summer Rate Discount (8 MW's)
- \$216,048 Load Shedding Discount (4.5 MW's)

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Questions?

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