ST. MARY'S HEALTH SYSTEM

A Member of Covenant Health

St. Mary's d'Youville Pavilion

150kW CHP Project

CO-ENERGY AMERICA
COMBINED HEAT & POWER

Rob McMenimon | Co-Energy America

St. Mary's d'Youville Pavilion – 150kW CHP

- Long-term assisted care facility
- Lewiston, ME
- d'Youville
  - 210 bed nursing facility
  - 118,000sf
- The Residences
  - 128 Apartment-style units
  - 122,000sf
- Member of Covenant Health
  - 29 facilities across New England

ST. MARY'S HEALTH SYSTEM
A Member of Covenant Health

St. Mary's d'Youville Pavilion – 150kW CHP

- **How did you hear about Efficiency Maine?**
  - Have been working with Efficiency Maine since their inception in the early 2000s.
  - Done multiple projects with together
  - Suggested doing the feasibility study as a first step.
- **How did Efficiency Maine help you move forward with the project?**
  - They guided us through the steps, feasibility study, project approval, etc.
- **Describe Incentive Provided.**
  - Feasibility study identified a project cost of $560,000.
  - Incentive was 50% or $280,000.
- **Describe the implementation timeline/process.**
  - Whole project took about 24 months from feasibility to start up.
  - Completed feasibility study is dated 9/14 and start up was 3/16
  - Procuring capital for St Mary's 50%, which fell into typical budget process, took 6 months.
  - Detailed engineering for quotes took several months.
  - Once the contract was awarded 6 months to install and commission

CHP Integration

Boiler room of d'Youville

- Preheats boiler return (heating and indirect HW)
- Preheat city makeup water (domestic HW laundry)

Boiler room of Residences

- Preheat city makeup water for both:
  - Kitchen (160 degree)
  - Domestic HW (120 degrees)

Electrical

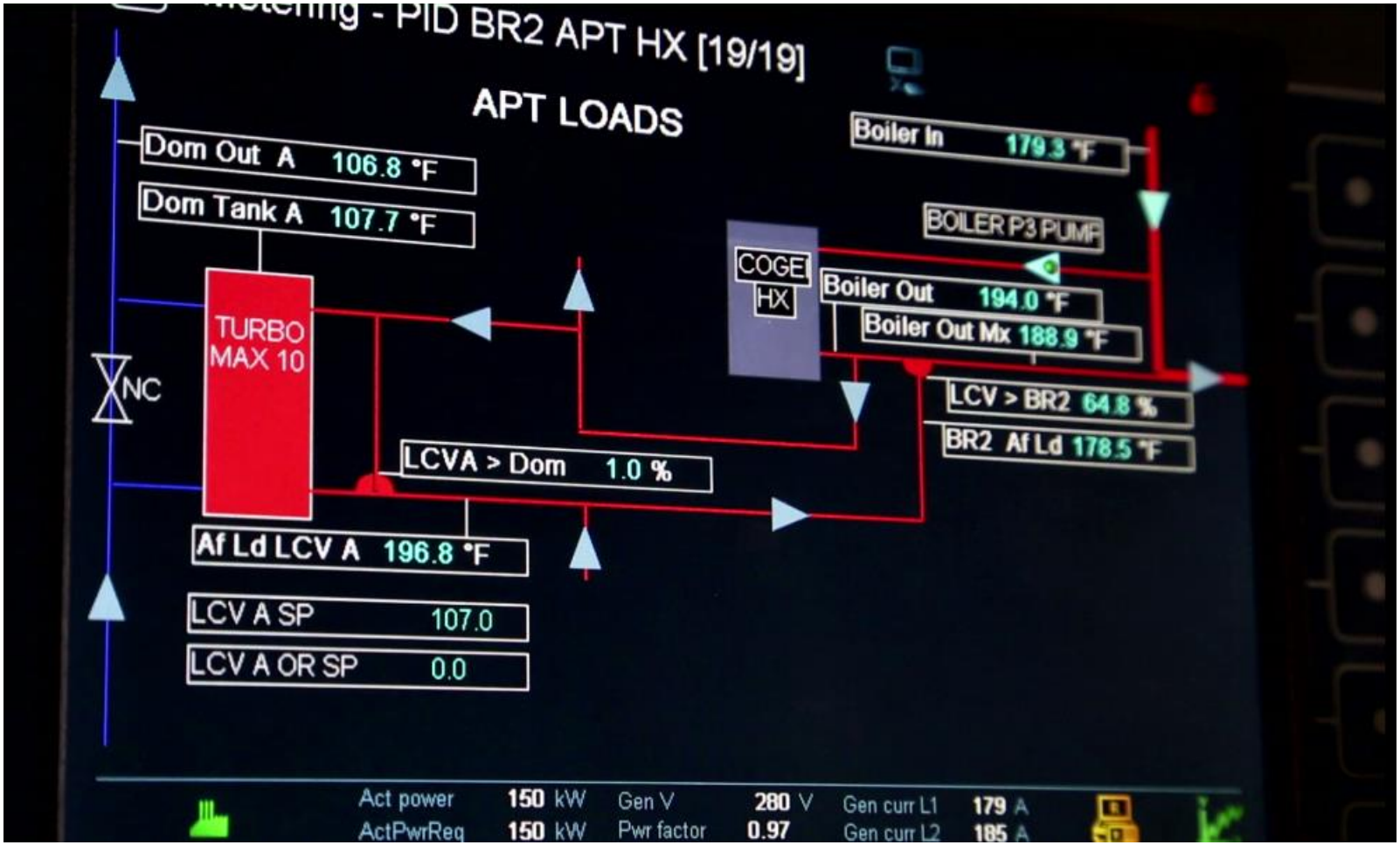
- Tie into main electrical switchgear
- Monitor building consumption – allows for electrical load following – no export

Dry Cooler

- Located outside on ground

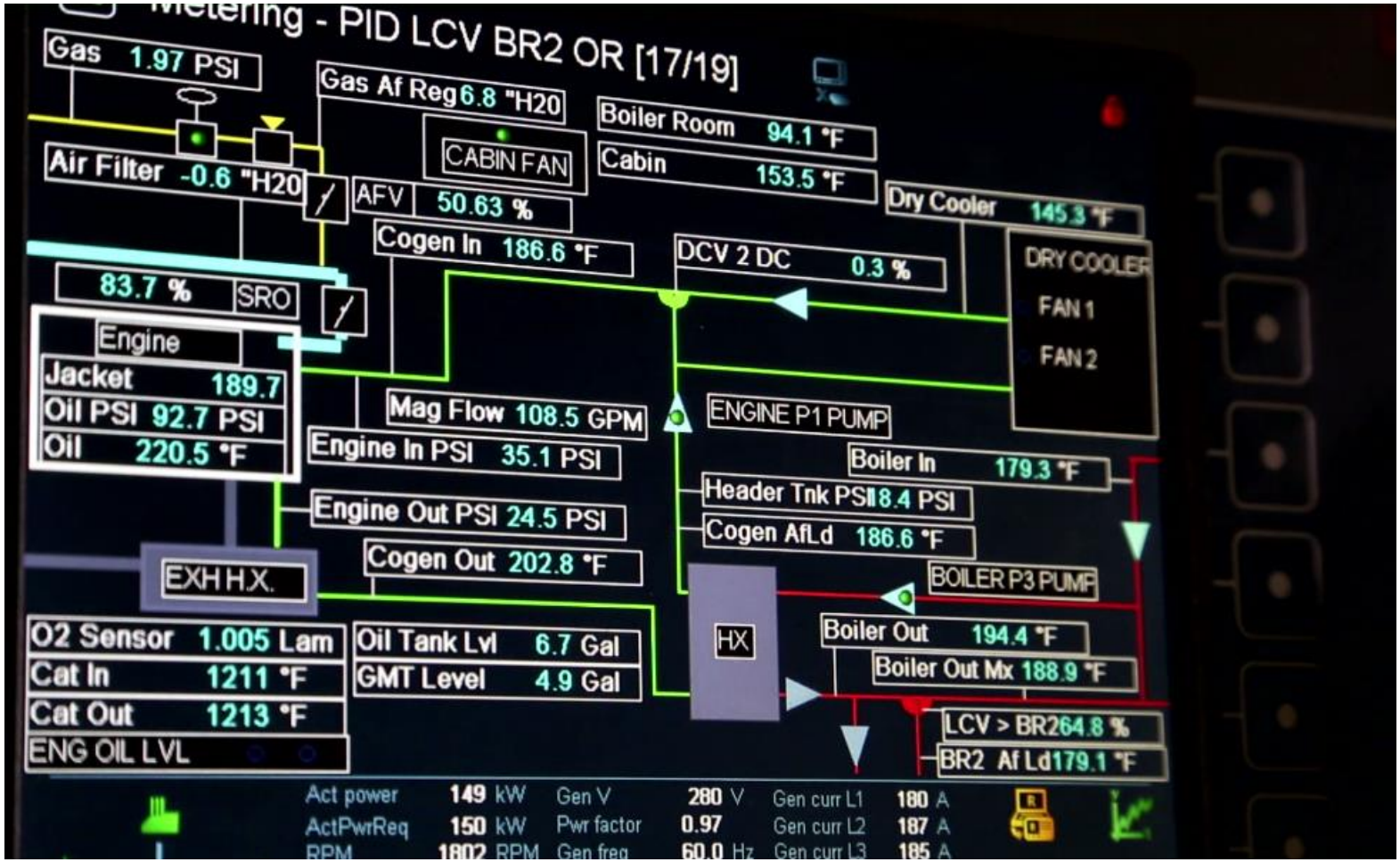
ST. MARY'S HEALTH SYSTEM
A Member of Covenant Health

St. Mary's d'Youville Pavilion – 150kW CHP



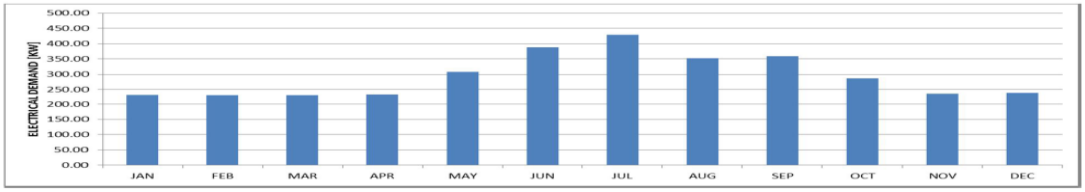
ST. MARY'S HEALTH SYSTEM
A Member of Covenant Health

St. Mary's d'Youville Pavilion – 150kW CHP

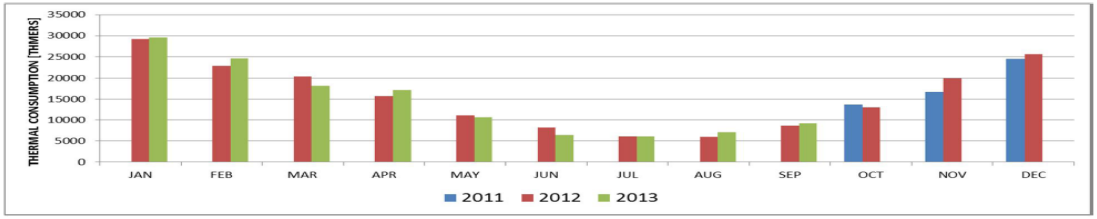


St. Mary's d'Youville Pavilion – Energy Profile

- Electrical Consumption
  - Max: 198,861 kWh / Demand 430kW (July)
  - Min: 121,394 / Demand 230kW (February)



- Thermal Consumption
  - Max: 29,600 therms (January)
  - Min: 5,930 therms (August)



St. Mary's d'Youville Pavilion – 150kW CHP

Customer Name: St Mary's d'Youville Pavilion

Project Analysis: 150kW CHP

Assumptions:

Electricity Cost	$	0.14	per kWh
Gas Price	$	0.80	per therm
Electrical Output		150	kW
Thermal Output		7.5	therms per hour
Gas Consumption		14.5	therms per hour
Hours of Operation		8,400	per year
Equipment Availability		97%	
Electrical Output Usage		100%	
Thermal Output Usage - Hot Water		65%	
Efficiency of Existing Boiler		75%	

ST. MARY'S HEALTH SYSTEM
A Member of Covenant Health

St. Mary's d'Youville Pavilion – 150kW CHP

CHP Electricity:			
Annual CHP Production		1,222,200	kWh
Value of Electricity Production	$	171,108	
CHP Thermal:			
Annual Thermal Production - Hot Water		39,722	therms
Displaced Facility Boiler Production		52,962	therms
Value of Thermal Production	$	42,370	
CHP Operating Costs:			
Cost of Gas for CHP	$	94,517	
Cost of Servicing	$	32,300	
Total Cost of Operation	$	126,817	

St. Mary's d'Youville Pavilion – 150kW CHP

Summary

Value of Electricity Produced by CHP	$	171,108
Value of Thermal Produced by CHP	$	42,370
Total Value	$	213,478
Cost of Operation	$	(126,817)
Total Savings per year	**$**	**86,661**
Cost of Installation (turnkey)	$	560,000
Efficiency ME Rebate	$	(280,000)
Net Purchase Price	**$**	**280,000**
Simple Payback (years)		**3.2**
Total 10 Year Savings	**$**	**866,608**

Other Covenant Health CHP Sites:

1. St Mary Health, MA - 60kW
2. St Joseph Manor, MA - 60kW
3. Maristhill Nursing, MA - 60kW
4. Youville Place, MA - 150kW
5. Mary Immaculate, MA - 85kW

CO-ENERGY AMERICA
COMBINED HEAT & POWER

Sub-MW CHP Systems - "RICE" Prime Mover

CO-ENERGY AMERICA
COMBINED HEAT & POWER

Markets / Projects

Markets Served

- Apartments, Co-ops and Condominiums
- Assisted Living Facilities
- Senior Housing
- Colleges and Institutions
- Hospitals
- Hotels
- Athletic Clubs
- Industrial Facilities
- Commercial Laundry facilities

Recent Projects

- Massachusetts College – 150kW
- Dedham Health Club – 150kW
- Marlborough Nursing Home – 150kW
- Boston Homeless Shelter– 85kW
- Holiday Inn Hotel – 150kW
- St Mary's Maine Hospital – 150kW
- Cape Cod Water Park – 250kW
- K-12 School – 60kW
- MA County Prison – 150kW