



# **INTEGRATED RESOURCE PLAN**

**2014**

# LOCKHART POWER COMPANY

## INTEGRATED RESOURCE PLAN

1       **1.     STATEMENT OF OBJECTIVE**

2       Lockhart Power Company's (LPC) objective in developing an Integrated Resource Plan  
3       (IRP) is to minimize our long run total costs and produce the least cost to our customers  
4       consistent with the availability of an adequate and reliable supply of electric energy  
5       while maintaining system flexibility and considering environmental impacts. We intend  
6       for the plan to also improve customer service, offer additional customer options, and  
7       improve efficiencies of energy usage.

8

9       **2.     RELEVANT SUPPORTING DOCUMENTATION**

10       a. See ATTACHMENTS

- 11               1 --- SUPPLY RESOURCES  
12               2 --- DEMAND FORECAST  
13               3 --- SUPPLY AND SALES FORECAST  
14               4 --- LOCKHART POWER COMPANY ENERGY SOURCES  
15               5--- MAINTENANCE COST

16

17       **3.     SUPPLY RESOURCES**

18       LPC presently utilizes nine sources of supply, including eight generation stations and  
19       purchases from Duke Energy (See Attachment 1). More than 99% of the power LPC  
20       self-generates is renewable energy. LPC utilizes a firm wholesale PPA with Duke  
21       Energy to provide its generation needs beyond the amount it self-generates. Duke  
22       Energy's rates to LPC are presumptively just and reasonable, having been permitted by  
23       the FERC. We plan to continue to use Duke Energy to provide a firm load-following

1 supply for the foreseeable future. However, LPC intends to investigate other sources to  
2 determine if the costs and benefits, both short run and long run, meet the objectives of  
3 our IRP. The sources we intend to investigate include, but are not limited to the  
4 following:

5 **GENERATION** --- Additional cost effective renewable energy generation resources;  
6 cost effective natural gas generation resources.

7 **PURCHASES** --- Spot, Short Term, Long Term from present supplier to  
8 reducesupplycost.Spot, Short Term, Long Term fromIndependent  
9 Power Producers or Exempt Wholesale Generators to reduce  
10 supply cost.

11  
12 **4. VARIOUS ENERGY AND DEMAND ALTERNATIVES, EFFICIENT ENERGY**  
13 **CHOICES AND PROPER PRICING SIGNALS**

14 LPC has done and continues to do the following:

15 A. Designed its rates to economically encourage improved load factors and  
16 to reduce monthly demands by:

- 17 1. Incorporating a demand penalty by use of a demand  
18 ratchet in its residential rates. This encourages peak shaving.
- 19 2. Dividing its commercial and industrial rates into a first  
20 200 hours use of billing demand rate and an over 200 hours use  
21 of billing demand rate with the rates in the latter considerably less  
22 expensive than the first 200 hours use block. This encourages  
23 peak shaving.
- 24 3. Incorporating conservation requirements in its Residential  
25 - All Electric and General Service - All Electric rates. This  
26 encourages conservation.
- 27 4. Designing its Residential and Residential - All Electric  
28 rates such that they are identical during the summer months, the

1 season of LPC's system peak. This encourages peak shaving and  
2 conservation.

3 5. Designing its General Service Commercial and General  
4 Service - All Electric rates such that they are identical during the  
5 summer months, the season of LPC's system peak. This  
6 encourages peak shaving and conservation.

7 6. Converting its Residential rate and Residential - All  
8 -Electric rate (summer months) from a declining block rate to an  
9 inverted rate. This encourages conservation.

10  
11 **5. EVALUATING POTENTIAL OPTIONS**

12 LPC will employ unbiased analysis techniques for potential options included in its IRP.  
13 LPC will evaluate each option by including all appropriate costs and benefits and will  
14 provide a detailed explanation with supporting evidence for our choice.

15  
16 **6. EVALUATING THE COST EFFECTIVENESS OF SUPPLY-SIDE AND  
17 DEMAND SIDE OPTIONS**

18 LPC has adopted an interruptible service demand-side management program offered by  
19 Duke Energy. Currently approximately one half of LPC's industrial customers are  
20 enrolled in the program. This program encourages peak shaving.

21  
22 **7. MEASURE OF NET BENEFITS**

23 LPC will provide the net benefits resulting from the options chosen for use, keeping  
24 within the objective stated in Section 1. Benefits are considered to be, but are not  
25 limited to, cost savings, peak load shaving, conservation, load shifting, valley filling,  
26 environmental concerns, improvement of customer service, offering of additional  
27 customer options, improved efficiencies of energy usage, and improved outage times  
28 and reliability, and economic development impact on the community.

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  
28

**8. ENVIRONMENTAL COSTS**

LPC will consider environmental costs on a monetized basis where reasonable and sufficient data is available in its planning process and evaluation of options. Those environmental costs that cannot be monetized will be addressed on a qualitative basis within the planning process and evaluation of options. The environmental costs referred to here are those costs associated with demand or supply side options which impact the customer directly or indirectly.

**9. DEMAND AND ENERGY FORECAST**

See Attachments 2 and 3

**10. EVALUATION AND REVIEW OF EXISTING DEMAND-SIDE OPTIONS**

See Section 4 Above

**11. FUTURE STUDIES**

LPC continues to evaluate potential renewable energy initiatives and other potential supply-side opportunities.

**12. FLEXIBILITY AND QUICK RESPONSE**

LPC intends to remain flexible enough to react quickly to changes in a manner consistent with minimizing costs while maintaining reliability.

**13. MAINTENANCE**

Maintenance is a continuous process at LPC. Actual maintenance costs for rate base assets in 2012 and 2013 are shown in Attachment 5 as well as the forecast of maintenance costs for 2014 through 2028.

1       **14.    THIRD PARTY POWER PURCHASES**

2           LPC will investigate other purchase sources if the occasion arises and is willing to  
3           pursue any other purchase sources to determine if the costs and benefits, both short run  
4           and long run, provide our customers with the options consistent with our IRP objective.

5  
6       **15.    NEW TECHNOLOGIES**

7           LPC will continuously evaluate, pursuant to its IRP objective, new technology for both  
8           demand-side and supply-side options.

9  
10       **16.   FUTURE SUPPLY-SIDE OPTIONS**

11          LPC presently has no certain scheduled supply side options other than those described  
12          in Section 3. LPC is monitoring development of the solar generation market in South  
13          Carolina, including proposed legislative changes, and will respond to any changes in a  
14          manner that is cost effective and appropriate for its customers.

15  
16       **17.   CAPTURING LOST OPPORTUNITY RESOURCES**

17          LPC gives attention to capturing lost-opportunity resources which include cost-effective  
18          energy efficiency savings such as in new construction, renovation, and in routine  
19          replacement of existing equipment. In routine replacement of any and all equipment,  
20          LPC includes energy and efficiency savings as a component of evaluation.

21  
22       **18.   DYNAMICS OF IRP PROCESS**

23          LPC realizes that the IRP process is dynamic and that modifications may be necessary  
24          over time. As new issues arise, existing issues or components of the plan change in  
25          significance and improved analysis techniques developed; LPC intends to file revisions  
26          to its IRP with The Public Service Commission of South Carolina and request that the  
27          Commission incorporate the revision into LPC's IRP or approve it as a separate  
28          consideration.

## Supply Resources

Facility Name	Location	Nameplate Capacity	Rate Base?	Fuel Source
Lockhart Hydro	Lockhart, SC	18 MW	Yes	Water (Non-Consumptive)
Lower Pacolet Hydro*	Pacolet, SC	0.8 MW	Yes	Water (Non-Consumptive)
Pacolet Diesel	Pacolet, SC	5.5 MW	Yes	Diesel
Union Diesel	Union, SC	7.3 MW	Yes	Diesel
Wellford Renewable Energy Facility*	Wellford, SC	1.6 MW	Yes	Landfill Gas
Upper Pacolet Hydro*	Pacolet, SC	1.1 MW	Request Pending	Water (Non-Consumptive)
Lockhart Minimum Flow Hydro*	Lockhart, SC	0.8 MW	Request Pending	Water (Non-Consumptive)
Columbia Hydro*	Columbia, SC	10.6 MW	Request Pending	Water (Non-Consumptive)
Purchases from Duke Energy (as Firm Customers)	N/A	Load Following	N/A	N/A

\*Note: Power generated from these facilities is currently sold off-system under contracts. Revenues from the two such facilities in rate base flow to Lockhart Power Company's customers, as will the revenues from the other three such facilities if Lockhart Power Company's request for rate base treatment is approved in Mid-2014.

**LOCKHART POWER COMPANY**

DOCKET NO. 2014-11-E  
ORDER NO. 94-348

**SUMMER DEMAND FORECAST**

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<b>SYSTEM SUMMER PEAK DEMAND IN MW'S</b>	65.7	66.4	67.0	67.7	68.4	69.1	69.7	70.4	71.1	71.9	72.6	73.3	74.0	74.8	75.5
<b>SYSTEM PEAK DEMAND</b>	65.7	66.4	67.0	67.7	68.4	69.1	69.7	70.4	71.1	71.9	72.6	73.3	74.0	74.8	75.5
<b>DEMAND SOURCES</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
LOCKHART HYDRO GENERATION	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5
PACOLET DIESEL GENERATION	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
UNION DIESEL GENERATION	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
PURCHASES FROM DUKE ENERGY	36.4	37.1	37.7	38.4	39.1	39.8	40.4	41.1	41.8	42.6	43.3	44.0	44.7	45.5	46.2
TOTAL DEMAND SOURCES	65.7	66.4	67.0	67.7	68.4	69.1	69.7	70.4	71.1	71.9	72.6	73.3	74.0	74.8	75.5

**WINTER DEMAND FORECAST**

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<b>SYSTEM WINTER PEAK DEMAND IN MW'S</b>	59.3	59.9	60.5	61.1	61.7	62.3	62.9	63.6	64.2	64.9	65.5	66.2	66.8	67.5	68.2
<b>SYSTEM PEAK DEMAND</b>	59.3	59.9	60.5	61.1	61.7	62.3	62.9	63.6	64.2	64.9	65.5	66.2	66.8	67.5	68.2
<b>DEMAND SOURCES</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
LOCKHART HYDRO GENERATION	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5
PACOLET DIESEL GENERATION	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
UNION DIESEL GENERATION	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
PURCHASES FROM DUKE ENERGY	30.0	30.6	31.2	31.8	32.4	33.0	33.6	34.3	34.9	35.6	36.2	36.9	37.5	38.2	38.9
TOTAL DEMAND SOURCES	59.3	59.9	60.5	61.1	61.7	62.3	62.9	63.6	64.2	64.9	65.5	66.2	66.8	67.5	68.2

Note: LPC generation resources that provide off-system sales per long-term contracts are excluded.



**LOCKHART POWER COMPANY**

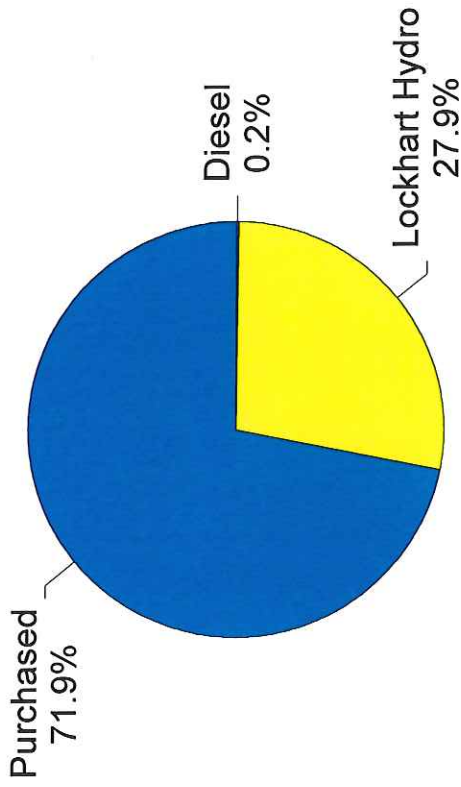
**SUPPLY AND SALES FORECAST (MWH)**

Docket NO. 2014-11-E  
Order NO. 94-348 & 98-502

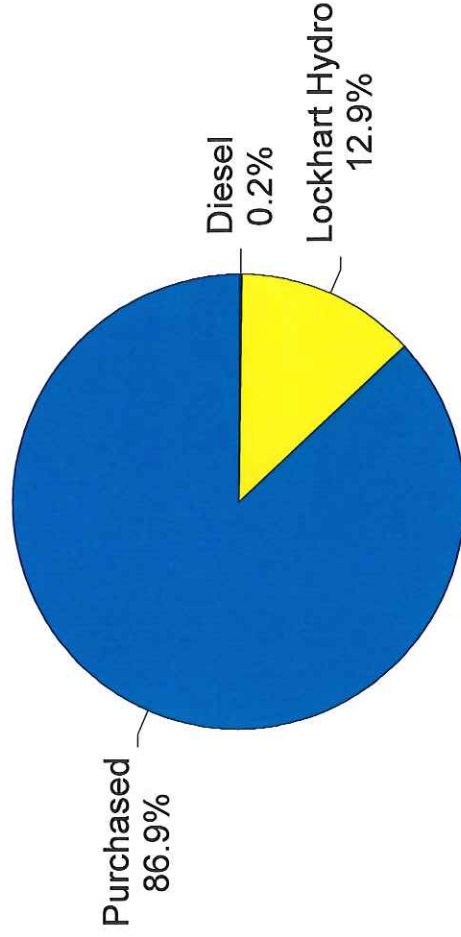
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<b>System Requirements</b>															
Metered Sales	324,522	327,767	331,045	334,355	337,699	341,076	344,487	347,932	351,411	354,925	358,474	362,059	365,680	369,336	373,030
Company Use	732	732	732	732	732	732	732	732	732	732	732	732	732	732	732
Losses	19,657	19,854	20,052	20,253	20,455	20,660	20,866	21,075	21,286	21,499	21,714	21,931	22,150	22,371	22,595
Required System Input	344,911	348,353	351,829	355,340	358,886	362,468	366,085	369,738	373,429	377,156	380,920	384,722	388,562	392,440	396,357
<b>Supply Sources</b>															
Lockhart Hydro Generation	80,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Pacolet Diesel Generation	261	261	261	261	261	261	261	261	261	261	261	261	261	261	261
Union Diesel Generation	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337
Purchases from Duke	264,313	287,755	291,231	294,742	298,288	301,870	305,487	309,140	312,831	316,558	320,322	324,124	327,964	331,842	335,759
Total Supply	344,911	348,353	351,829	355,340	358,886	362,468	366,085	369,738	373,429	377,156	380,920	384,722	388,562	392,440	396,357

LOCKHART POWER COMPANY

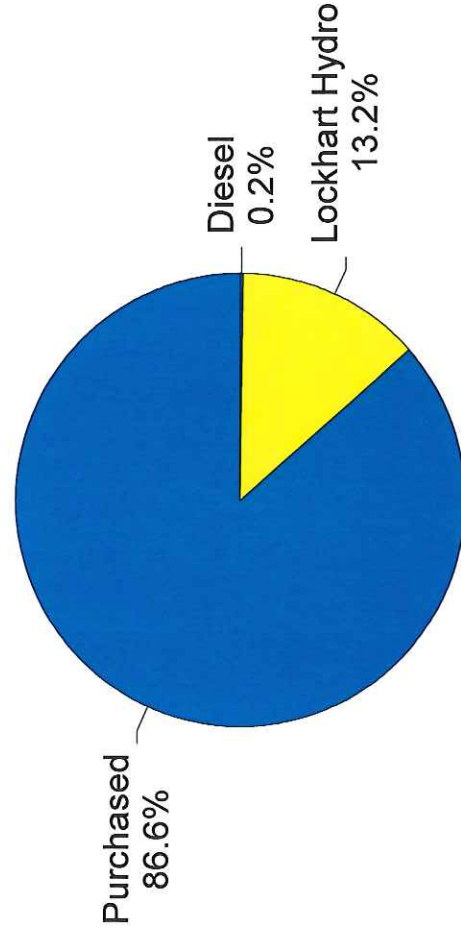
ENERGY SOURCES IN PERCENT OF MWH'S INPUT



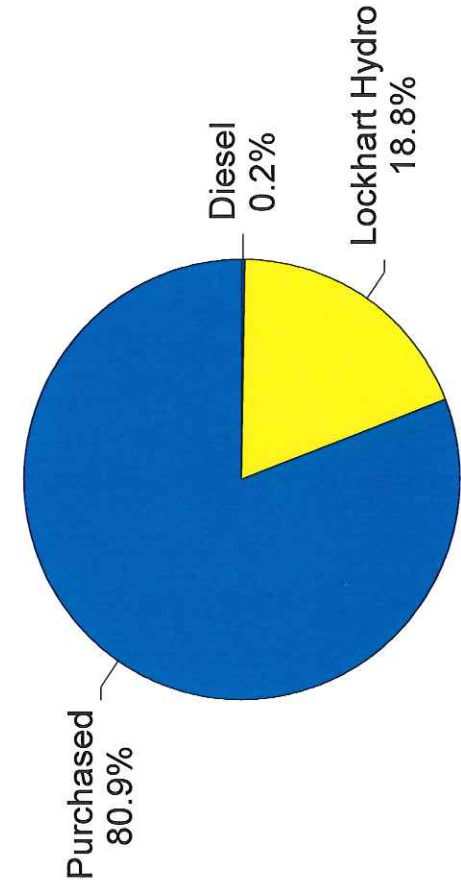
2013



2012



2011



2010

Note: Purchased Power obtained from Duke Energy

<b>YEAR</b>	<b>MAINTENANCE COST</b>	<b>YEAR</b>	<b>MAINTENANCE COST</b>
2012	\$1,652,197	2021	\$2,381,971
2013	\$1,880,350	2022	\$2,453,430
2014	\$1,936,761	2023	\$2,527,033
2015	\$1,994,863	2024	\$2,602,844
2016	\$2,054,709	2025	\$2,680,929
2017	\$2,116,350	2026	\$2,761,357
2018	\$2,179,841	2027	\$2,844,198
2019	\$2,245,236	2028	\$2,929,524
2020	\$2,312,593		