

Southeast Integrated Resource Plan – SEIRP

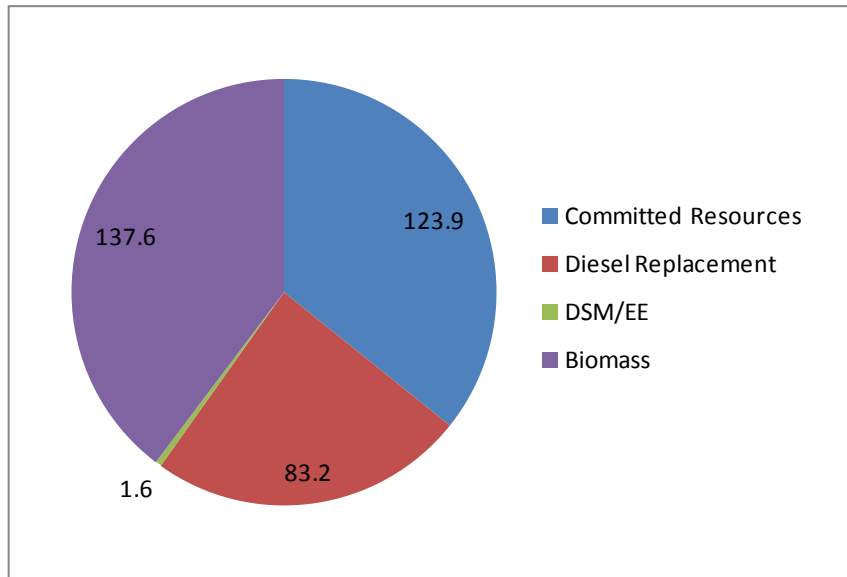
The draft plan

Summary of Capital Investment Plan
And
Projections of benefits to the SE Alaska
Residents

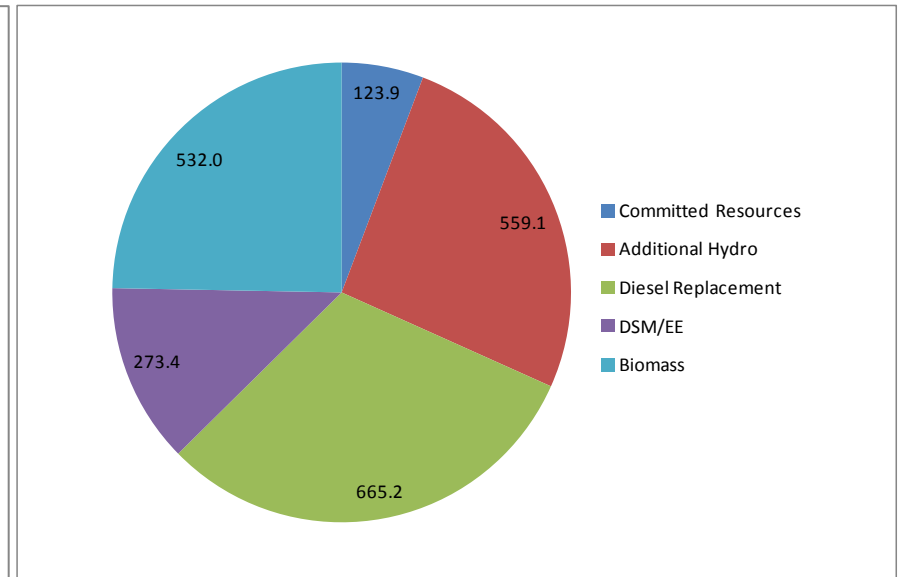
Alaska Energy Authority
January 5th and 6th, 2012

Capital Investment by Category

Capital Investment by Category
2012 - 2014



Capital Investment by Category
2012 - 2061



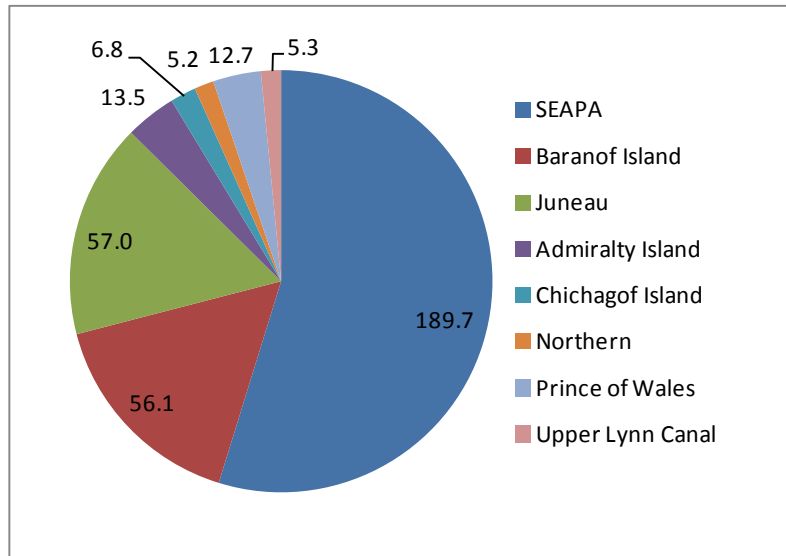
Total Capital Investments

2012 – 2014 – \$346 million

2012 – 2061 – \$2.15 billion

Subregional Equity Considerations

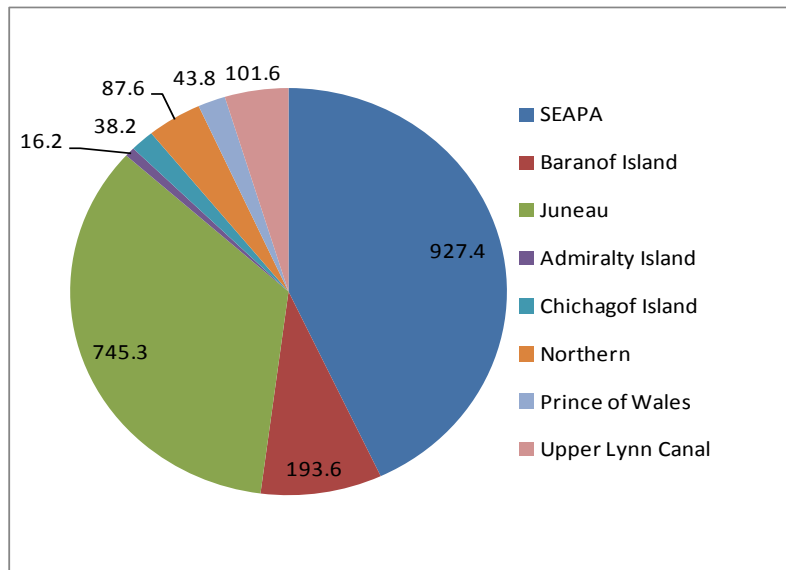
Capital Investment by Subregion – 2012 - 2014



Capital Investment per Capita

| | 2012 - 2014 | 2012 - 2061 |
|--------------------|-------------|-------------|
| Urban Areas | | |
| SEAPA | \$12,495 | \$61,086 |
| Baranof Island | \$6,313 | \$21,796 |
| Juneau | \$1,824 | \$23,830 |
| Urban Area Average | \$5,472 | \$33,725 |

Capital Investment by Subregion – 2012 - 2061



| | | |
|--------------------|----------|----------|
| Rural Areas | | |
| Admiralty Island | \$29,417 | \$35,336 |
| Chichagof Island | \$6,854 | \$38,216 |
| Northern | \$4,670 | \$79,314 |
| Prince of Wales | \$3,820 | \$13,180 |
| Upper Lynn Canal | \$1,507 | \$28,732 |
| Rural Area Average | \$4,620 | \$30,496 |
| Regional Average | \$5,348 | \$33,255 |

Subregional Equity Considerations

| OPTIMAL DSM/EE, BIOMASS AND OTHER RENEWABLES CASE - SAVINGS RELATIVE TO STATUS QUO CASE | | | | | | |
|---|---|------------|--------------------------------------|------------|------------------|------------|
| | Total Cumulative Net Present Value (CNPV) Savings - 2012 - 2061 (\$'000) | | | | | |
| | Utility System Plus DSM Costs ⁽¹⁾ | | Oil Space Heating Plus Biomass Costs | | Total | |
| | \$ | % | \$ | % | \$ | % |
| SEAPA | 221,430 | 49% | 418,993 | 43% | 640,423 | 45% |
| Admiralty Island | (22) | 0% | 9,592 | 43% | 9,570 | 32% |
| Baranof Island | 1,671 | 2% | 216,746 | 47% | 218,417 | 39% |
| Chichagof Island | 13,218 | 22% | 29,950 | 51% | 43,168 | 37% |
| Juneau | 185,117 | 50% | 977,503 | 46% | 1,162,620 | 47% |
| Northern | 33,670 | 38% | 77,923 | 53% | 111,593 | 47% |
| Prince of Whales | 3,313 | 14% | 180,036 | 49% | 183,349 | 47% |
| Upper Lynn Canal | 18,925 | 41% | 172,791 | 50% | 191,716 | 49% |
| Total Southeast Region | 477,322 | 41% | 2,083,534 | 46% | 2,560,856 | 45% |

⁽¹⁾Includes savings from generic hydro projects.

Juneau Home Budget

2016 Full Implementation

2011 Base Case

2016 No Implementation

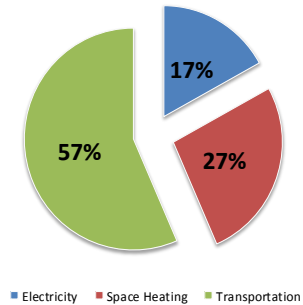
Input

| | | |
|-------------------------------|------------------|------------|
| Location: | Juneau | |
| Building Size: | 1600 | sq feet |
| Space Heating Type: | Biomass, Pellets | |
| Space Heating Cost: | \$310.00 | per TON |
| Residential Electricity Rate: | \$0.11 | per kWh |
| PCE Eligible: | NO | |
| PCE Rate: | \$0.00 | per kWh |
| Gasoline Price: | \$3.43 | per gallon |

Note: If Space Heating Type is Electricity, Space Heating Costs should equal Residential Electricity Rate

Output

| | Annual Costs | Monthly Costs |
|----------------------|----------------|---------------|
| Electricity Costs | \$994 | \$83 |
| Heating Costs | \$1,553 | \$129 |
| Transportation Costs | \$3,311 | \$276 |
| TOTAL | \$5,858 | \$488 |



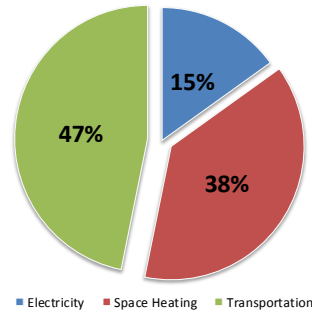
Input

| | | |
|-------------------------------|-----------------|------------|
| Location: | Juneau | |
| Building Size: | 1600 | sq feet |
| Space Heating Type: | Heating Fuel #1 | |
| Space Heating Cost: | \$3.69 | per gallon |
| Residential Electricity Rate: | \$0.11 | per kWh |
| PCE Eligible: | NO | |
| PCE Rate: | \$0.00 | per kWh |
| Gasoline Price: | \$3.43 | per gallon |

Note: If Space Heating Type is Electricity, Space Heating Costs should equal Residential Electricity Rate

Output

| | Annual Costs | Monthly Costs |
|----------------------|----------------|---------------|
| Electricity Costs | \$1,067 | \$89 |
| Heating Costs | \$2,694 | \$225 |
| Transportation Costs | \$3,311 | \$276 |
| TOTAL | \$7,073 | \$589 |



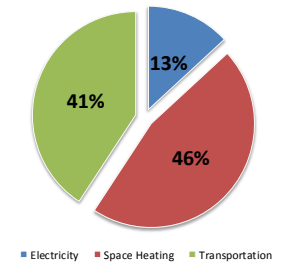
Input

| | | |
|-------------------------------|-----------------|------------|
| Location: | Juneau | |
| Building Size: | 1600 | sq feet |
| Space Heating Type: | Heating Fuel #1 | |
| Space Heating Cost: | \$5.13 | per gallon |
| Residential Electricity Rate: | \$0.11 | per kWh |
| PCE Eligible: | NO | |
| PCE Rate: | \$0.07 | per kWh |
| Gasoline Price: | \$3.43 | per gallon |

Note: If Space Heating Type is Electricity, Space Heating Costs should equal Residential Electricity Rate

Output

| | Annual Costs | Monthly Costs |
|----------------------|----------------|---------------|
| Electricity Costs | \$1,067 | \$89 |
| Heating Costs | \$3,746 | \$312 |
| Transportation Costs | \$3,311 | \$276 |
| TOTAL | \$8,124 | \$677 |



27.9% realized savings over "No Implementation"

14.9% increase from 2011

Angoon Home Budget

2016 Full Implementation

2011 Base Case

2016 No Implementation

Input

| | | |
|-------------------------------|------------------|------------|
| Location: | Angoon | |
| Building Size: | 1200 | sq feet |
| Space Heating Type: | Biomass, Pellets | |
| Space Heating Cost: | \$350.00 | per TON |
| Residential Electricity Rate: | \$0.61 | per kWh |
| PCE Eligible: | YES | |
| PCE Rate: | \$0.41 | per kWh |
| Gasoline Price: | \$4.53 | per gallon |

Note: If Space Heating Type is Electricity, Space Heating Costs should equal Residential Electricity Rate

Input

| | | |
|-------------------------------|-----------------|------------|
| Location: | Angoon | |
| Building Size: | 1200 | sq feet |
| Space Heating Type: | Heating Fuel #1 | |
| Space Heating Cost: | \$4.60 | per gallon |
| Residential Electricity Rate: | \$0.61 | per kWh |
| PCE Eligible: | YES | |
| PCE Rate: | \$0.41 | per kWh |
| Gasoline Price: | \$4.53 | per gallon |

Note: If Space Heating Type is Electricity, Space Heating Costs should equal Residential Electricity Rate

Input

| | | |
|-------------------------------|-----------------|------------|
| Location: | Angoon | |
| Building Size: | 1200 | sq feet |
| Space Heating Type: | Heating Fuel #1 | |
| Space Heating Cost: | \$5.60 | per gallon |
| Residential Electricity Rate: | \$0.61 | per kWh |
| PCE Eligible: | YES | |
| PCE Rate: | \$0.41 | per kWh |
| Gasoline Price: | \$4.53 | per gallon |

Note: If Space Heating Type is Electricity, Space Heating Costs should equal Residential Electricity Rate

Output

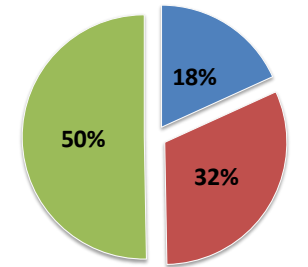
| | Annual Costs | Monthly Costs |
|----------------------|----------------|---------------|
| Electricity Costs | \$1,267 | \$106 |
| Heating Costs | \$2,192 | \$183 |
| Transportation Costs | \$3,499 | \$292 |
| TOTAL | \$6,958 | \$580 |

Output

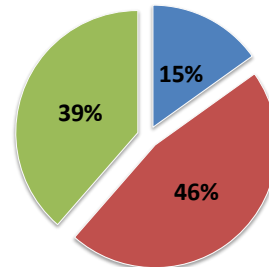
| | Annual Costs | Monthly Costs |
|----------------------|----------------|---------------|
| Electricity Costs | \$1,370 | \$114 |
| Heating Costs | \$4,198 | \$350 |
| Transportation Costs | \$3,499 | \$292 |
| TOTAL | \$9,067 | \$756 |

Output

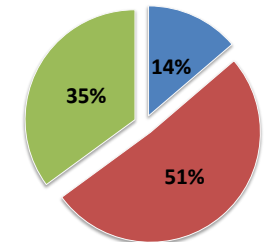
| | Annual Costs | Monthly Costs |
|----------------------|----------------|---------------|
| Electricity Costs | \$1,370 | \$114 |
| Heating Costs | \$5,111 | \$426 |
| Transportation Costs | \$3,499 | \$292 |
| TOTAL | \$9,980 | \$832 |



■ Electricity ■ Space Heating ■ Transportation



■ Electricity ■ Space Heating ■ Transportation



■ Electricity ■ Space Heating ■ Transportation

30.3% realized savings over "No Implementation"

10.1% increase from 2011

POW Island (Craig) Home Budget

2016 Full Implementation

2011 Base Case

2016 No Implementation

Input

| | | |
|-------------------------------|-------------------------|------------|
| Location: | Prince of Wales (Craig) | |
| Building Size: | 1200 | sq feet |
| Space Heating Type: | Biomass, Pellets | |
| Space Heating Cost: | \$350.00 | per TON |
| Residential Electricity Rate: | \$0.22 | per kWh |
| PCE Eligible: | YES | |
| PCE Rate: | \$0.07 | per kWh |
| Gasoline Price: | \$3.64 | per gallon |

Note: If Space Heating Type is Electricity, Space Heating Costs should equal Residential Electricity Rate

Input

| | | |
|-------------------------------|-------------------------|------------|
| Location: | Prince of Wales (Craig) | |
| Building Size: | 1200 | sq feet |
| Space Heating Type: | Heating Fuel #1 | |
| Space Heating Cost: | \$3.59 | per gallon |
| Residential Electricity Rate: | \$0.22 | per kWh |
| PCE Eligible: | YES | |
| PCE Rate: | \$0.07 | per kWh |
| Gasoline Price: | \$3.64 | per gallon |

Note: If Space Heating Type is Electricity, Space Heating Costs should equal Residential Electricity Rate

Input

| | | |
|-------------------------------|-------------------------|------------|
| Location: | Prince of Wales (Craig) | |
| Building Size: | 1200 | sq feet |
| Space Heating Type: | Heating Fuel #1 | |
| Space Heating Cost: | \$5.48 | per gallon |
| Residential Electricity Rate: | \$0.22 | per kWh |
| PCE Eligible: | YES | |
| PCE Rate: | \$0.07 | per kWh |
| Gasoline Price: | \$3.64 | per gallon |

Note: If Space Heating Type is Electricity, Space Heating Costs should equal Residential Electricity Rate

Output

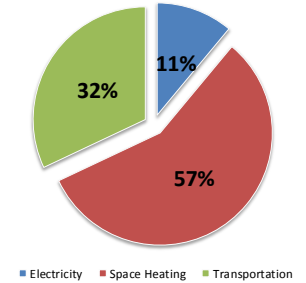
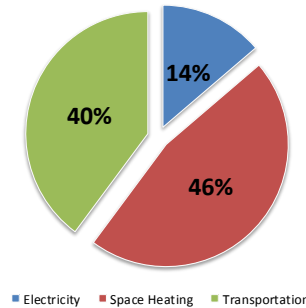
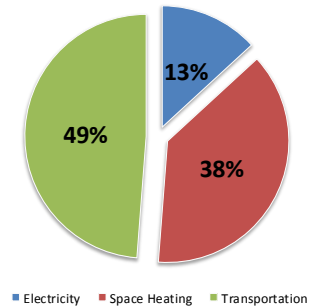
| | Annual Costs | Monthly Costs |
|----------------------|----------------|---------------|
| Electricity Costs | \$759 | \$63 |
| Heating Costs | \$2,192 | \$183 |
| Transportation Costs | \$2,811 | \$234 |
| TOTAL | \$5,762 | \$480 |

Output

| | Annual Costs | Monthly Costs |
|----------------------|----------------|---------------|
| Electricity Costs | \$970 | \$81 |
| Heating Costs | \$3,277 | \$273 |
| Transportation Costs | \$2,811 | \$234 |
| TOTAL | \$7,057 | \$588 |

Output

| | Annual Costs | Monthly Costs |
|----------------------|----------------|---------------|
| Electricity Costs | \$970 | \$81 |
| Heating Costs | \$5,002 | \$417 |
| Transportation Costs | \$2,811 | \$234 |
| TOTAL | \$8,782 | \$732 |



34.4% realized savings over "No Implementation"

24.5% increase from 2011

YEARLY UTILITY EXPENDITURES AS A % OF HOUSEHOLD INCOME (BY COMMUNITY)

| <i>Prince of Wales Island (Craig)</i> | (\$) | (% of income) | <i>Angoon</i> | (\$) | (% of income) | <i>Juneau</i> | (\$) | (% of income) |
|--|----------|---------------|--|----------|---------------|--|----------|---------------|
| Yearly Household Income: | \$28,479 | | Yearly Household Income: | \$28,479 | | Yearly Household Income: | \$48,062 | |
| Yearly Utility Costs 2011: | \$7,057 | 24.8% | Yearly Utility Costs 2011: | \$9,067 | 31.8% | Yearly Utility Costs 2011: | \$7,073 | 14.7% |
| Yearly Utility Costs 2016 (no implementation): | \$8,782 | 30.8% | Yearly Utility Costs 2016 (no implementation): | \$9,980 | 35.0% | Yearly Utility Costs 2016 (no implementation): | \$8,124 | 16.9% |
| Yearly Utility Costs 2016 (full implementation): | \$5,762 | 20.2% | Yearly Utility Costs 2016 (full implementation): | \$6,958 | 24.4% | Yearly Utility Costs 2016 (full implementation): | \$5,858 | 12.2% |