

**Appendix 6  
Purpose and Need Presentation**



## **Integrated Resource Planning (IRP)**

In the early 1990s, the Idaho and Oregon public utilities commissions began requiring utilities to file an Integrated Resource Plan (IRP).

### **IRP Goals:**

- Identify sufficient resources to reliably serve the growing demand for energy within Idaho Power's service area throughout the 20-year planning period
- Give equal and balanced treatment to both supply-side resources and demand-side measures
- Ensure the portfolio of selected resources balances cost, risk, and environmental concerns
- Involve the public in the planning process in a meaningful way



## **IRP Advisory Council Offers Opportunity for Public Input**

- Beginning with the 2004 IRP, Idaho Power formed the Integrated Resource Plan Advisory Council (IRPAC) to increase public participation in the planning process
- IRP Advisory Council members represent a broad range of customer, governmental, environmental and regulatory interests
- The IRP Advisory Council meets monthly during the preparation of the IRP

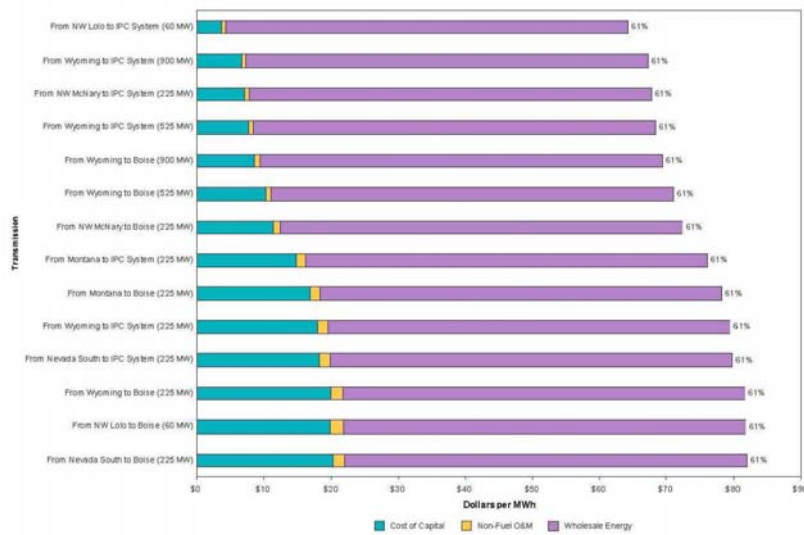


## B2H History in IRP

- In its acceptance of Idaho Power’s 2004 IRP, the Idaho PUC asked Idaho Power to evaluate additional transmission options in the 2006 IRP
- Transmission options analyzed in the 2006 IRP included:
  - McNary to Boise
  - Lolo to Oxbow
  - Wyoming to Boise
  - Montana to Boise
  - Nevada to Boise

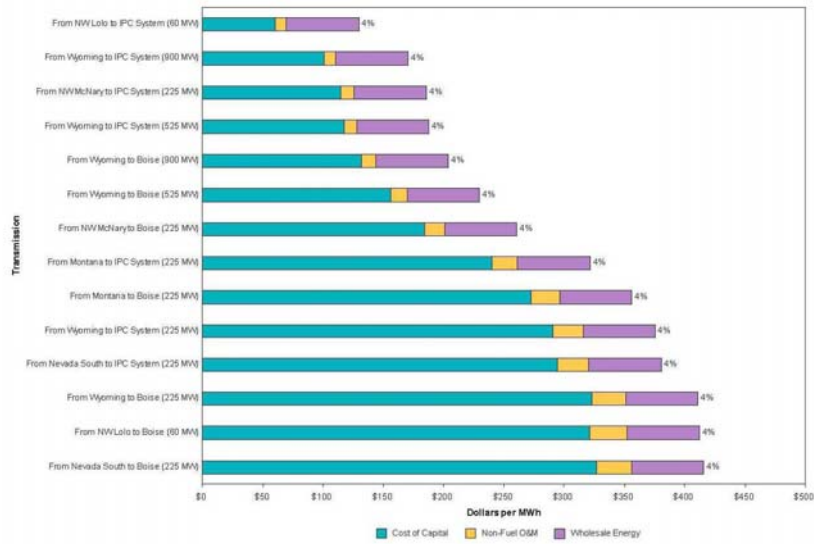


## Levelized Cost (Baseload)





## Levelized Cost (Peaking Service)



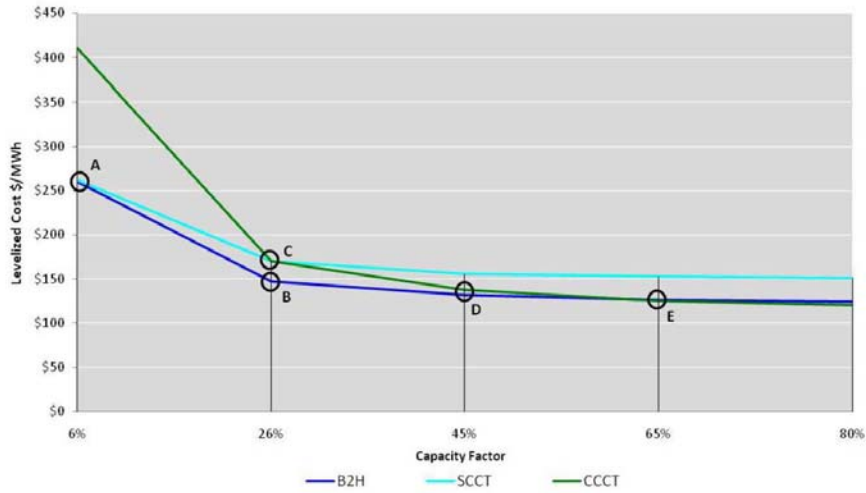
## IRP Cost Comparisons

| Capital Cost (\$/kW) | 2006 IRP | 2009 IRP |
|----------------------|----------|----------|
| CCCT                 | \$693    | \$1,293  |
| B2H                  | \$546    | \$706    |

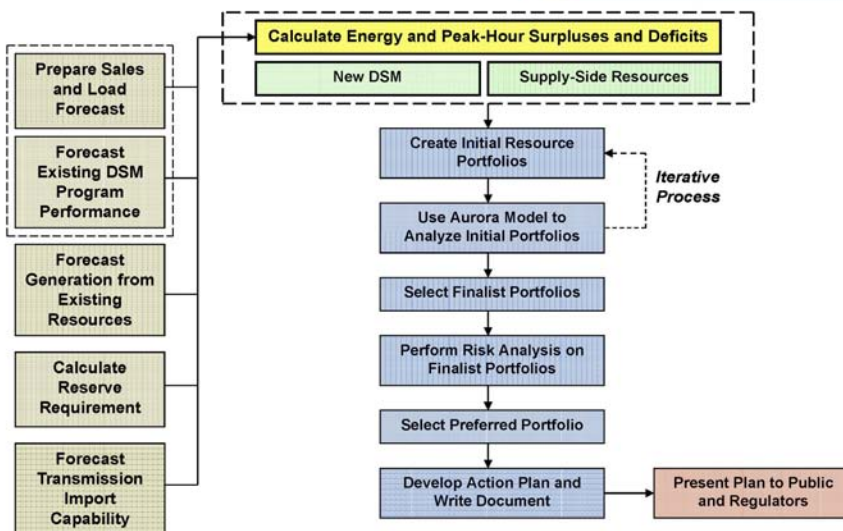
  

| 30-Year Levelized Cost (\$/MWh) | 2006 IRP | 2009 IRP |
|---------------------------------|----------|----------|
| CCCT                            | \$78     | \$125    |
| B2H                             | \$72     | \$125    |

## Current Levelized Cost Comparison



## IRP Process Flowchart





## Average Energy Load and Resource Balance

| Average Energy   | 2015    |         |         |         |         |         |         |         |         |         |         |         |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Load and Resource Balance  | Jan-15  | Feb-15  | Mar-15  | Apr-15  | May-15  | Jun-15  | Jul-15  | Aug-15  | Sep-15  | Oct-15  | Nov-15  | Dec-15  |
| Load Forecast (70th%) - May 2009                                     | (2,239) | (2,068) | (1,824) | (1,810) | (2,002) | (2,435) | (2,793) | (2,546) | (2,101) | (1,793) | (1,965) | (2,307) |
| Existing DSM   | 67      | 67      | 68      | 70      | 78      | 95      | 96      | 93      | 74      | 68      | 68      | 67      |
| Net Load Forecast (70th%) w/DSM                                      | (2,171) | (2,001) | (1,756) | (1,740) | (1,925) | (2,340) | (2,698) | (2,453) | (2,027) | (1,725) | (1,897) | (2,239) |
| <b>Existing Resources</b>  |         |         |         |         |         |         |         |         |         |         |         |         |
| Coal   | 938     | 938     | 868     | 777     | 728     | 933     | 938     | 938     | 938     | 937     | 938     | 938     |
| Hydro (70th%) - HCC  | 654     | 537     | 588     | 684     | 837     | 669     | 460     | 358     | 409     | 395     | 364     | 474     |
| Hydro (70th%) - Other  | 214     | 300     | 252     | 240     | 327     | 338     | 246     | 242     | 233     | 216     | 202     | 206     |
| Shoshone Falls Upgrade   | 6       | 31      | 14      | 1       | 19      | 22      | 0       | 0       | 0       | 0       | 0       | 3       |
| Total Hydro (70th%)  | 874     | 869     | 864     | 935     | 1,183   | 1,029   | 706     | 599     | 642     | 611     | 567     | 683     |
| CSPP (including wind)  | 101     | 120     | 130     | 148     | 185     | 195     | 181     | 174     | 172     | 146     | 120     | 125     |
| <b>Power Purchase Agreements</b>                                     |         |         |         |         |         |         |         |         |         |         |         |         |
| Elkhorn Valley Wind  | 34      | 33      | 34      | 35      | 30      | 37      | 37      | 33      | 29      | 35      | 32      | 44      |
| Raft River Geothermal  | 10      | 10      | 10      | 10      | 10      | 10      | 10      | 10      | 10      | 10      | 10      | 10      |
| PPS/Montana - Jefferson (83 MW)                                      | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| East Side Purchase (50 MW)   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| Mead Purchase  | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| Total Power Purchase Agreements                                      | 44      | 43      | 44      | 45      | 40      | 47      | 47      | 43      | 39      | 45      | 42      | 54      |
| <b>Firm Pacific NW Import Capability (Actuals Through Sept 2010)</b> |         |         |         |         |         |         |         |         |         |         |         |         |
| Langley Gulch  | 202     | 379     | 446     | 290     | 335     | 222     | 103     | 172     | 167     | 214     | 354     | 297     |
| Boardman to Hemingway  | 0       | 0       | 0       | 0       | 0       | 225     | 225     | 225     | 225     | 225     | 225     | 225     |
| Gas Peakers  | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| Subtotal   | 2,411   | 2,601   | 2,603   | 2,445   | 2,721   | 2,893   | 2,452   | 2,403   | 2,434   | 2,429   | 2,497   | 2,573   |
| Monthly Surplus/Deficit  | 239     | 600     | 847     | 706     | 795     | 554     | (216)   | (50)    | 407     | 705     | 600     | 334     |
| <b>2009 IEP DSM</b>  |         |         |         |         |         |         |         |         |         |         |         |         |
| Industrial   | 4       | 4       | 4       | 4       | 4       | 4       | 4       | 4       | 4       | 4       | 4       | 4       |
| Commercial   | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       |
| Residential  | 2       | 2       | 2       | 2       | 2       | 2       | 2       | 2       | 2       | 2       | 2       | 2       |
| Total New DSM Average Energy   | 13      | 13      | 13      | 13      | 13      | 12      | 12      | 12      | 13      | 13      | 13      | 13      |
| Monthly Surplus/Deficit w/New DSM                                    | 252     | 613     | 850     | 719     | 809     | 566     | (204)   | (38)    | 420     | 719     | 613     | 346     |



## Peak-Hour Load and Resource Balance

| Peak-Hour  | 2015    |         |         |         |         |         |         |         |         |         |         |         |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Load and Resource Balance  | Jan-15  | Feb-15  | Mar-15  | Apr-15  | May-15  | Jun-15  | Jul-15  | Aug-15  | Sep-15  | Oct-15  | Nov-15  | Dec-15  |
| Load Forecast (95th%) - May 2009                                     | (2,895) | (2,715) | (2,436) | (2,166) | (3,173) | (3,755) | (3,962) | (3,563) | (3,294) | (2,335) | (2,618) | (3,113) |
| Existing DSM   | 62      | 62      | 68      | 70      | 78      | 122     | 122     | 163     | 16      | 68      | 68      | 62      |
| Peak-Hour Load Forecast  | (2,827) | (2,647) | (2,368) | (2,096) | (3,045) | (3,581) | (3,787) | (3,400) | (3,222) | (2,266) | (2,550) | (3,044) |
| <b>Existing Resources</b>  |         |         |         |         |         |         |         |         |         |         |         |         |
| Coal   | 982     | 982     | 816     | 816     | 761     | 982     | 982     | 982     | 982     | 982     | 982     | 982     |
| Hydro (90th%) - HCC  | 1,079   | 847     | 555     | 680     | 1,189   | 1,115   | 1,035   | 945     | 1,035   | 765     | 600     | 786     |
| Hydro (90th%) - Other  | 197     | 199     | 190     | 203     | 295     | 307     | 241     | 230     | 207     | 202     | 191     | 196     |
| Shoshone Falls Upgrade   | 2       | 2       | 2       | 2       | 2       | 2       | 2       | 2       | 2       | 2       | 2       | 2       |
| Total Hydro  | 1,278   | 1,048   | 745     | 893     | 1,591   | 1,449   | 1,276   | 1,175   | 1,242   | 968     | 793     | 982     |
| CSPP (including wind)  | 49      | 50      | 55      | 81      | 127     | 137     | 141     | 136     | 119     | 87      | 62      | 57      |
| <b>Power Purchase Agreements</b>                                     |         |         |         |         |         |         |         |         |         |         |         |         |
| Elkhorn Valley Wind  | 5       | 5       | 5       | 5       | 5       | 5       | 5       | 5       | 5       | 5       | 5       | 5       |
| Raft River Geothermal  | 10      | 10      | 10      | 10      | 10      | 10      | 10      | 10      | 10      | 10      | 10      | 10      |
| PPS/Montana - Jefferson (83 MW)                                      | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| East Side Purchase (50 MW)   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| Mead Purchase  | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| Total Power Purchase Agreements                                      | 15      | 15      | 15      | 15      | 15      | 15      | 15      | 15      | 15      | 15      | 15      | 15      |
| <b>Firm Pacific NW Import Capability (Actuals Through Sept 2010)</b> |         |         |         |         |         |         |         |         |         |         |         |         |
| Langley Gulch  | 300     | 300     | 300     | 300     | 300     | 300     | 300     | 300     | 300     | 300     | 300     | 300     |
| Boardman to Hemingway  | 0       | 0       | 0       | 0       | 0       | 225     | 225     | 225     | 225     | 225     | 225     | 225     |
| Gas Peakers  | 416     | 416     | 416     | 416     | 416     | 416     | 416     | 416     | 416     | 416     | 416     | 416     |
| Subtotal   | 3,242   | 3,190   | 2,793   | 2,811   | 3,462   | 3,737   | 3,458   | 3,421   | 3,466   | 3,207   | 3,145   | 3,274   |
| Monthly Surplus/Deficit  | 0       | 0       | 0       | 0       | 0       | 0       | (325)   | 0       | 0       | 0       | 0       | 0       |
| <b>2009 IEP DSM</b>  |         |         |         |         |         |         |         |         |         |         |         |         |
| AC Cool Credit   | 0       | 0       | 0       | 0       | 0       | 5       | 5       | 5       | 0       | 0       | 0       | 0       |
| Commercial (ENERNOC)   | 0       | 0       | 0       | 0       | 0       | 57      | 57      | 57      | 0       | 0       | 0       | 0       |
| Irrigation Peak Rewards  | 0       | 0       | 0       | 0       | 0       | 228     | 226     | (24)    | 0       | 0       | 0       | 0       |
| Energy Efficiency Peak Reduction                                     | 0       | 0       | 0       | 0       | 0       | 12      | 12      | 12      | 0       | 0       | 0       | 0       |
| Total New DSM Peak Reduction   | 0       | 0       | 0       | 0       | 0       | 302     | 300     | 49      | 0       | 0       | 0       | 0       |
| Monthly Surplus/Deficit w/New DSM                                    | 0       | 0       | 0       | 0       | 0       | 0       | (30)    | 0       | 0       | 0       | 0       | 0       |



## Load Forecast Performance

Monthly Average Load Forecast (50th Percentile)

