


# Haida Gwaii Community Electricity Plan


Standing Technical Committee  
Meeting #2

October 2, 2007




## AGENDA

- Review of Process To-Date (Esmeralda)
- Key Findings (Samantha)
- Proposed DSM Recommendations
- Additional Input from STC
- Wrap-Up




## What Has Happened So Far?

- Convened Working Group
- Established Standing Technical Committee
- Working Group, Technical and Public Sessions
- Data Collection
- Technical Assessments of DSM Measures
- Decision Analysis





## Public Sessions: Round 1

- First Round held Feb. 26 – March 3, 2007
  - Residents' views on what communities would look like in 2027
  - Identified community issues as these relate to electricity supply



## Standing Technical Committee


- First Meeting – April 27, 2007 – Tiell
  - Discussed electricity supply options and conservation measures applicable to the islands
  - Informed the development of the bundles and the estimates of bundle performance
  - Led to evaluation of DSM options



## What did we do with the Information gathered?


**1. Developed Evaluation Criteria**

| Interest Area           | Evaluation Criteria                  | Units                         | What's Better? |
|-------------------------|--------------------------------------|-------------------------------|----------------|
| Cost                    | Unit Energy Cost                     | \$/MWh                        | L              |
| Service Quality         | Index                                | #                             | H              |
| GHG Emissions           | CO <sub>2</sub> equivalent emissions | Kilotons/yr CO <sub>2</sub> e | L              |
| Local Air Emissions     | PM <sub>10</sub>                     | Tons/yr (PM <sub>10</sub> )   | L              |
| Land Area               | Land Area                            | mf (000)                      | L              |
| Aquatic Area            | Aquatic Area                         | mf (000)                      | L              |
| Jobs                    | Construction Jobs                    | Person-years                  | H              |
| Jobs                    | Permanent Jobs                       | FT equivalent                 | H              |
| Noise                   | Noise Scale (0=Best, 10=Worst)       | Scale (1-10)                  | L              |
| Visual Impacts          | Visual Impact Scale                  | Scale (1-10)                  | L              |
| Food Harvesting Impacts | Food Harvesting Impact Scale         | Scale (0-10)                  | L              |
| Innovation Leadership   | Innovation Scale                     | Scale (0-10)                  | L              |
| Sustainability          | % Reliance on Diesel                 | %                             | L              |




## What did we do with the Information gathered?

2. Developed bundles that formed the basis for discussion with the Working Group
3. Estimated performance of bundles
4. Working Group Meeting: Structured Decision-Making Workshop




## Structured Decision-Making

- Reviewed Preliminary Information on criteria and bundle performance
- Participated in Ranking Exercises
  - Direct Ranking
  - Swing Weighting
- Discussion about Members' preferences
- Created New Bundles




## Top Six Attributes

1. Greenhouse Gas Emissions
2. Food Harvesting Impacts
3. Unit Energy cost
4. Aquatic Area Impact
5. % Dependable Peak by Renewables
6. Local Air Emissions




## Results of Working Group Session

- **Bundle D – Connect Grids**
  - 3.3 MW Biomass/16% Reliance on Diesel/DSM
- **Bundle C – Mix 3**
  - 2.6 MW biomass/2 MW Land-based
  - Wind/17% Reliance on Diesel/DSM




## Made-up Bundles

- **Big Wind – 6 MW Land-Based Wind**  
Existing 5.7 MW Small Hydro; DSM – 40% of existing 50% of growth; 34% Reliance on Diesel
- **Big Tidal – 9 MW Tidal**  
Existing 5.7 MW Small Hydro; DSM – 40% of existing 50% of growth; 34% Reliance on Diesel
- **Hydro Plus – Additional Small Hydro 3.5 MW**  
Existing 5.7 MW Small Hydro; DSM – 40% of existing 50% of growth; 34% Reliance on Diesel
- **Ultra DSM – 60% Reduction in Existing; 75% of Future Growth**  
Existing 5.7 MW Small Hydro; DSM – 40% of existing 50% of growth; 29% Reliance on Diesel




## Sample Bundles

| Attribute                         | Bundle B | Bundle C | Bundle D |
|-----------------------------------|----------|----------|----------|
| **Unit Energy Cost (L)            | M        | L        | M        |
| **GHG Emissions (L)               | L        | L        | L        |
| **Local Air Emissions (L)         | M        | H        | H        |
| Land Area Impacts (L)             | M        | L        | L        |
| **Aquatic Area Impacts (L)        | H        | L        | L        |
| Creation of Construction Jobs (H) | H        | H        | H        |
| Creation of Permanent Jobs (H)    | H        | H        | H        |
| Noise Impacts (L)                 | L        | M        | M        |
| Visual Impacts (L)                | M        | M        | M        |
| **Food Harvesting Impacts (L)     | H        | M        | L        |
| Level of Innovation (H)           | L        | M        | L        |
| **Reliance on Diesel (L)          | L        | L        | L        |




## Public Sessions: Round 2

- **Second Round: July 3-6, 2007**
  - Review Characterization of Resource Options
  - Discuss Attributes and Identify/Confirm Preferences
  - Discuss Demand Side Management Options




## Top Six Attributes

- GHG Emissions
- Local Air Emissions
- Aquatic Area Impacts
- Creation of Permanent Jobs
- Food Harvesting Impacts
- Reliance on Diesel




## Results of Public Sessions

- **Bundle D – Connect Grids**
  - 3.3 MW Biomass/16% Reliance on Diesel/DSM
- **Bundle C – Mix 3**
  - 2.6 MW biomass/2 MW Land-based
  - Wind/17% Reliance on Diesel/DSM
- Big Tidal was the next preferred bundle and showed similar results to the Working Group
- To be reviewed by Working Group – Oct. 3, 2007




## Preferred Attributes of Working Group and Public

- Food Harvesting Impacts
- Greenhouse Gas Emissions
- Reliance on Diesel/ Dependence on Renewables
- Local Air Emissions
- Unit Energy Cost
- Aquatic Area Impacts, and
- Creation of Permanent Jobs




## STC Meeting #2

- Review the key findings to date
- Confirm DSM Recommendations
- Obtain additional input




## Next Steps

- **Discuss results of Public Sessions and STC Meeting with Working Group**
  - Oct. 3 – Masset
- **Draft final plan**




## Residential End Use Survey

- **80% of respondents feel “there is not very much an individual can do...” and “...see little reason to conserve”**
  - Surprising – anecdotal evidence suggested residents interested in reducing personal electricity cost and diesel generator usage.
- **Residents do conserve**
  - 59% turn down the thermostat at night
  - 50% wash their laundry in cold water and only do full loads
  - 88% turn the lights off when no one is in a room
  - Over 80% turn off their TVs and computers when they are not being used




## Key Findings

- **Residential DSM Potential**
  - **Technical & Economic Potential**
    - 42% reduction in electricity use, or 4,600 kWh/yr in typical existing home
  - **Achievable Potential**
    - Closer to 39%
  - **DSM measures**
    - Electric DHW, major appliances, household electronics, lighting




## Key Findings

- **39 - 42% reduction in annual residential electricity consumption saves approximately:**
  - \$2.6 million at current generation costs
  - 10,000 MWh
  - 20% reduction of total current system MWh (based on 2006 consumption)



## Key Findings


- **Commercial Sector**
  - **Building stock**
    - residential buildings modified for commercial business activity or small, stand-alone retail
  - **Opportunities**
    - lighting, refrigeration equipment, pumps and fans
  - **Building audits needed to refine analysis (next step, post-CEP)**



## Key Findings

- **Planning for Scenario 2 – Electricity Use (2027)**
  - 12,500 people, ~5,000 households
  - Includes desired facilities
  - **Total DSM potential 11,000 MWh (mostly residential)**
    - Includes EnergyStar® appliances, retrofits of existing buildings, new built to EnerGuide 80 or higher & ASHRAE 90.1 - 50%

| (MWh)        | Base Case     | BAU            | With DSM       |
|--------------|---------------|----------------|----------------|
| North        | 26,000        | 61,000         | 57,000         |
| South        | 33,000        | 60,000         | 53,000         |
| <b>Total</b> | <b>59,000</b> | <b>121,000</b> | <b>110,000</b> |



## DSM: Barriers & Challenges

- **Perception of expense**
  - perception that energy efficiency (and environmentally friendly) products are more expensive than their regular counterparts
- **Lack of information**
  - on energy conservation and energy conservation programs
- **Inconsistent supply**
  - of energy efficient products in local stores
- **Lack of training**
  - for retailers and staff on energy conservation
- **Attitudes**
  - "I can't do much that will make a difference."



## Achieving the DSM Potential

- need to understand uptake rates, i.e. what incentives are required (more detail needed)
- hire up-to-date building contractors and inspectors
- provide training workshops on-island (on building code and materials)
- provide grants to low income homeowners wishing to audit and upgrade their homes
- develop a time-of-use rate for the non-integrated area
- strong education component - behavioural change is key
- involve local Councils - need to develop new bylaws and strengthen and enforce existing ones



## Discussion Questions

- **What would it take to get broad local support for a DSM initiative?**
  - What level of incentives would get people to change their appliances or retrofit their homes?
- **What is the local trades' capacity and where are improvements needed?**
- **Who are the key suppliers?**

