



## ***Purpose of Presentation***

Starting in mid-1999 there has been a definite upward movement in the price of heating fuel, with significant volatility. Prices have been particularly high during winter months. Recent disruptions in refinery capacity and supply have driven prices to record highs.

Prices are expected to remain high for the coming year.

This presentation addresses changes in energy costs and consumption in the Northwest Territories, with reference to international and national trends.

This presentation also describes current energy programs in the NWT and outlines what the GNWT is doing to address the issues surrounding the high cost of energy.





***Energy Costs***



***Energy Programs in the NWT***

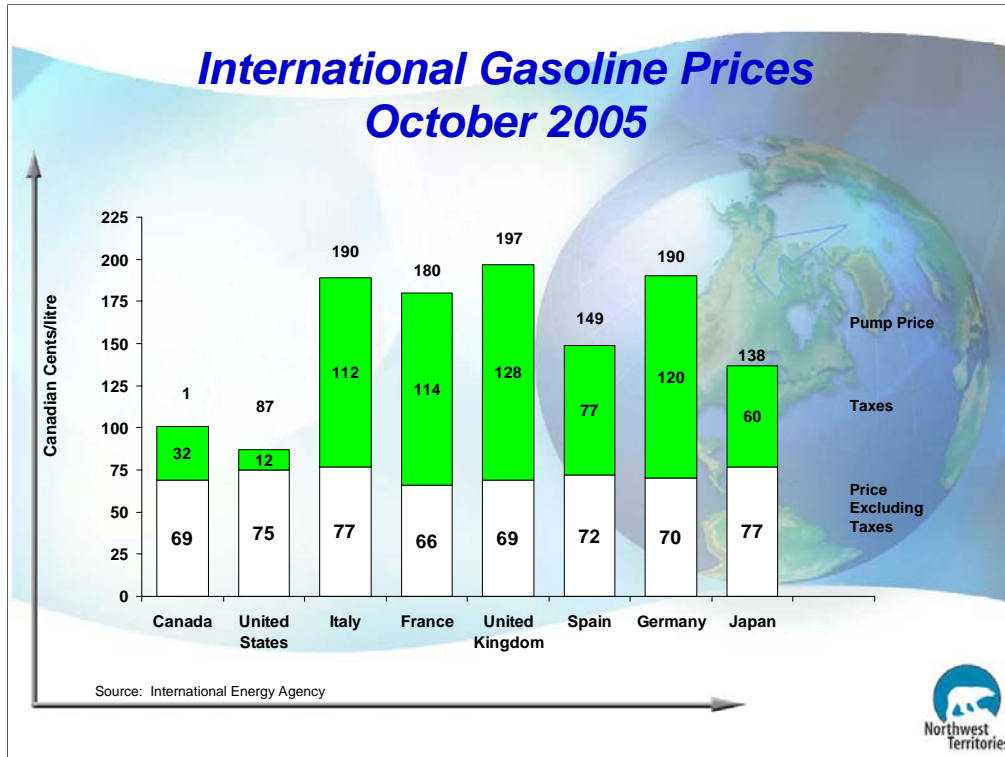


***Conservation and Related Issues***

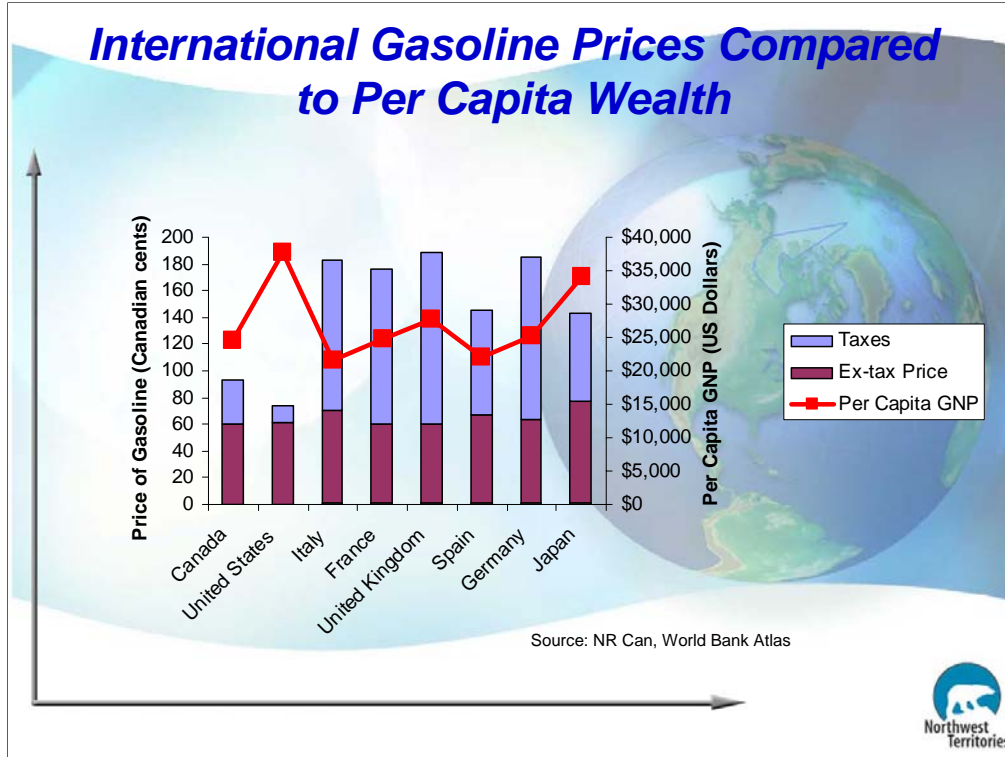


***NWT Energy Framework***

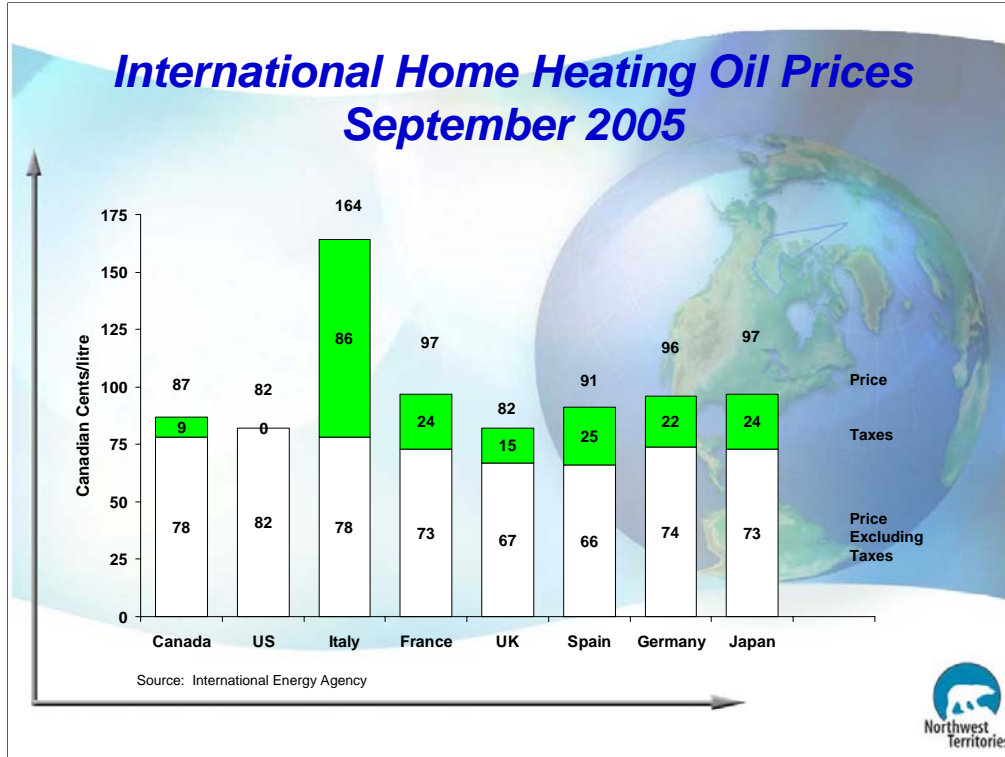




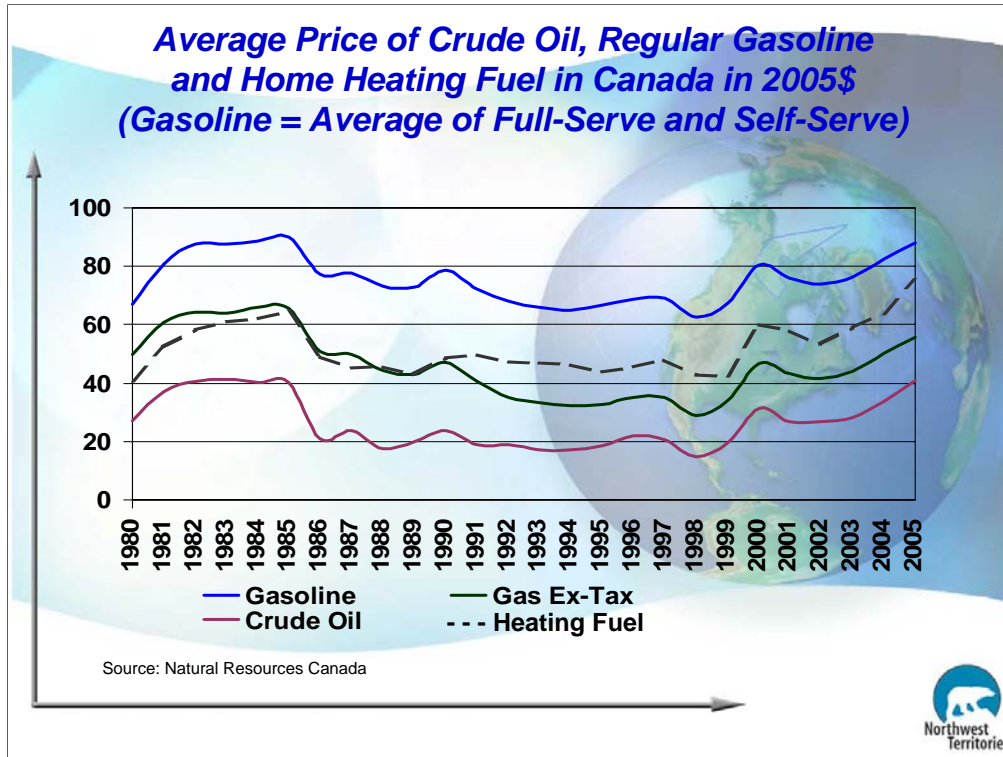
- Note that Canada has one of the lowest costs of gasoline and, for the most part, where countries pay more for gasoline, the differential is comprised of taxes.
- In European countries such as France, Spain and Germany, prices at the pump are substantially higher than North American prices.



- The line in red represents the relative per capita wealth of the countries listed.
- Canadians, and especially Americans, appear to be much better off when considering the ratio of this per capita wealth to the price of gasoline.
- This suggests that the cost of fuel in Europe is relatively much higher than in North America.

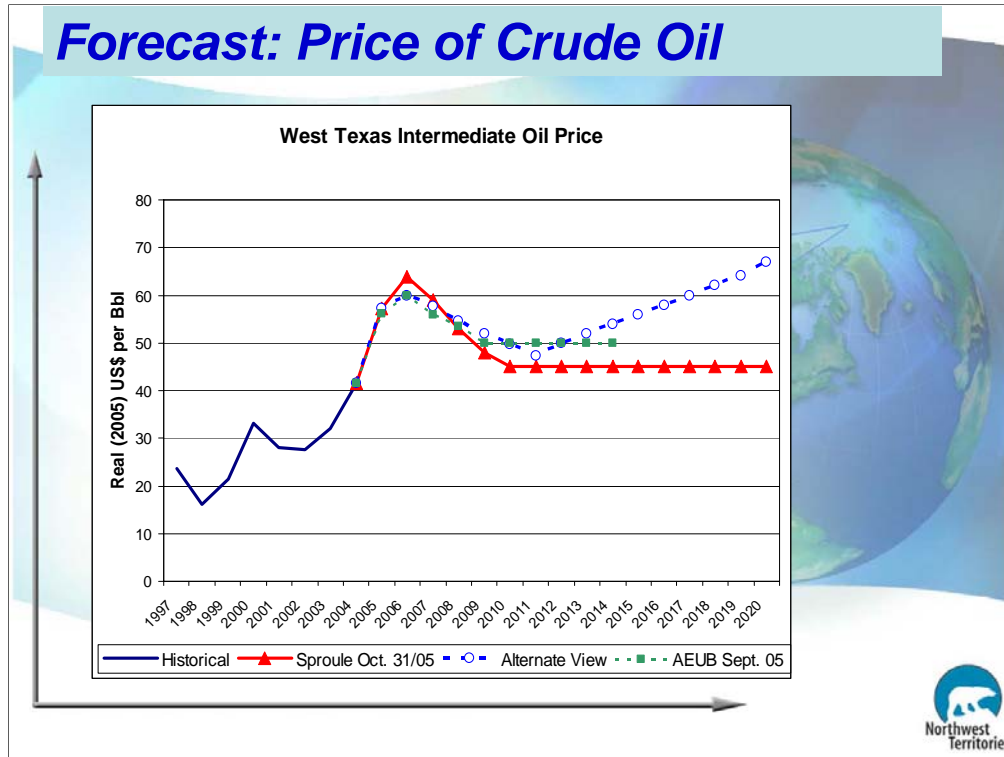


- This slide displays heating oil prices with the tax component.
- Note that Canada has one of the lowest costs of heating oil and, for the most part, where countries pay more for heating oil, the differential is comprised of taxes.

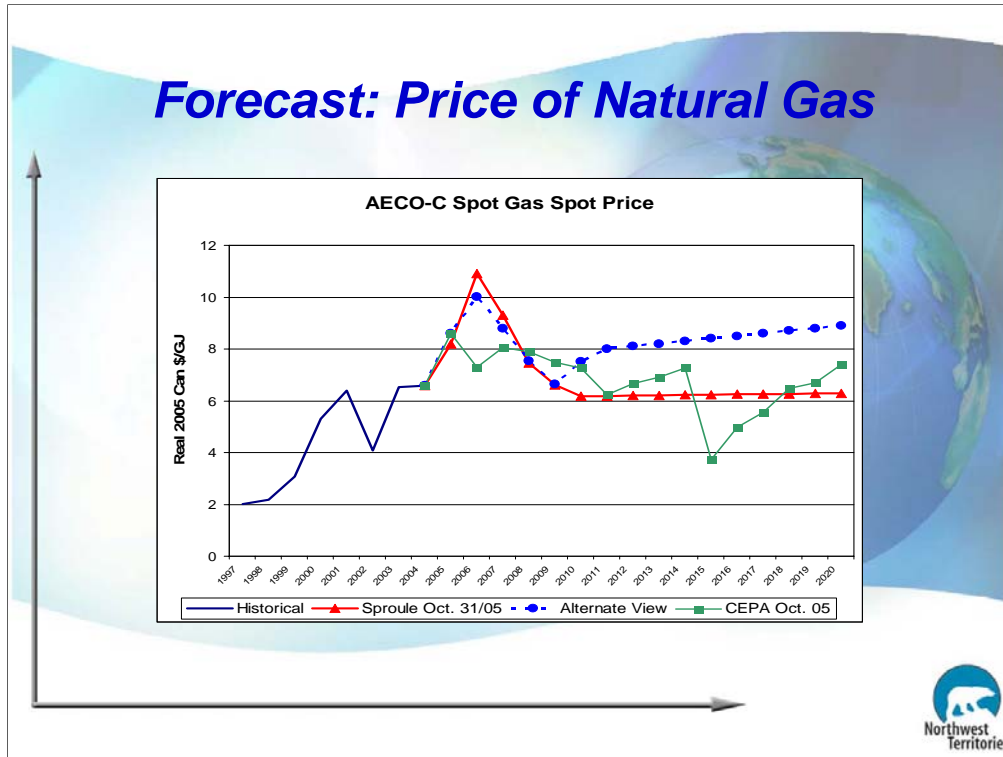


- This slide illustrates the direct relationship between the price of crude oil and some of its most important products – gasoline and home heating fuel.
- This graphic also depicts the cyclical nature of the pricing of crude oil.

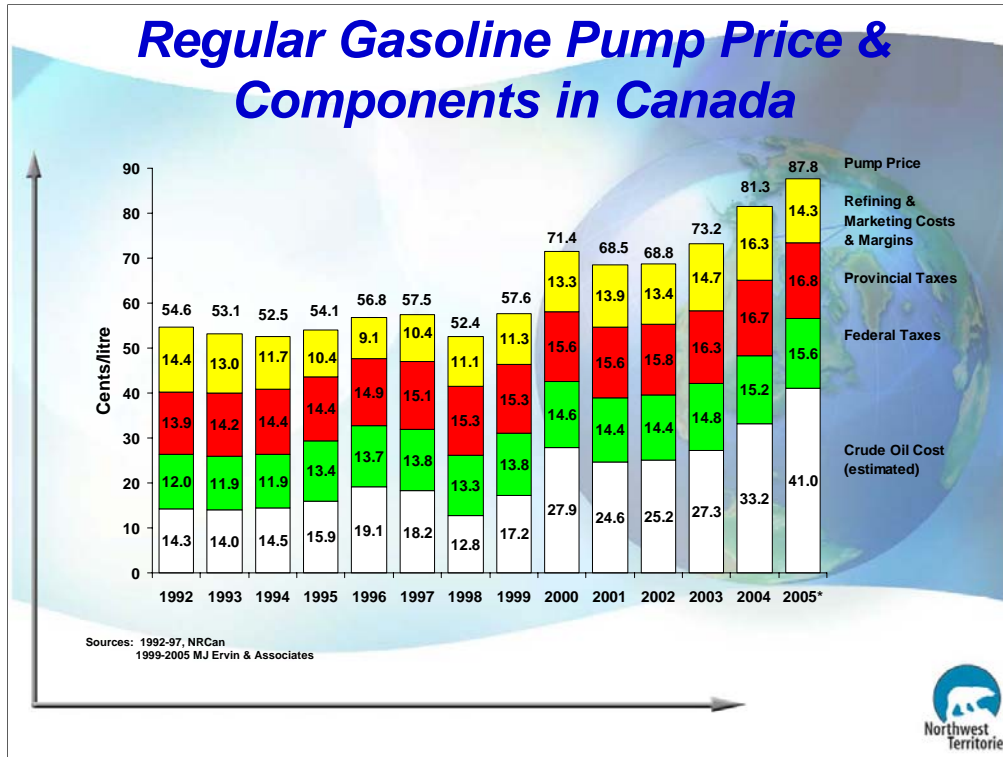
## Forecast: Price of Crude Oil



- Prices remained relatively stable between 1987 and 1998.
- After 1998, prices have steadily increased, widely attributed to the industrialization of countries such as India and China.
- Geopolitical events have at times sparked a sudden increase in prices. Natural disasters, such as the recent hurricanes in the U.S. Gulf Coast will also impact prices.
- Markets usually respond either through increased efforts in enhancing supply, technological advancements, or in the case of the Gulf Coast, a recovery in product transportation and refining capacity.
- However, recent price settlements in the crude oil forward market indicate that prices will likely continue in the US \$50 to \$60 per barrel range through 2007 at least. Beyond 2007, there are different views. In general, however, expectations are that the crude price will not fall below \$45/Bbl. This compares with the \$22/Bbl oil price assumption made by the NEB in 2002 when preparing their update on the long-term outlook for Canadian oil energy supply and demand.
- An "alternate view", based on discussions and analysis of some industry experts, has been provided. The crude oil price forecast was built from the NYMEX forwards to 2010 as of November 5th. From there, the price estimates were developed subjectively based on impressions gained from commentaries by various informed sources (including the International Energy Agency) on the longer-term outlook.
- The "alternate view", therefore, is meant to reflect the view that refined petroleum product demand in China and the other emerging economies is bound to grow strongly in coming years while supply costs are likely to rise, given that a growing percentage of remaining oil reserves will be more costly to develop because of their nature and location.
- Further, the International Energy Agency in the United States is of the view that because global oil transport mileage is growing, there will be increased likelihood of supply uncertainties and disruptions.
- The **key issue** is that prices are widely expected to remain substantially higher than experienced in the 1990's for decades to come – there has likely been a permanent upward shift in the market.

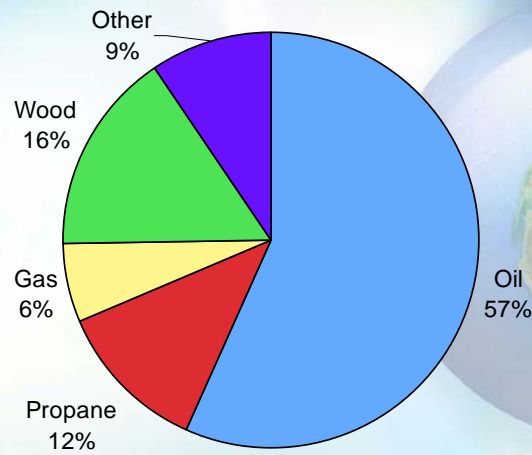


- Like the price of crude oil, the price of natural gas has increased sharply since 1997.
- A key factor in the pricing of natural gas has been the substitution of natural gas for oil, particularly in the generation of electricity in the United States.
- Another important factor in the pricing of natural gas is the decline in natural gas production in many parts of the United States and in Alberta.
- The bottom line is that gas demand continues to grow in spite of higher prices and production is lagging behind increased demand.
- Recent – early November – forward market prices suggest that the Alberta wholesale market gas price could remain well above \$6 per Gigajoule through 2009. This compares with prices in the \$2 to \$3 per Gigajoule range in the 1997 to 1999 period.
- Alternate view: see previous slide for explanation



- This slide reinforces the point that the main factor in the rising price of gasoline is the cost of crude oil.
- Federal and Provincial taxes have essentially remained static, as has the margin or profit that the refineries and the retail market (gas stations) make.
- The Government of Canada – through the Competition Act and its Agency, the Competition Bureau – has the statutory authority to investigate allegations of collusion.
- The Competition Bureau has been closely monitoring the situation since the summer of 2005 and has concluded that there is no collusion occurring – either amongst the large oil companies or the local retailers.
- Gasoline prices are regulated in Quebec, Prince Edward Island and Newfoundland. Each of these jurisdictions has enacted legislation to enable them to regulate prices. Nova Scotia recently enacted legislation but has not implemented it.
- Most evidence suggests that eliminating competition through regulation, while improving price stability, would lead to higher prices for consumers in the long term. Regulatory activity in Newfoundland and Labrador, Prince Edward Island and Quebec has not led to lower prices in these jurisdictions.
- Simply stated, the lack of competition works against customers in that regulation needs to address the wholesale price, establish an estimated profit margin, and the retail price. Individual retailers are not working to purchase wholesale gas from the lowest possible source as the price is regulated.
- Therefore, with regulation, there is a corresponding loss in efficient pricing created through competition. Shifts in costs and demand are not immediately reflected in the price. Ideally, gasoline retailers are competing with one another in the marketplace. And, just like other business people, gasoline retailers want to increase their sales, expand their market share and improve their profitability.

## Fuels Used for Home Heating - 2004



58% of households in Hay River use propane.

In the Deh Cho region many households use wood heat, for example, 80% of households in Nahanni Butte; 77% in Trout Lake and 74% in Wrigley.

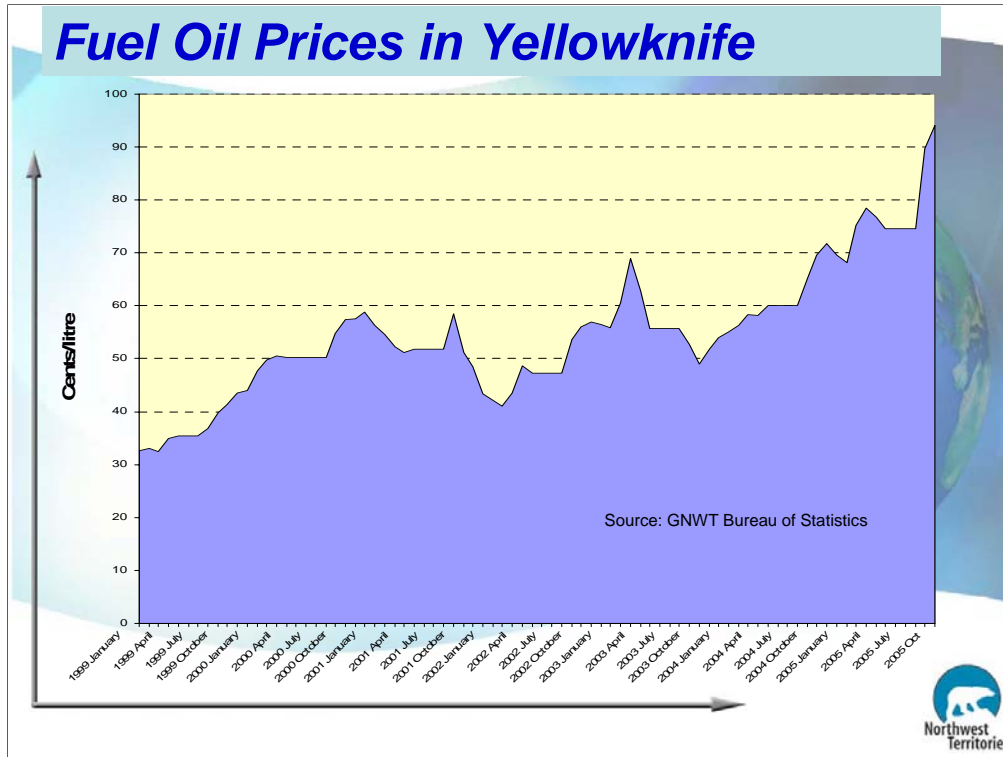
Wood is also important in some remote communities like Wha Ti, Kakisa, Rae Lakes and Colville Lake.

Natural gas is the preferred fuel in Norman Wells (75%) and in Inuvik (56%).

Source: GNWT Bureau of Statistics



While fuel oil is the largest heating source in the NWT, wood supplements other fuels in many households. Wood heat is particularly important in smaller communities.



- Fuel oil prices in Yellowknife have followed the patterns observed internationally and nationally. While prices have spiked in the wake of Hurricane Katrina, the cost for fuel oil will likely decline this winter as industry capacity recovers (and in concert with the drop observed in the price of other petroleum fuels, such as gasoline).
  
- While prices have always responded to seasonal variations (higher in winter and lower in summer), the general trend in the past five years has been upward.
  
- As previously noted, this trend is likely to continue.

## Community Fuel Prices

The Petroleum Products Division provides fuel services in many smaller communities. This table provides a summary of 2004 and 2005 prices, including a reference price for Yellowknife.

	Fuel Oil					Gasoline			
	Price 2004	Price 2005	Change	% Change		Price 2004	Price 2005	Change	% Change
Lutsel k'e	0.87	1.03	0.16	18%	0.87	1.29	0.42	48%	
Wha Ti	1.02	1.02	0	0%	1.30	1.31	0.01	1%	
Gameti	1.07	1.11	0.04	4%	1.37	1.37	0.00	0%	
Wekweti	1.09	1.22	0.13	12%	1.64	1.56	-0.08	-5%	
Jean Marie	0.95	0.99	0.04	4%	1.19	1.40	0.21	18%	
Nahanni Butte	0.92	1.11	0.19	21%	1.15	1.33	0.18	16%	
Trout Lake	0.95	1.08	0.13	14%	1.19	1.25	0.06	5%	
Tulita	0.85	1.01	0.16	19%	1.15	1.40	0.25	22%	
Fort Good Hope	1.05	1.1	0.05	5%	1.17	1.46	0.29	25%	
Deline	0.94	1.07	0.13	14%	1.22	1.29	0.07	6%	
Colville Lake	1.16	1.23	0.07	6%	1.34	1.50	0.16	12%	
Tsiigehtchic	0.93	1.17	0.24	26%	1.20	1.52	0.32	26%	
Sachs Harbour	1.04	1.18	0.14	13%	1.18	1.49	0.31	26%	
Paulatuk	1.07	1.24	0.17	16%	1.20	1.50	0.30	25%	
Holman	1.02	1.18	0.16	16%	1.23	1.44	0.21	17%	
<b>Yellowknife (reference)</b>	<b>0.70</b>	<b>0.95</b>	<b>0.2541</b>	<b>37%</b>	<b>0.97</b>	<b>1.05</b>	<b>0.08</b>	<b>8%</b>	

Source: GNWT Department of Public Works



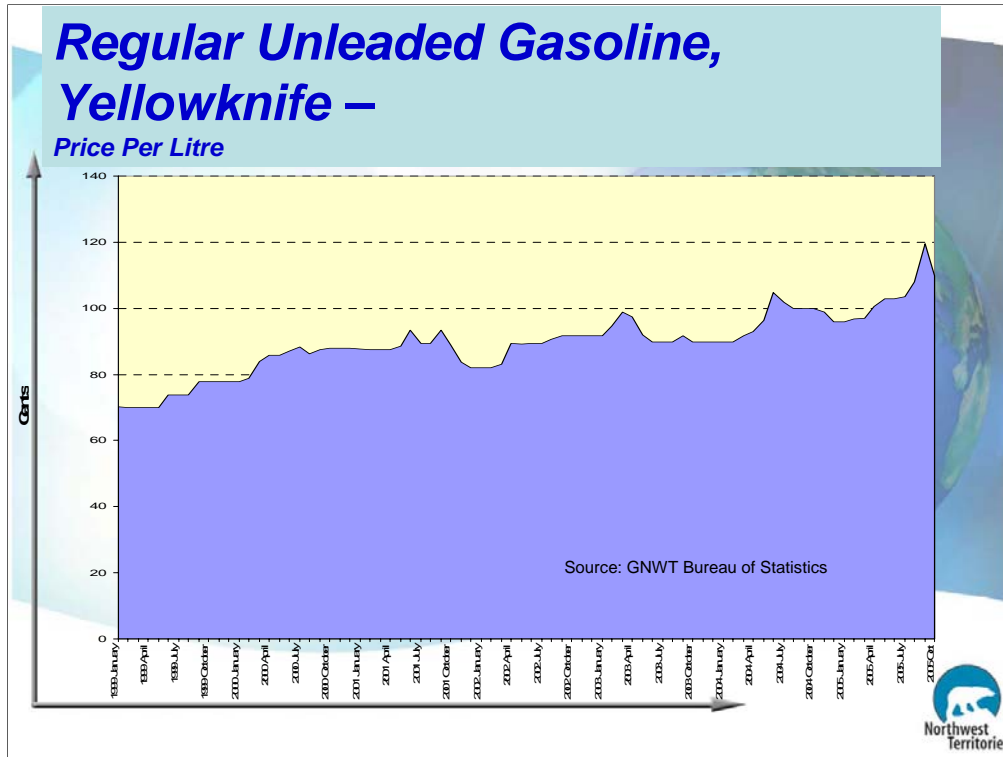
- The GNWT purchases and sells fuel products in remote NWT communities where there is no private sector distributor.
- The recent price increases are the result of moving towards full-cost pricing for each product in each community as well as increased product and transportation costs .
- The move towards full-cost pricing captures all of the administrative and maintenance costs, but financing and capital costs are still absorbed by the GNWT.

## Comparative Fuel Prices in the NWT November, 2005

Community	Gasoline	Vehicle Diesel	Propane	Heating Fuel
YELLOWKNIFE	109.9	115.9	65.3	101.2
HAY RIVER	102.2	111.9	57.8	94.7
NORMAN WELLS	116.9	136.2	n/a	110.2
INUUVIK	119.0	129.0	n/a	114.4

Source: ITI monthly fuel price survey





- In October, we have seen the retail price for gasoline dropping in Yellowknife as refinery production recovers after disruptions caused by Hurricane Katrina.
- However, the global (market) forces that have driven the trend in increased prices since 2000 will likely continue to exert upward pressure on prices in the future.

## NWT Petroleum Product Sales

### Northwest Territories Domestic Sales of Petroleum Products (Cubic Metres)

	2001	2002	2003	2004
Naphtha specialties	79	59	53	64
Aviation gasoline	5,462	4,879	3,568	3,483
Motor gasoline	33,931	33,306	36,576	36,800
Aviation turbo fuel, kerosene type	38,273	38,502	47,420	53,560
Aviation turbo fuel, naphtha type	10,492	9,109	682	223
Stove oil, kerosene	26,855	29,378	27,111	28,897
Diesel fuel oil	199,545	195,107	202,273	219,387
Light fuel oil	55,087	36,774	51,736	47,113
Asphalt	0	0	0	520
Lubricating oils and greases	3,675	3,802	3,778	2,461
<b>Total</b>	<b>373,399</b>	<b>350,916</b>	<b>373,197</b>	<b>392,508</b>

Source: Statistics Canada Table 134-0004



- The price of all petroleum fuels has increased in concert with the rise in the price of crude oil. Industry and business will be affected, especially where fuel is an important cost of doing business.
- In particular, airlines and other transportation industries in which fuel is a major cost have been, and will be, strongly affected.

## Electricity Costs in NWT - 2005

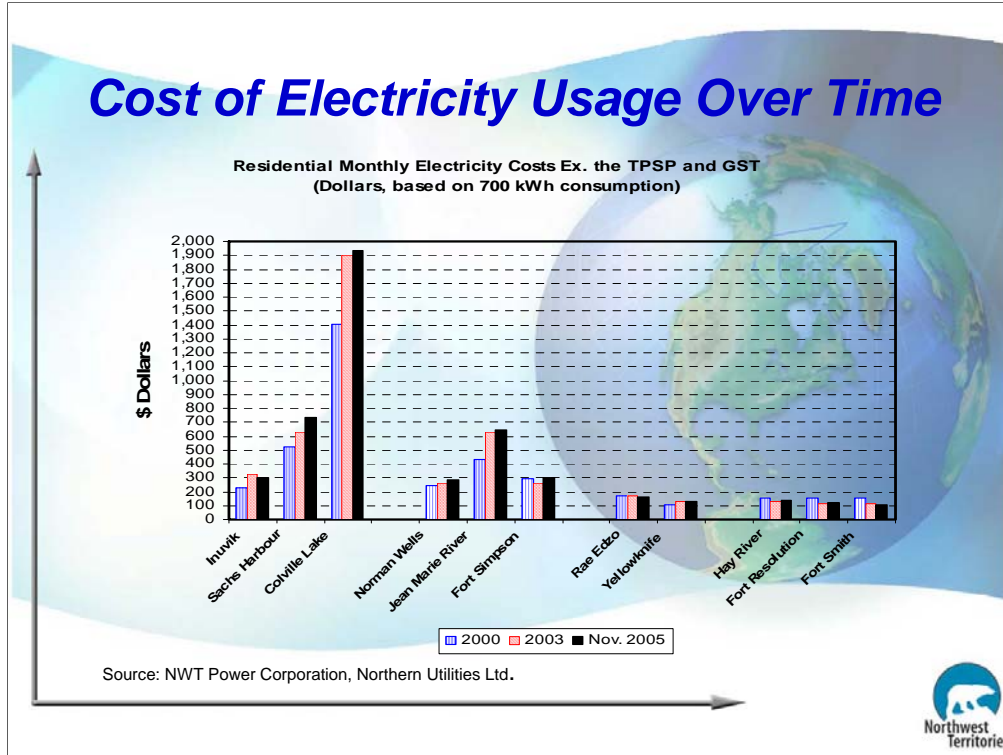
Residential Customer Monthly Electricity Bill Comparison - As at Oct. 31, 2005 (Assuming 700 kWh Consumption)										
	Basic Charge (\$/mo.)	Variable Rate cents/kWh	Rate Riders* cents/kWh	Total Variable Cost (\$)	Municipal Franchise Fee* (\$)	Total Cost Before TPSP Subsidy (\$)	TPSP Subsidy (\$)	Cost with Subsidy (\$)	GST (\$)	Invoice Total (\$)
<b>Yellowknife</b>	15.00	11.72	4.10	110.74	3.31	134.32	nil	134.32	9.40	143.73
Fort Smith	18.00	12.13	0.45	88.06	n. applic.	106.06	nil	106.06	7.42	113.48
Fort Resolution	18.00	14.05	0.45	101.50	n. applic.	119.50	nil	119.50	8.37	127.87
Fort Simpson	18.00	36.80	4.05	285.95	n. applic.	303.95	172.91	131.04	9.17	140.21
Fort Liard	18.00	40.04	3.59	305.41	n. applic.	323.41	192.37	131.04	9.17	140.21
Nahanni Butte	18.00	95.73	4.91	704.48	n. applic.	722.48	591.44	131.04	9.17	140.21
Jean Marie River	18.00	84.58	5.51	630.63	n. applic.	648.63	517.59	131.04	9.17	140.21
Norman Wells	18.00	30.84	7.16	266.00	n. applic.	284.00	152.96	131.04	9.17	140.21
Inuvik	18.00	38.72	2.04	285.32	n. applic.	303.32	172.28	131.04	9.17	140.21
Fort Good Hope	18.00	63.98	3.78	474.32	n. applic.	492.32	361.28	131.04	9.17	140.21
Tulita	18.00	80.32	3.97	590.03	n. applic.	608.03	476.99	131.04	9.17	140.21
Colville Lake	18.00	266.60	7.48	1,918.56	n. applic.	1,936.56	1,805.52	131.04	9.17	140.21
Sachs Harbour	18.00	97.75	4.69	717.08	n. applic.	735.08	604.04	131.04	9.17	140.21
Tsigehtchic	18.00	99.29	4.76	728.35	n. applic.	746.35	615.31	131.04	9.17	140.21

\* Yellowknife riders in effect at October 31, 2005  
 On November 1st, Yellowknife reference rate increased as a result of new rate riders.  
 The power subsidy will be adjusted accordingly.  
 The current Yellowknife franchise fee is 2.5 percent of revenue billed  
 The riders for NTPC communities are a fuel cost adjustment rider and a public service superannuation plan (PSSP) rider. The latter applies only during the current fiscal year.

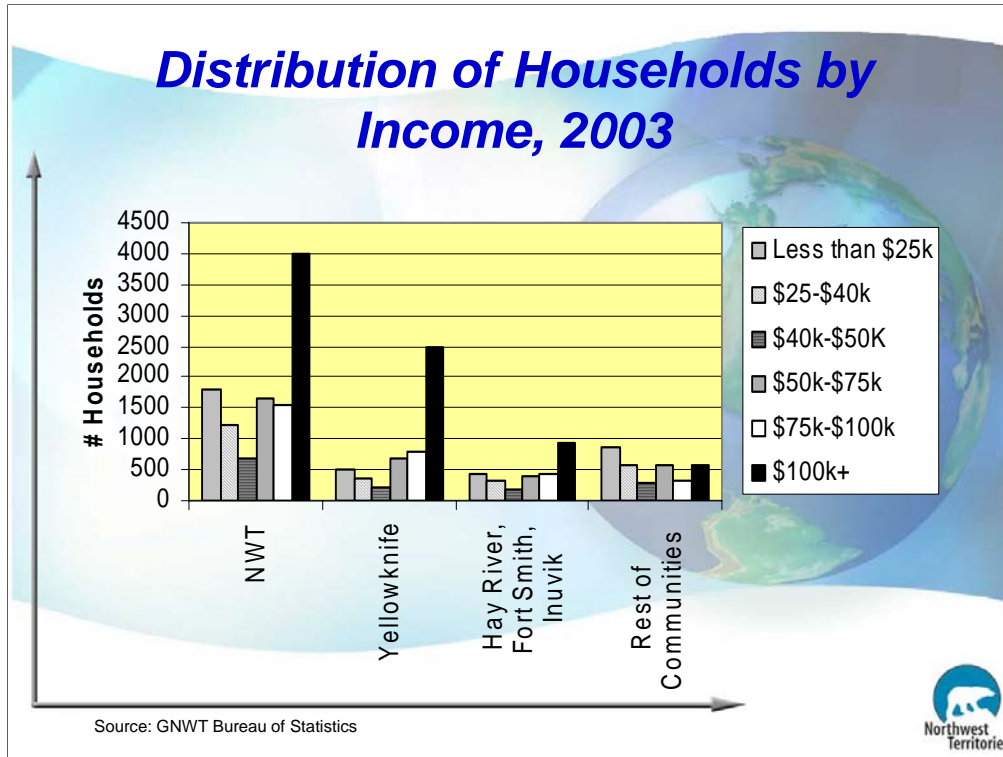
Source: NWT Power Corporation



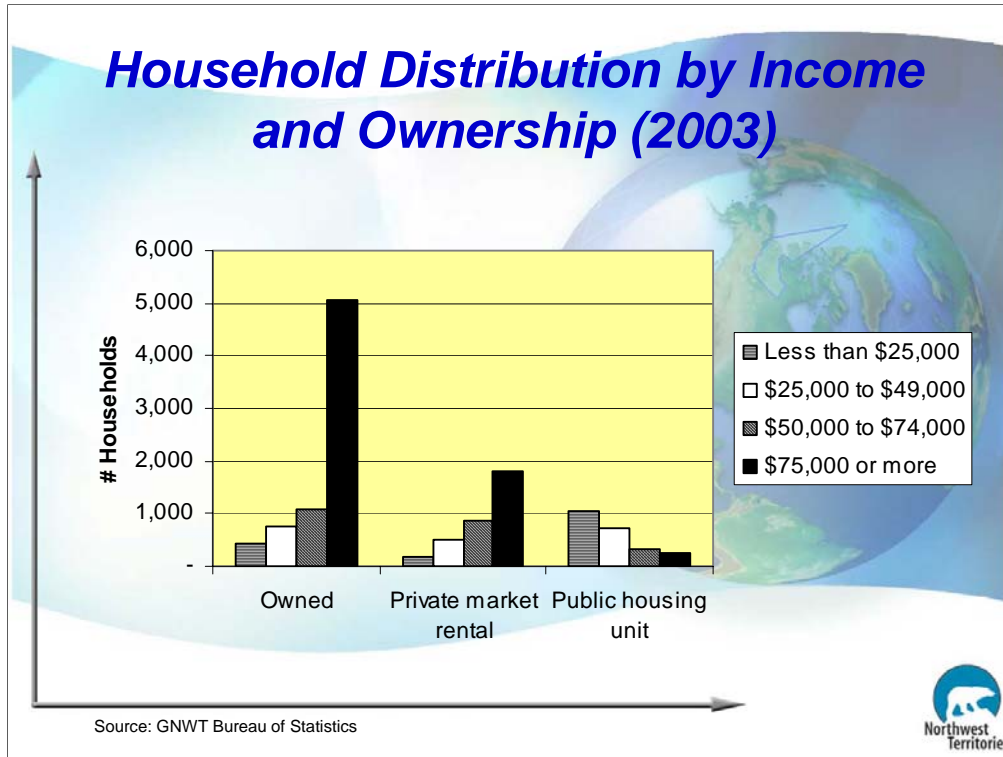
- The Yellowknife rate depicted captures a number of rate riders that came into force on November 1; the effect of which has not flowed through into the subsidy calculation as presented.
- Had the table been prepared on October 31 the Yellowknife cost would have been \$143.96. Once you deduct Yellowknife's unique franchise fee the result is \$140.21, consistent with the subsidized communities.



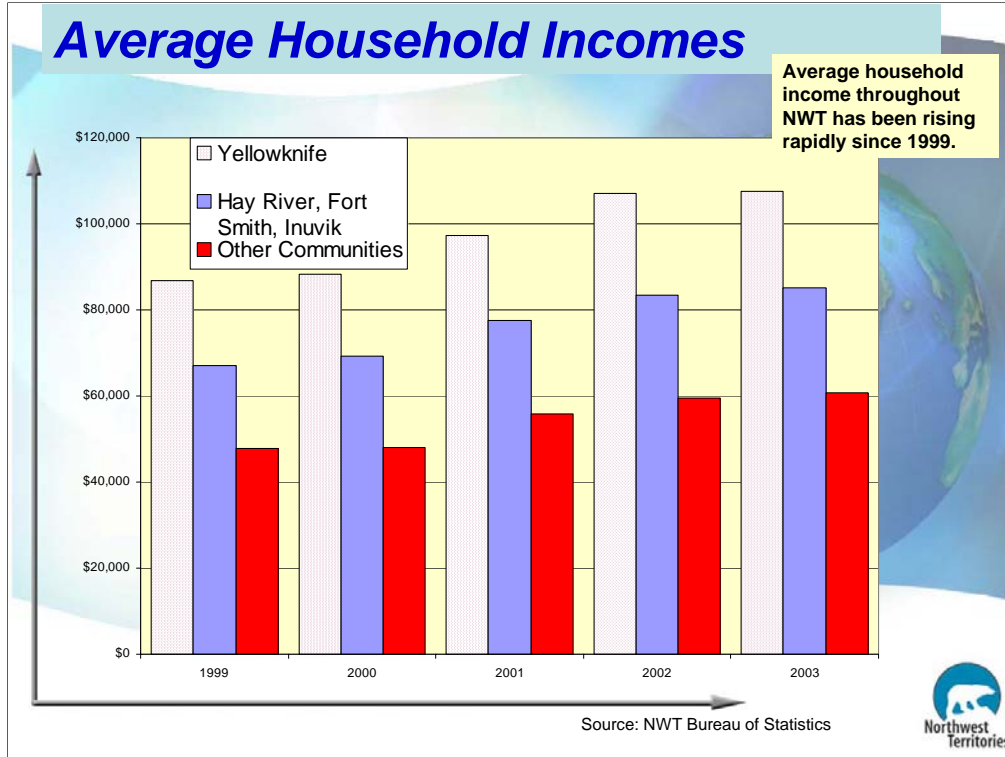
- The major cause for increases in costs from 2000 to 2003 was the increase in fuel prices.
- The largest factor impacting the cost of electricity is the size of the community and the absence of economies of scale.
- For example, 30% of the communities served by the Northwest Territories Power Corporation use less power than the Northern Store in Inuvik.
- Yellowknife - if served 100% by diesel generation - would still have amongst the lowest cost electricity in the NWT due to its size.



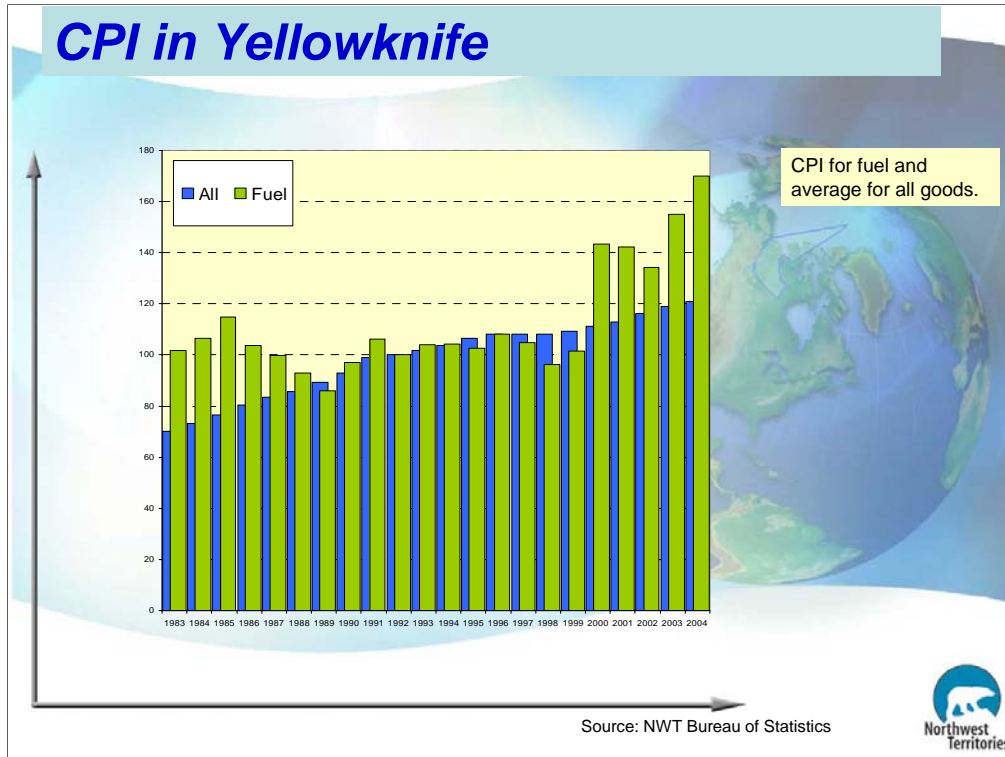
- The proportion of households with incomes exceeding \$100k is high in large communities, and relatively low in the rest of the NWT.
- Households most at risk from rising energy costs are in the range of \$40k to \$75k (the two middle categories in the chart). For the NWT as a whole, these two categories combined comprise 2,360 households, just under half of the households in the \$75k + range.
- For smaller communities, households at risk comprise 850 households, compared to 920 households earning over 75k.
- Households earning under \$40 thousand benefit from our social safety net which insulates from the full impact of rising costs, while households earning over \$75 thousand can likely weather increasing costs without substantial financial difficulty.
- Over the past five years, we have observed that the proportion of lowest income families is decreasing; as these families move into the mid-category (\$40 to \$75 thousand), the number of high income families has increased.



- By ownership, the vast majority of households that own their their homes have income in excess of \$75 k.
- Since public housing programs cover the cost of energy, households most at risk from rising energy costs are those that own their own homes but earn income in the \$25k to \$49k range.
- The number of such households was 774 in 2003.

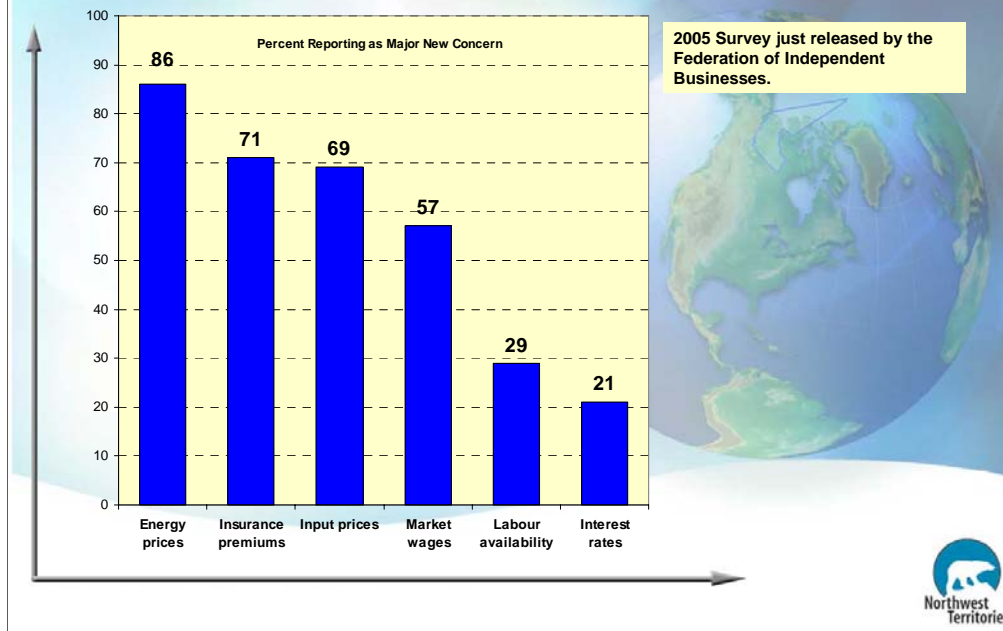


- Average household incomes in the NWT have been rising rapidly since 1999.
- This increase has been observed generally throughout the NWT, although the rate of increase has been somewhat slower for smaller communities.



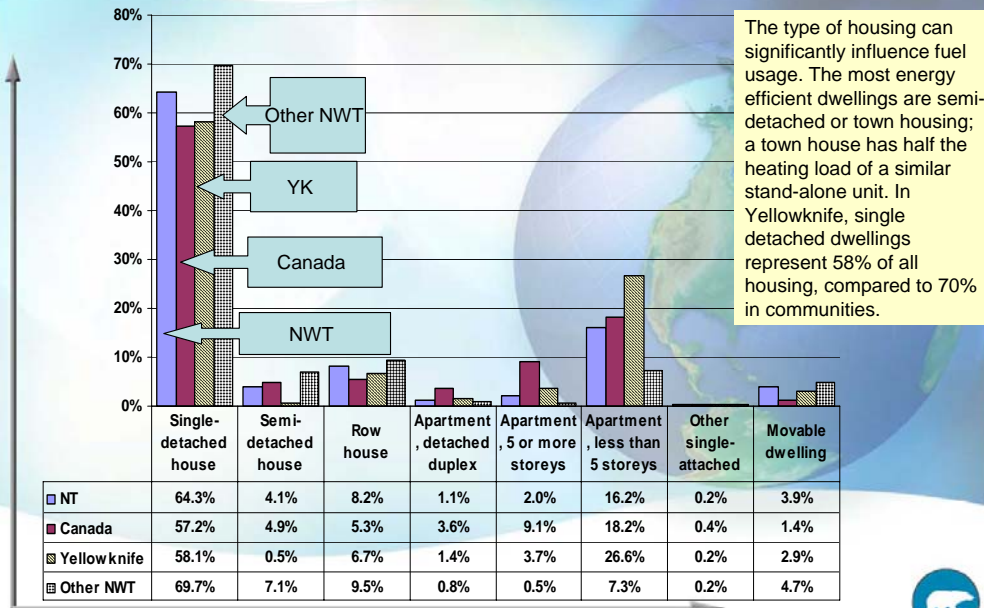
- The Consumer Price Index for fuel has risen at a much faster rate than the average rate for all goods since 2000.
- This reflects the fact that world demand has grown at a faster rate than supply, contributing to price inflation of petroleum fuels.

## NWT Business Concerns - 2005



- The cost of energy is a top-of-mind concern for business. As an input into costs, the cost of energy can affect bottom line profits.
- Business can pass these costs onto customers, possibly resulting in decreased sales, or they can absorb the increases by cutting back on other expenses, or they can simply accept lower profit margins in the short run.

## Type of Dwellings in the NWT/Canada



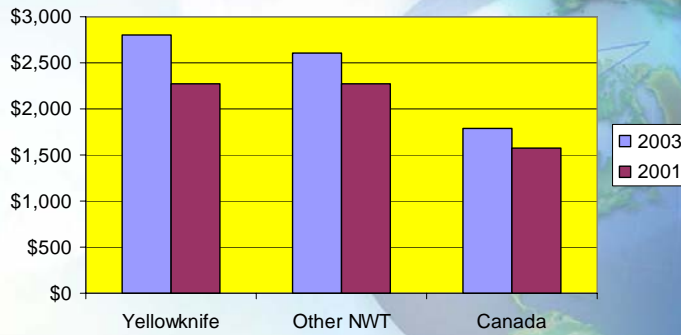
Source: GNWT Bureau of Statistics



- Housing type has a large impact on the over all cost of heating.
- Dwellings that share walls (townhouses, duplexes, etc) are more efficient to heat, all other factors held equal, than stand alone dwellings.
- The NWT has a larger proportion of stand alone housing than the rest of the country.

## Comparative Costs, Fuel and Electricity

Average Household Spending on Fuel and Electricity

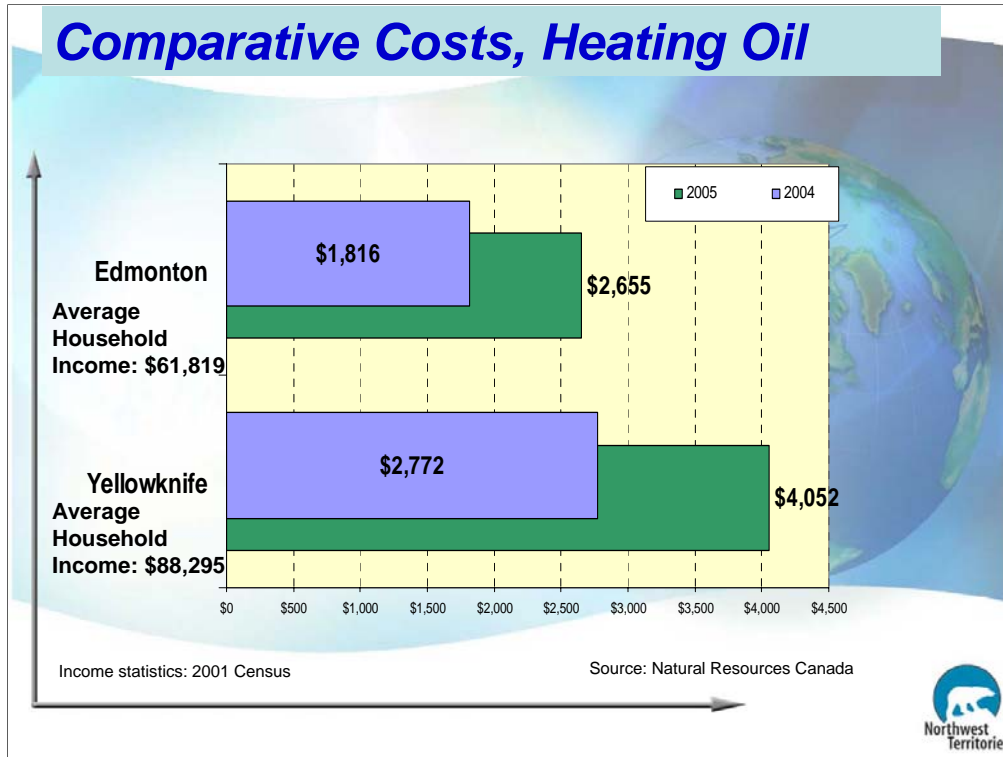


Based on the 2003 household survey, NT household expenditure on electricity and fuels remains around 4%, the same portion as it was in 2001, and the same as in Canada.

Source: NWT Bureau of Statistics



- While NWT residents pay more for fuel and electricity than southern Canadians, this energy cost remains in the same proportion relative to total family expenditures for both NWT and non-NWT households: 4%.



- Heating costs for an identical home in Edmonton and Yellowknife were compared using a model developed by Natural Resources Canada.
- The model assumed a newer, detached dwelling with a furnace running at 85% efficiency. The average cost of heating fuel in the winter of 2004 was used as an input cost, and the forecast average cost of fuel for the winter of 2005 was used as an input cost for 2005.
- On the income side, the average household income in Yellowknife exceeded Edmonton by 42% in 2000 (the last year for which household income is available for Edmonton)

## Heating Costs and Housing Design

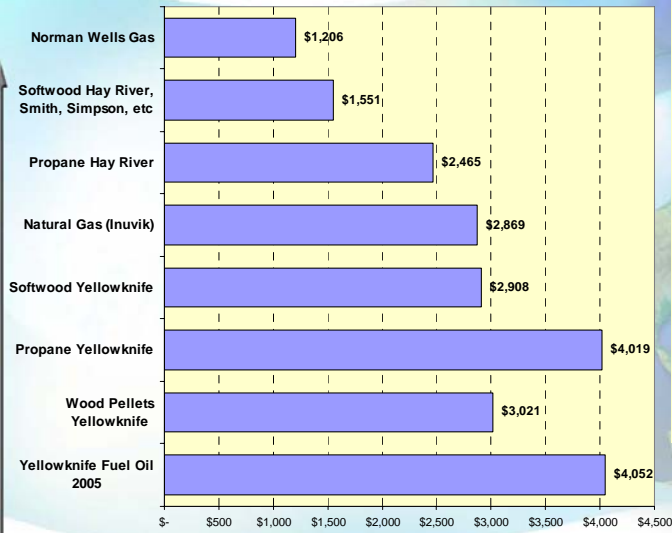


Everything else being equal, and using October 17, 2005, prices, it could cost around \$1,500 more to heat a new detached home in comparison to a new, equal sized townhouse.

Source: NR Can



## Cost of Using Different Fuels



The cheapest options relate to NWT fuels – Norman Wells Gas, Inuvik gas or softwood in Hay River (\$160 a cord). Propane costs in Hay River are also significantly lower than other communities in the NWT.

In Yellowknife, a typical household could save between \$1,500 and \$1,000 per year by using wood, depending on the price per cord. In many South Slave and Deh Cho communities, a cord of wood sells for around \$150--\$160 per cord. Depending on the price of home heating oil, households can save \$2,500 or more by using wood.

Source: NR Can and Industry, Tourism and Investment



## *Personal Choices*



## Furnace Efficiency Savings

Fuel	Heating System		Measure	Heating Cost - Efficiency	
	Efficiency	Local Price		New	Savings
Oil	60	\$0.95	Litre	\$6,010	
	89	\$0.95		\$4,052	\$1,958
Propane	55	\$0.65	Litre	\$6,796	
	93	\$0.65		\$4,019	\$2,777
Softwood	60	\$300	Cord	\$3,877	
	80	\$300		\$2,908	\$969

Table lists the low and high end of heating system efficiency using different fuel types. As shown, a new, highly efficient oil furnace can save up to \$1,958 per annum. Even more savings can be realized by purchasing a high efficiency propane system.

Source: NR Can



- People also have choices in terms of reducing energy costs by purchasing appliances that are energy efficient.

## Vehicle Fuel Efficiency

	Annual Fuel Cost		Increased Cost		
	Avg. Fuel Economy* litres/100km	Base Case - 2002 68.8 ¢/L	100 ¢/L	120 ¢/L	140 ¢/L
<b>Subcompact (Toyota Echo)</b>	6.4	\$881	\$399	\$655	\$911
<b>Mid-size (Chevy Malibu)</b>	8.8	\$1,211	\$549	\$901	\$1,253
<b>Van (Dodge Caravan)</b>	10.4	\$1,431	\$649	\$1,065	\$1,481
<b>SUV (Dodge Durango 4X4)</b>	15.4	\$2,119	\$961	\$1,577	\$2,193

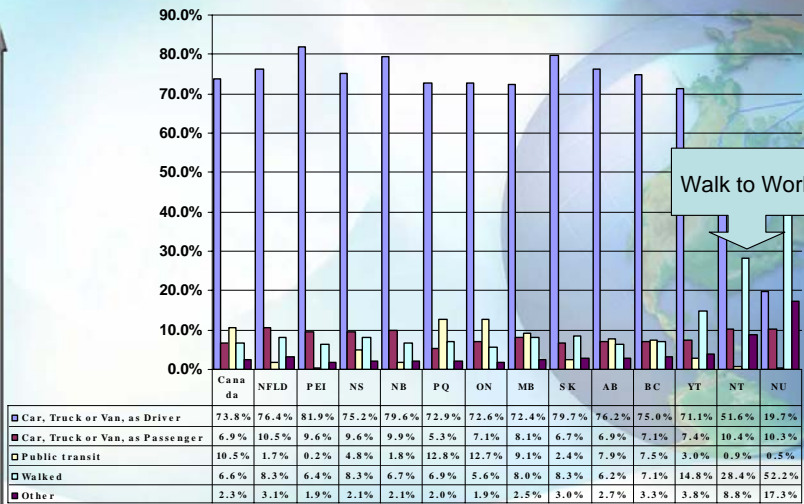
\*source: NRCan's Energuide *Fuel Consumption Guide 2005*

- If Canadian average gasoline prices were to remain at today's price of \$1.20 per litre, consumers could pay between \$655 - \$1577 more for gasoline over the next year than they paid in 2002.

Source: NR Can



## Walking to Work



### Many People in the NWT Walk to Work

This chart compares NWT residents with other provinces and territories in Canada on commuting to work. In the NWT 28.4% of residents walk to work, significantly higher than the national average of 6.6%.

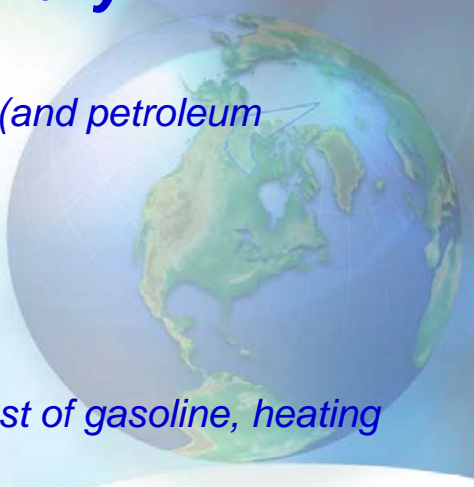

Source: 2000 Census



- People have choices in terms of conservation of energy.
- Due to the small size of our communities relative to southern Canada, a much larger proportion of NWT residents walk to work.

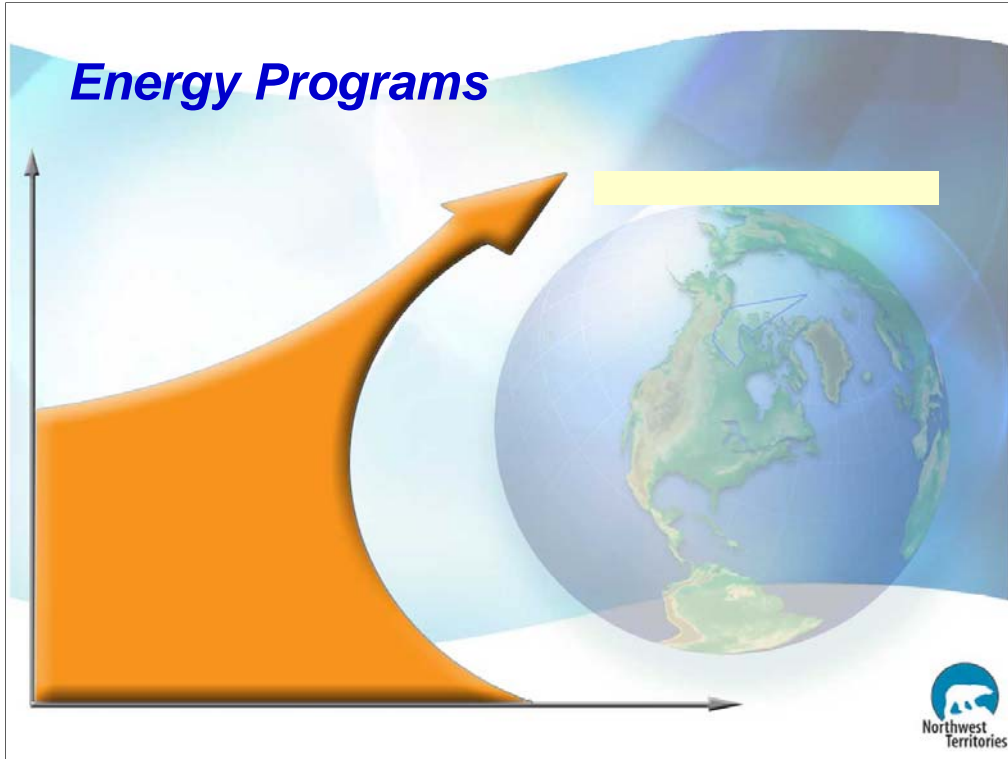
## Summary

- **International**
  - World crude markets (and petroleum products)
  - Natural gas markets
- **National**
  - National impacts
- **Domestic**
  - Domestic impacts (cost of gasoline, heating fuel, propane)
- **Comparative Costs and Individual Choice**

- Global forces have been exerting upward pressure on the price for petroleum fuels since 2000.
- High rates of economic growth in China and India have contributed to rising prices; this trend is expected to continue.
- Prices for refined products (gasoline, heating oil) closely follow the price of crude oil; retail margins remained relatively fixed in absolute terms, so any form of price regulation on a national or territorial level will harm retailers and result in little price relief for consumers.
- North American demand for natural gas is increasing, and supply is shrinking; supply is primarily limited to North American sources, although imported liquefied natural gas may offer an alternate source of supply in the future.
- Nationally, Canadians benefit from a much lower tax regime on fuel than Europe; the ratio of cost of fuel, even with higher prices, to per capital wealth is still much better than in Europe.
- While many NWT households are experiencing growing incomes, we must be conscious of the needs of the working poor, that section of our population which is most vulnerable to sharp increases in fuel prices. Still, on average, household incomes have been growing at a rapid rate since 2000.
- We can make personal choices regarding our behaviour, our vehicles and our appliances that can reduce our consumption of fuel, reduce costs and reduce our impact on the environment.

# Energy Programs



## ***Territorial Power Support Program***

- *The TPSP of the Government of the Northwest Territories is designed to provide small commercial enterprises and private residential power consumers, with equitable rates for power consumption.*
- *The cost differential for power consumption between Yellowknife rates and those of other Northwest Territories communities are paid for by this program, up to specified consumption levels*



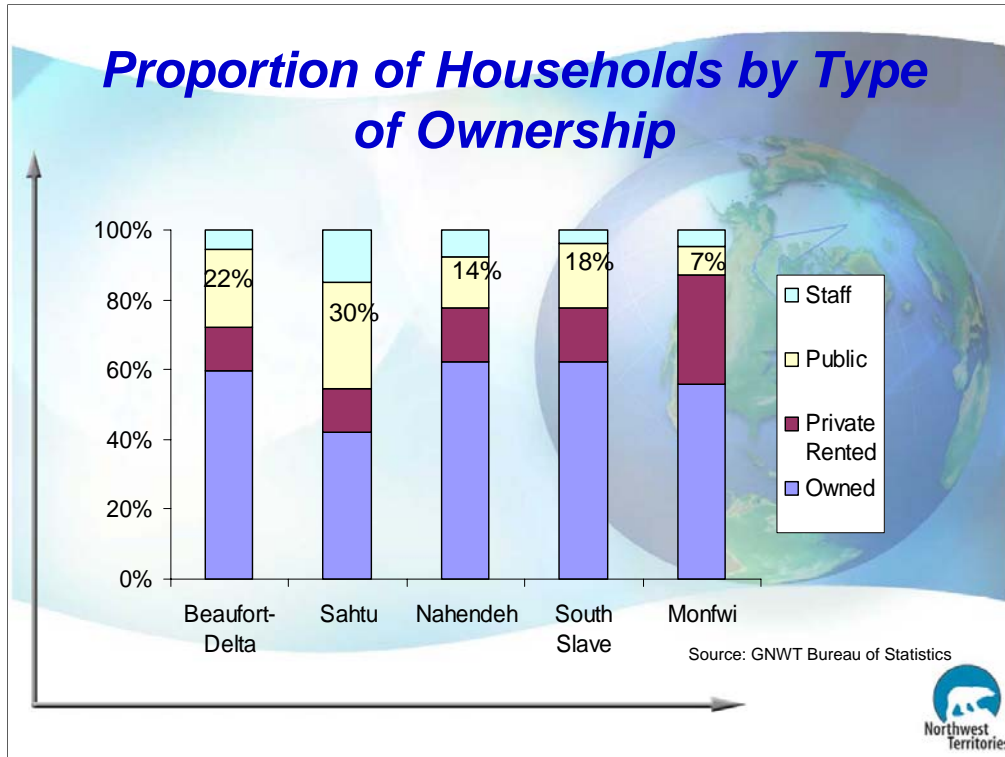
- For small commercial enterprises the maximum subsidy available is for the first 1000 kilowatt hours of monthly power consumption.
- For residential subsidization, the first 700 kilowatt hours of monthly power consumption is eligible.
- Subsidies are reflected in users' energy bills.
- On average, households in communities qualifying for the TPSP use 664 kw/h per month, below the threshold. Out of 26 qualifying communities, 8 have average household consumption which exceed the threshold.

## ***Income Support***

- *Needs assessed program that provides qualified individuals with a range of supports*
- *Program provides support for actual costs of utilities including energy*
- *ECE reimburses clients based on receipts or can pay directly to a supplier*
- *Where a landlord passes along energy costs in the form of a rent increase, there is no difference to the client because ECE pays accommodation costs*



- Income support levels are based on where a person lives, family situation (single or married), number of children, age, and whether or not the recipient has a disability.
- The number of income support cases, and the overall payments, have been declining since 2000; in 2000, \$10.6 million was paid out, and in 2004, \$9.2 million was paid out in benefits.
- The number of cases in 2000 was around 1500; this level declined to around 1100 in 2004.
- The NWT Housing Corporation also provides support on an income tested basis. The Corporation has established core need thresholds for each community which assesses the minimum household income required to operate a household in that community. Households with income below that threshold benefit from reduced rent levels.



- The proportion of public housing varies from region to region – it's lowest in the Monfwi region (8%) and highest in the Sahtu (30%).

## Seniors Home Heating Subsidy Program

- *Income tested subsidies available for resident seniors 60 years and older who own and reside in their homes*
- *Income thresholds and volume of fuel subsidy divided by three zones*
- *Must apply between Sept 01 and March 31*
- *Approximately 500 seniors subsidized each year*



Applicants will be eligible depending on:

- the zone in which they live;
- the type of fuel they require; and
- their net household income level.

•Communities are divided into three zones; the income level to qualify for the subsidy varies from zone to zone.

•Within each zone, a household can qualify for 100% subsidy to 0% depending on income level. The actual amount received also varies with the primary type of fuel used to heat the home.

•To qualify for the maximum subsidy, the household income must be less than or equal to:

- \$36,249 in Zone 1
- \$42,499 in Zone 2
- \$46,249 in Zone 3



**Western Harvester Assistance Program (WHAP):**

- The WHAP established a conditional contribution program for regional Aboriginal organizations to assist and promote the renewable resource harvesting economy. This program has either committed or paid out \$11,390,980 since 1995/96.

**Prime Fur Bonus Program:**

- Provides funds based upon successful market performance. Program dollars are aimed at assisting trappers with capital investments and/or defraying a portion of operational costs.

**Trapper Grubstake Program:**

- Provides eligible trappers with funds needed to defray a portion of costs related to starting up trapping at the beginning of each season.

**Fishery Support Program:**

- An annual subsidy to the commercial fishery on Great Slave Lake.
- The subsidy program aims to help fishermen defray production costs and is divided into five (5) elements. These are: Fish Harvesters Support Program, Commercial Fish Harvesters Support Program, Fish Harvesters Expansion Program, Fish Harvesters New Entrants Support Program, **Core Funding**



•On October 6, 2005, the Government of Canada announced measures to address the rising cost of petroleum products, including direct payment to low-income families and low-income seniors. Payments under the proposed Energy Cost Benefit will be:

- \$250 to families entitled to receive the National Child Benefit supplement in January, 2006;
- \$250 to senior couples where both spouses are entitled to received the Guaranteed Income Supplement (GIS) in January, 2006; and,
- \$125 to single seniors entitled to receive the GIS in January, 2006.

•This program not yet been approved by federal cabinet; implementation is subject to a federal election;

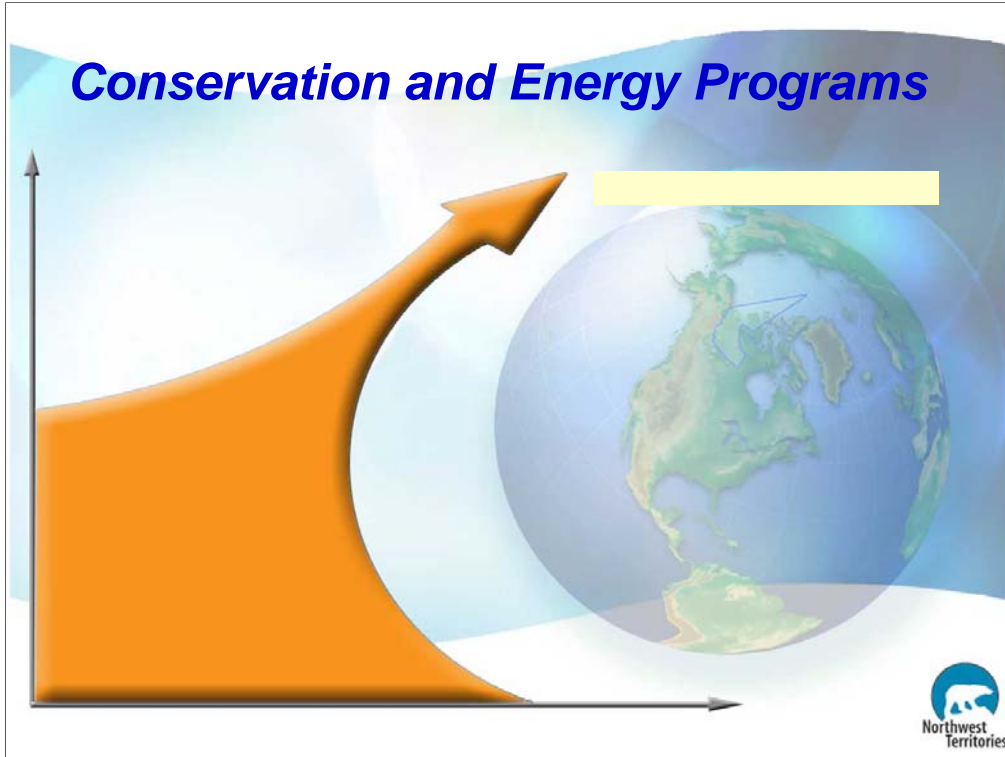
**•Programs in Other Jurisdictions:**

•**Alberta** provides a rebate based on a sliding scale and tied to the amount of energy use. It must be applied for, has been extended to October, and will be evaluated on a month-by-month basis.

•**New Brunswick** has implemented a Home Heating Fuel Rebate due to the ongoing increases in oil prices. To qualify for the program you must: heat your home with home heating oil; you must not be in receipt of regular monthly social assistance; and your total family income for 2004 must be under \$45,000. The benefit is on a sliding scale as follows: less than \$25,000 - \$200 rebate, \$25,000 to 29,999.99 - \$150 rebate and \$30,000 to \$44,999.99 - \$100.

•**Nova Scotia** has implemented the Keep the Heat Program which is a one-time payment of \$250 for oil or propane users, or \$100 for all other heating fuels including electricity, wood, coal, wood pellets and natural gas.

# *Conservation and Energy Programs*



## **Energy Efficiency**

- ***The greatest short term opportunities to save energy costs and reduce greenhouse gas emissions are through energy efficiency and conservation.***
- ***Many actions are being taken by Arctic Energy Alliance, NWT Power Corporation and various GNWT Departments.***
- ***The new Energy Conservation Action Plan enhances energy efficiency and conservation measures for this fiscal year***
- ***Action Plan builds upon existing initiatives under the NWT Greenhouse Gas Strategy and will support the long term broad Energy Plan.***



- Old equipment costs more to run. The greatest savings that we will be able to realize over the next few months will be through upgrading to energy efficient equipment.
- Annual savings in energy costs when new equipment is installed is an important consideration. ENR uses a five year pay-back as a rule of thumb for Contribution Agreements to help GNWT departments, municipal governments and non-profit organizations with upgrades through the Energy Conservation Program. Every year proposals are received for projects with a pay-back of less than two years.
- The Energy Conservation Action Plan will target projects that have an energy savings pay-back of less than five years. Opportunities for energy savings in the immediate future are the greatest through this approach.
- Upgrading equipment to achieve energy efficiency savings should be an on-going process.
- The Arctic Energy Alliance and ENR have worked with all sectors over the years to help people understand the cost saving benefits of investing in new, more efficient energy consuming equipment.
- The Energy Conservation Action Plan builds on this work by providing increased funding as well as increasing the role of other GNWT Departments.

## **Energy Conservation Action Plan**

- **The Action Plan does three things:**
  - **Builds and expands on the significant efforts already being made to address northern energy issues;**
  - **Introduces new programs; and,**
  - **Identifies new and emerging technologies being pursued.**
- **The GNWT's departments, boards and agencies are carrying out the Action Plan. As well, programs delivered by NWT's energy efficiency clearing house, the Arctic Energy Alliance, are being expanded.**



- Most of the \$1.3 million recently identified for investment is targeted to assist residents and departments to replace older, inefficient equipment with newer equipment to reduce the amount of energy needed for activities.
- Technical advice about what changes should be made are an important part of this.
- Homeowners and businesses will be able to access more advice regarding investments they could make to reduce energy consumption, as well as qualify for rebates for the cost of making upgrades.
- Energy conservation includes examples such as turning the temperature down in a building.
- Energy efficiency means improving the insulation of a building and upgrading the furnace so that less energy is used to maintain a comfortable temperature.

## **Energy Conservation Action Plan (cont.)**

### **Action Plan measures include:**

- **Training and promotion of the “Energy Star Program” to guide future purchasing decisions.**
- **Cash incentives for commercial operators who improve the energy efficiency of their businesses.**
- **Testing new and emerging technologies for reliable use in the North.**
- **Residential energy efficiency assessments and grants for improvements to help make homes more energy efficient.**
- **Training in energy efficient technologies for the public and GNWT employees.**
- **Increased funding for GNWT building energy retrofit projects.**
- **Establishing vehicle fleet guidelines and a Smart Driving Program for GNWT employees.**
- **Developing energy efficiency codes for new GNWT capital construction projects – will inform commercial and residential construction.**



- Further details about progress on this Plan are available in a separate hand-out.
- Funding for these initiatives was approved through a recent GNWT Supplementary Appropriation. Departments and agencies are now working to implement the actions.

## ***Renewable Energy***

- ***Renewable energy sources can replace high cost fuel and avoid greenhouse gas emissions.***
- ***Hydro-electricity and wood heat have proven to be reliable and cost-effective. These will continue to be promoted and expanded.***
- ***Emerging technologies such as solar, wind and geothermal energy sources are being explored in community-based pilot projects to assess costs and reliability***



- Using local energy sources can reduce our need to import expensive heating oil and diesel fuel.

## **Renewable Energy (Hydro)**

- ***Electricity used in NWT communities is generated by hydro from Taltson, Snare and Bluefish facilities.***
- ***Remote communities and mines are still dependant on diesel generation for electricity.***
- ***Wha Ti and Lutselk'e have identified mini-hydro projects that could replace diesel electric generation for their communities.***
- ***ENR is working with the NWT Energy Corporation to obtain federal climate change funding to complete feasibility studies for Wha Ti, Lutselk'e and Taltson expansion to provide hydro-electricity to the diamond mines.***



- Further expansion of our hydro resources to meet local power needs is possible.
- These projects require long term planning and significant investments. In the past, the building of NWT hydro facilities was made possible only through the presence and investment of large industrial customers.
- Decisions taken in the past to build facilities like the Snare and Taltson hydro projects are providing us with long term benefits. Power from these facilities has a long term cost that is predictable and is not dependant on outside markets for pricing.



## **Renewable Energy (Wind and Solar)**

- *Wind and solar generated electricity is proven to work at camps and other off-grid locations, but are still more expensive than power purchased in communities.*
- *Wind monitoring is being conducted in Holman, Sachs Harbour and Paulatuk to assess the feasibility of installing wind generators that could be tied into the community grids.*
- *Solar hot water heating is being tested at homes in Ndilo, Dettah, Hay River, Fort Smith, Fort Resolution and Jean Marie River.*
- *Solar photo-voltaic systems are being tested in Hay River, Inuvik, Yellowknife and Jean Marie River. Another installation is being proposed for Colville Lake.*



• Wind and solar are technologies that have niche applications but are not ready for large scale use. Apart from the cost of installing the equipment, the biggest problem is they are not always available. Solar energy is not available during the dark winter months and wind is variable and unpredictable on a daily basis.

• As costs come down for the equipment, and as we gain greater experience through pilot projects, these technologies may provide a greater part of our energy needs in the future.

## **Community Energy Planning**

- *Community energy planning coordinates local actions and decisions about energy efficiency and development of new sources, including renewable energy.*
- *CEP was identified in the 2001 NWT Greenhouse Gas Strategy.*
- *Wha Ti, Norman Wells, Fort Simpson, Yellowknife, Fort Smith, Lutselk'e, Fort McPherson, Deline, Enterprise and Gameti are all at various stages of developing and implementing plans.*
- *MACA is working with the NWTAC and community governments to develop an Integrated Community Sustainability Plan template, of which energy planning will be a component.*
- *The Arctic Energy Alliance provides support for communities who express interest in CEP.*
- *Funding for CEP is available through the Federation of Canadian Municipalities.*



- Community energy planning provides a process to determine how much energy a community needs to function balanced with that communities opportunities to produce the energy it needs.
- CEP is a long term process but it allows communities to gain greater control over an important part of their own economy.

## ***Environment and Energy***

- *Environment and Energy are inextricably linked.*
- *Greenhouse gas emissions from burning carbon fuels contribute to climate change.*
- *Global climate change issues will have a long term impact on local, national and international energy markets and uses.*
- *In November 2004 Cabinet confirmed its endorsement of the following position on climate change:*
  - *“Climate change is a serious concern that could in future significantly disrupt the global environment, affecting the ability of northerners to lead healthy and productive lives. The potential disruption of our environment compels the GNWT to support global and local actions to reduce emissions of greenhouse gases believed to cause enhanced climate change. These global actions include the Kyoto Protocol negotiated under the United Nations Framework Convention on Climate Change.”*



•Environmental issues are important in deciding which energy sources to develop and use.

•Most of the local energy sources available in the NWT are greenhouse gas friendly. Hydro, wood, solar and wind result in very low emissions. Natural gas is a much cleaner burning fuel than diesel oil.

## **NWT Greenhouse Gas Strategy**

- *Energy efficiency and renewable energy programs have been coordinated through this Strategy since 2001. Goal is to reduce greenhouse gas emissions from burning fuels in ways that also result in cost savings.*
- *Strategy provides links with federal climate change programs.*
- *Negotiations are being concluded with the federal government on a Memorandum of Understanding for Cooperation on Addressing Climate Change. Annexes under the MOU will include funding for actions in the NWT to reduce emissions.*
- *The NWT Greenhouse Gas Strategy was reviewed by stakeholders in the Spring of 2005. A revised strategy is being prepared that will be linked to the broad Energy Plan.*



•The NWT Greenhouse Gas Strategy has coordinated actions taken by different Departments and agencies over the past years that form the basis for the actions we are now taking.

•Greenhouse gas considerations will remain important in coming years and will have an impact on our choice of fuels to use in the NWT, as well as influencing markets beyond our borders.



## ***Purpose***

- *To Ensure That the NWT's Energy Resources Are Developed in a Timely and Strategic Manner*
- *That the People in Remote Communities Spread Across our Vast Northern Region Benefit From Affordable Energy Costs*
- *Sound Environmental Practices in the Development, Production, Transportation and Consumption of Energy Resources and Commodities.*



•A comprehensive Energy Plan is needed to ensure that the NWT's energy resources are developed in a timely and strategic manner and that the people in the disparate communities spread across our vast northern region benefit from affordable energy costs and sound environmental practices in the development, production, transportation and consumption of energy resources and commodities.

## *Principles*



- *Long-term (30 Year) Vision/strategy to Guide Decision Makers*
- *Energy Policy and Environmental Policy in the North Are Inextricably Linked*
- *Full Awareness of Energy and Environmental Policy Analysis and Implementation Efforts*
- *As Appropriate, the Energy Plan Must Be Linked To, and Built Upon, Previous Work and Studies and ENR's Recently Completed Framework for Action.*
- *Population Growth Will Continue to Put Pressure on the NWT's Energy Requirements.*



- To provide for a long-term (30 year) vision/strategy to guide decision makers in meeting our growing and diverse energy needs and in planning for energy development.
- Recognition that energy policy and environmental policy in the North are inextricably linked such that the “Energy Plan” will also constitute an environmental action plan.
- Full awareness of energy and environmental policy analysis and implementation efforts that have been undertaken through the past decade by, and with reference to, the NWT.
- As appropriate, the Energy Plan must be linked to, and built upon, previous work and studies and ENR’s recently completed Framework for Action.
- Awareness that population growth arising from resource development projects will continue to put pressure on the NWT’s energy requirements.

## *Principles (cont'd)*

- *Energy Supply, Demand and Balances – Internationally, Nationally and Domestically*
- *Implementation of Kyoto Protocol*
- *Energy Conservation Techniques, and Improvements in the Efficiency of Energy Production and Utilization*



- Not only is a clear understanding of energy pressures and challenges in the NWT required, but an understanding of energy supply, demand and balances in the rest of Canada and in the United States is important.
- This relates to when and where export market opportunities for our natural gas, crude oil and hydro power are likely to arise.
- Plans also need to recognize that Canada is moving ahead to implement its commitment under the Kyoto Protocol on Climate Change and that the NWT has stated its obligation to support global and local actions to reduce the emission of greenhouse gases. Canada's Action Plan will provide opportunities for northerners to share in funds that will be made available to implement NWT actions.
- Awareness that improved energy conservation techniques, and improvements in the efficiency of energy production and utilization, will not only lower the cost of energy for our citizens, but also reduce the impact of energy use on the environment (e.g. by lowering greenhouse gas emissions).

## Objectives

- *To Reduce Our Citizens' Dependence on Imported Energy Sources*
- *To Enhance Energy Supply Options and Reduce Energy and Environmental Costs for the People of the NWT.*
- *To Demonstrate Alternative Electricity Generation and Energy Utilization Approaches.*



- To reduce our citizens' dependence on imported energy sources in a manner that, to the extent possible, reduces both the cost of energy and the impact of energy production, transportation and consumption in the NWT on the environment.
- To ensure that, to the extent possible, energy exports are accompanied by enhanced energy supply options and reduced energy and environmental costs for the people of the NWT.
- To ensure that the Government of the Northwest Territories (GNWT) leads by example in the efficient use of energy.

## Objectives (Cont'd)

- *To assist communities to implement effective local solutions for energy use.*
- *Ensure the GNWT Leads by Example in the Efficient Use of Energy.*
- *To Assist, Where Possible, the Research and Development of Emerging Energy Technologies.*



•To demonstrate alternative electricity generation and energy utilization approaches that will reduce energy costs and lower emissions in numerous NWT communities. Such demonstrations must be based on proven technologies and practices (e.g., micro-turbines and cogeneration) and reflect the particular energy resource and geographic circumstances of the communities involved.

•To assist, where possible, the research and development of emerging energy technologies such as stationary fuel cells, wind and solar energy and the utilization of biomass, which have the potential to lower energy costs and reduce greenhouse gas emissions.



## Summary: What's Next

- 1. We need to apply conservation solutions to minimize the impact of rising fuel prices.**  
*Timing: immediate*
- 2. The NWT needs to develop and implement other solutions for the supply of energy:**
  - a. Hydro-electricity**
  - b. Natural Gas Conversion**
  - c. Alternative fuels and energy sources***Timing: medium term (5 to 10 years)*
- 3. The GNWT needs to develop a long term action plan that leads northerners to enjoy the benefits of affordable, secure and sustainable energy supply.**  
*Three stages:*  
*Discussion Paper (winter 2005/2006)*  
*Action Plan rolled out by March 31, 2006*  
*Implementation: medium term (5 to 10 years)*

