Electrical Pumping Costs

Wire Service Provider Costs After Thirteen Years of Deregulation

2003 - 2015

- LeRon Torrie: 2003 - 2005 Charter Member of the Utilities Consumer Advocate (UCA) Advisory Council: (AIPA Nominee – Irrigation Sector)
- Received a 2 year “Education” in the Functioning of the Alberta Electrical Grid System in the Aftermath of Deregulation
- At that time all attention was focused on controlling the skyrocketing energy costs by introducing competition and market efficiency into the electrical Energy Generating Sector
- “The time will soon come when Electrical bills will be similar to Telephone bills. Nobody cares about the cost of Long Distance calls anymore as those costs are almost insignificant. The rising fixed or service charge on the phone bill is the major source of concern or attention. “
- “Likewise, as WSP or fixed charges on power bills escalate, those charges will soon overtake the pure energy cost on our electric power bills! We have to reign in cost increases on WSP’s (Wire) S(ervice) P(roviders)!” – LeRon Torrie 2003

Electrical Bills Have 3 Components:

1. Energy Charges
2. Transmission Charges
3. Distribution Charges

- Transmission & Distribution Charges are Billed by Energy Retailer

1. Energy Charges

- Main Target of Deregulation in 2002 - 2003
- Competition Introduced into Generation
- Energy Rates Did Decline & Stabilize
- Contracts became available: 7.5 – 8.9 c/kWh
- E.g. Enmax Easymax: 5 Years “Fixed” (but flexible – New Contracts now 6.5 or lower c/kwh)
- RRO (Regulated Rate Option) still available
  - Set Monthly: Highly variable - by design

RRO Prices versus Contract

Rates are Cents / kWh

	2013	2013		2014	2014		2015	2015
	RRO	**Easymax**		**RRO**	**Easymax**		**RRO**	**Easymax**
May	6.68	8.9		8.3	7.8		4.2	6.8
June	6.6	8.9		5.7	7.8		3.8	6.8
July	10.0	8.9		6.8	7.8		8.2	6.8
August	10.6	8.9		7.5	7.8		7.9	6.8
September	9.9	8.9		7.6	7.8		5.4	6.8

Average RRO	8.8	7.2	6.0

How Energy Charges Are Calculated

- Energy Charges Are Calculated at the RRO Kwh Rate or Contract Kwh Rate
- Kwh Consumption Varies Directly With the Number of Pumping Hours
- Kwh Consumption Can Be Read Directly From Power Meter
- Irrigators Should Read Their Own Meters Annually and Keep a Historical Record of Consumption

2. Transmission (WSP) Charges

- Inter-Regional Transmission from Generators
  - Steel Towers – High Voltage
  - Alta Link etc.
- Rates or Tariffs are Regulated and Approved by Alberta Utilities Commission (AUC)
- AUC Hearings to Review Costs – (Interveners?)
- Rates => Cost + Guaranteed RORE
- No Competition – “Regulated (?)” Monopoly

How Transmission Charges Are Calculated

- Transmission Charges Are Calculated Using AUC Approved Tariff Schedules and Are Levied On a Per Kwh Basis
- Transmission Charges Vary Directly With Kwh Consumption, Which Varies Directly With Pumping Hours
- Kwh Consumption Can Be Read Directly From Power Meters

3. Distribution (WSP) Charges

- Regional Distribution - Wooden Poles, 3-Phase
  - E.g. Fortis (REA's in some areas)
- Fortis Rates or Tariffs are Regulated and Approved by Alberta Utilities Commission (AUC)
- Hearings to Review Costs – (Interveners?)
- Rates => Cost + Guaranteed RORE
- No Competition – "Regulated (?)" Monopoly

How Distribution Charges Are Calculated

- Distribution Charges Have 2 Components:

1. Transmission Charge on a Per Kwh Basis – Varies Directly With Pumping Hours, ~ 8% of Total Distribution Charge
2. Capacity Charge – Based on HP or Kw Size of Pump Motor or Installation's Peak Demand, ~92% of Total Distribution Charge

- This Charge Does Not Reflect the Volume of Kwh or Pumping Hours and is ~ "Fixed"

AUC Hearings of WSP Costs

- AUC–Annual Hearings: Jan 1– Initial Tariffs Set
  - Quarterly or Interim Adjustments are Routine
- "Costs" are "Presented" at Hearings ****!
  - Operation & Maintenance Costs
  - Capital Costs of New Construction
  - Sector Cost Allocation (Phase 2 Hearings)
- Presented "Costs" are Difficult to Fully Scrutinize!
  - Rates Are Approved On Cost + 8.3% Basis (Sep '15)!
  - Not All Presented Costs Are Legitimate!

Twelve year Historical Summary of

1. Energy Charges
2. Distribution Charges
3. Transmission Charges
4. Energy versus Total WSP Charges

   - Note when Total WSP Charges Became Equal to Energy and Where They Are Now!

2003 - 2016 Pumping Component Costs on LeRon Torrie Farms Ltd. Irrigation Service Billings - Fortis Rate 26

		Averages across 18 pumps; 25 - 40 Hp; ~300,000 kwh usage in 2014							
	2003	**2012**	**2013**	**2014**	**2015**	**2016**	**2016 % Inc over 2013**		
Energy: Cents / kWh	5.80	8.00	8.00	7.60	7.60	7.60		1.3	times Higher than 2003
Distribution (Fortis): Cents / kWh	2.80	5.52	5.74	5.63	7.11	7.82	**36%**	2.8	times Higher than 2003
Total Transmission: Cents / kWh	1.80	7.47	6.09	**3.22**	**6.97**	**7.78**	**28%**	**4.3**	**times Higher than 2003**
Total Dist & Trans: Cents / kWh	4.60	12.99	11.83	**8.85**	**14.1**	**15.61**	**32%**	**3.4**	**times Higher than 2003**
Total WSP Charges as % of Energy	79%	**162%**	**148%**	**117%**	**186%**	**206%**			

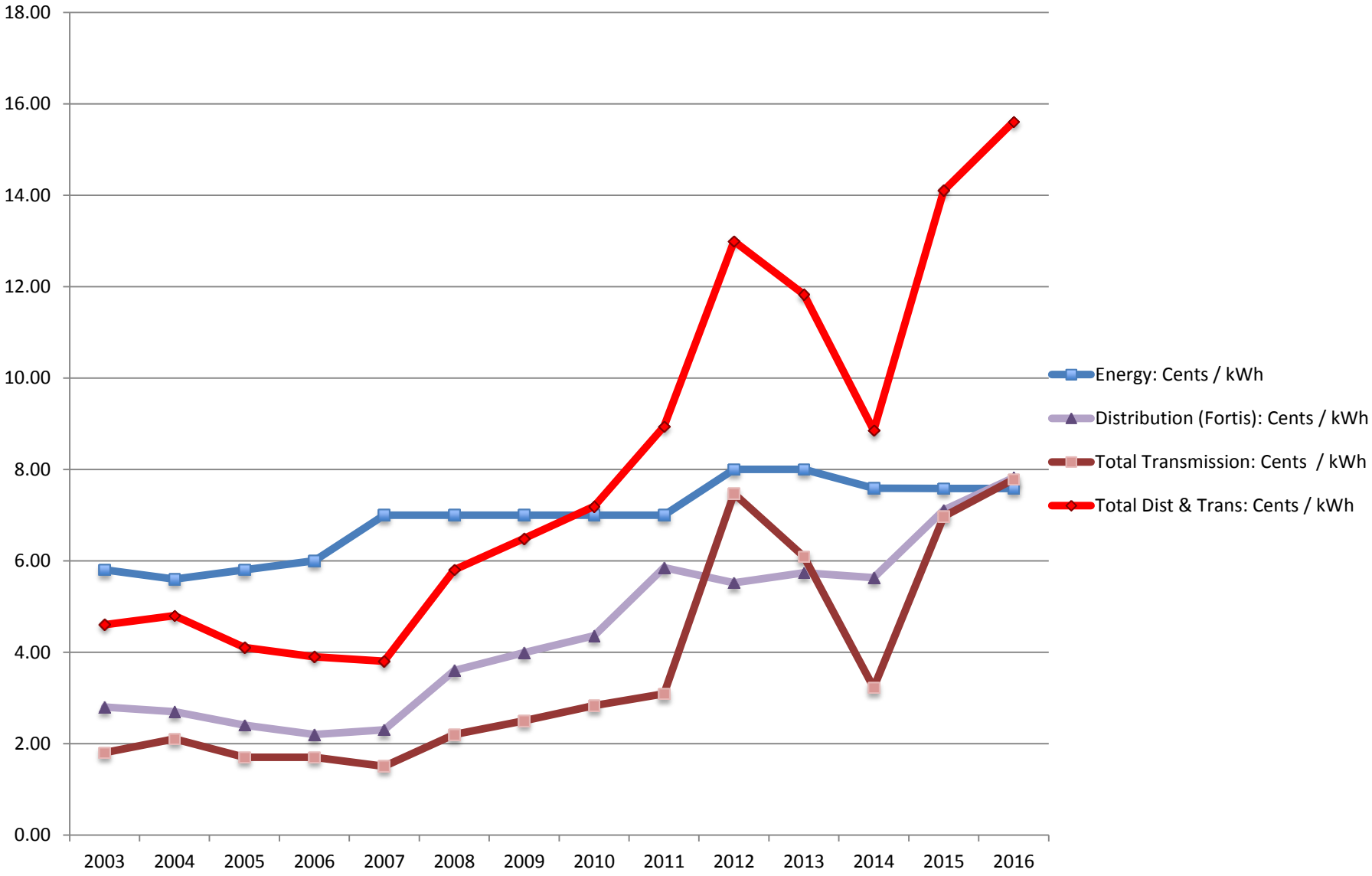
Notes on 2015 Transmission Costs

- Initial approved Tariff was 11% Higher Than 2013 after Temporary Reduction in 2014 from Overcharging in 2012 & 2013
- AUC has approved 11.7% Rate Increase for 2016
- Controversial Heartland Lines (Keith Wilson) are in Cost Base as of 2015

Notes on 2015 Distribution Costs

- 18% Increase over 2014
- Fortis Applied to AUC for a 28% Increase for 2016 but due to AIPA & UCA Intervention, “Only” 10% was approved by AUC
- Fortis Still Claims Irrigation is Not Paying Its Full Share of Distribution Costs

Electrical Charges: 2003 - 2016



Trends

1. Energy Charges – Declining (Low Nat Gas $)
2. Distribution Charges – Fortis still wants huge Annual Increases – 10% plus likely!
3. Transmission Charges – Annual Increases, 10% plus, likely to continue!
4. LT: “Total WSP Charges are “Out of Control!””

Utilities Consumer Advocate: Reasons For Trans & Distrib Increases

1. Province-Wide Transmission Upgrading & Reinforcement – (Wind Power Problem)
2. Reallocation of Cost Between Sectors:
   - Fortis: Irrigation, Historically, Has Paid only ~70% of Full Irrigation Distribution Cost
   - 10% (out of 18%) Increase for 2015 Irrigation Distribution; More Increases in Future Years to Bring Irrigation Distribution up to 100% of Cost

Future Trends Quotes

- “Annual Increases in Transmission Costs In The Double Digits Are Expected To Continue To The End Of The Decade!” UCA May 2013
- “AESO Projects Transmission Charges to Rise 6.7% per year Until 2020” UCA Feb 2015
- “Doubling of Current Transmission Rates by 2020” – URICA Power Management, Jan 2016

AER Guaranteed Rate of Return

- Guaranteed RORE was 8.5%!
- In 2015, WSP Industry wanted 11.75% - 12.75%! UCA (Intervener) Suggested a Drop to 6.8% Would Be Appropriate
- AER lowered RORE to 8.3% during 2015

Risk Versus Reward

- Investment Rate of Return or ROR Usually Varies Directly With Risk
- Higher Risk Should Be Compensated With Higher Rate of Return or ROR
- Alberta's Regional WSP's are Monopolies and and Protected With a Guaranteed ROR
- Question: Where is the Risk to Justify a Guaranteed ROR of 8.3%? 12%???

What It Means To A Pivot Irrigator:

- Assumptions:
  - 40 Hp Pump Motor & 30 psi 130 Acre Pivot
  - 1000 gpm Pivot (64 Hour = 1” Applied)
  - 530 Annual Hours, 8.3” (LTF 10 year average)
  - Energy @ $.076/kWh (EasyMax Contract)
  - Fortis Tariffs (Distribution & Transmission)

Comparative Summary – 14 Years

	2003	2014	2015	Est 2016
Pivot Hours of Operation	530	530	530	530
Average Irrigation Inches	8.3	8.3	8.3	8.3
Motor Size Hp	40	40	40	40
Energy Charge/kWh	$0.058	$0.080	$0.076	**$0.076**
Total Energy Charge	$1,077	$1,465	$1,346	**$1,346**
Tot Dist/kwh	$0.01312	$0.0603	$0.0711	**$.078**
Total Distribution	$232	$1,067	$1,260	**$1,386**
Trans/Kwh	$0.0207	$0.032	$0.0697	**$0.077**
Total Transmission	$366	$571	$1,234	**$1,379**
Tot Dist & Trans/Kwh	$0.03378	$0.0925	$0.1408	**$0.1561**
WSP as % of Energy$	**58%**	**116%**	**185%**	**205%**
Total/circle	$1,676	$3,103	$3,840	$4,317
Cost/ac	**$12.89**	**$23.87**	**$29.54**	**$33.21**
Avg Cost/hr	$3.16	$5.85	$7.25	$8.15

LeRon Torrie Recommendations

1. Request A Review of Fortis' Claim That Irrigation Has Not Been Paying Its Full Share of Distribution, Especially Since Distribution Charge is 92% Fixed!
2. Reduce Guaranteed ROR to Wire Service Providers to Bring It Back In Line With Current Market Rates – 8.3% is not Defensible Today! 12%???
3. Demand Demonstrable Efficiency Increases From WSPs before any Guaranteed ROR is granted
4. Conduct Fully-Transparent And Open Public Reviews on the "Need" For All the Currently Scheduled Transmission Upgrades

LeRon Torrie Recommendations

5. Declare a Moratorium on new Wind Turbine construction and require a “Needs Assessment” before any new Wind Farms which require transmission upgrades can be built.
6. Increase Funding and Staffing Resources to UCA (Utilities Consumer Advocate) so that it can be truly effective in advocating for Electrical Consumers.