Educational Webinar: Embedded Cost Credits, Line Extensions and Standard Size Transformers

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June 6, 2024

WPPI ENERGY

Agenda

- Line Extensions
- Embedded Cost Credits
- Standard Size Transformers
- Investing in Your System

Line Extensions

- Line extensions are simply extensions of your distribution system to a new customer.
  - ➢Primary single or 3 phase
  - ➢Overhead or Underground
  - ➢Transformers
  - ➢Secondary (service laterals)

ELECTRIC RULES

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**See* Wis. Admin. Code ch. PSC 113.

Line Extensions

- Any extension of electric facilities is at cost to the customer, less the embedded cost credit.
  - ➢Standard length service laterals are the utility's responsibility.
    - Example – The first 150' of the service lateral.
  - ➢Standard transformer to serve customer is the utility's responsibility.
    - We will cover this in more depth later.
  - ➢Overhead to underground conversions at the request of the customer without service upgrade is at cost to the customer.
    - 100A to 200A upgrade, the utility covers any service upgrade.
    - Customer wants to relocate the service, or wants overhead to be undergrounded for their own reasons, without a service upgrade, the customer covers the actual cost, less the depreciated value of the removed overhead conductor.

Upgrades to Service Facilities (drops or laterals)

111.4 Upgrade of Service Facilities

(1.) Overhead Service Drop: The utility shall not charge the customer to upgrade an overhead service drop with a larger size overhead service drop up to the maximum standard size.

(2.) Underground Service Lateral: The utility shall not charge the customer to upgrade an underground service lateral with a larger size underground service lateral up to the maximum standard size.

(3.) Overhead Service Drop to Underground Service Lateral: The utility shall require a contribution from a customer requesting to have an overhead service drop upgraded to an underground service lateral. The contribution shall be equal to the cost of the underground service lateral less the cost of an equivalent overhead service drop.

(4.) Transformers: The utility shall not charge the customers to upgrade their transformer to the maximum standard capacity.

Embedded Cost Credits

- What is it?
- Why is it applied?
- How is it applied?
- Other Scenarios
- True-ups

What is it?

- A cost recovery method that collects a portion of the total installation cost over time.
- Upfront construction credit that equals the amount of ***existing*** service extension costs embedded in base rates
- Original cost of the installed distribution plant related to service extensions, excluding transformers, services & meters, less accumulated depreciation and CIAC allocated to each customer class
- Provide an equitable cost relationship between new and existing customers

What is it?

- Varies by customer class
  - Energy only customers allocated costs divided by total customers
  - Demand & energy customers allocated costs divided by total billed demand
- Data from cost of service
- PSC 113.1001 through PSC 113.1009
- Electric rules 107 – Installation Charges and Embedded Cost Credits
- Electric rules 108 - Refunds

Why is it applied?

- To avoid double-charging the customer for a portion of the installation cost (the amount of the embedded cost credit) that will be recovered through base rates
- When a new customer connects, the utility starts receiving incremental revenue through rates that, over time, will recover the amount of the embedded cost credit.
  - All customers, new and existing, are charged the same rate
  - All asset costs are recovered over time
- Without embedded cost credit, customer would pay twice
  - Once up front and once over time through rates

How is it applied?

- Total cost of installation (total cost of service extension)
  - Installed cost of extension of primary and secondary lines
  - Excludes standard meter, service drop and transformer
  - Utility responsible for costs in excess of customer needs
- Installation charge
  - Total cost of installation less embedded cost credit
  - Developers charged total cost of installation
    - Embedded cost credit refunded as structures are built and connected

How is it applied?

- Contributed service extension
  - Total cost of installation is greater than embedded cost credit
  - Customer pays difference between total cost and embedded cost credit – installation charge
- Non-contributed service extension
  - Total cost of installation is less than embedded cost credit
  - Customer pays nothing
- Adjustments
  - Reflect actual cost

How is it applied?

- Refunds to customer – PSC 113.1007
  - ➢Non-contributed extension from a contributed extension
    - Embedded cost credit less cost of extension
    - Refund based on current embedded cost credit or embedded cost credit when original extension was made, whichever is greater
    - Refund can not be greater than original contribution
    - Refunds limited to 5 years
  - ➢Contributed extension from a contributed extension
    - No customer refund
  - ➢Any extension from a non-contributed extension
    - No customer refund

Embedded Cost Credit Refund Examples

Non-contributed extension from a contributed extenstion

Customer 1 - Contributed extension

(a)	Total Cost of Installation		1,000.00	
(b)	Embedded Cost Credit		750.00	Recovered through rates over time
(c)	Installation Charge	(a) - (b)	250.00	Customer 1 pays utility up-front

Customer 2 - Non-contributed extension

(d)	Total Cost of Installation		700.00	
(e)	Embedded Cost Credit		750.00	Recovered through rates over time
(f)	Installation Charge	(d) - (e), floor of 0	-	Customer 2 pays utility up-front
(g)	Utility Refunds Customer 1	(e) - (d), floor of 0	50.00	

Combined

(h)	Total Cost of Installation	(a) + (d)	1,700.00	
(i)	Embedded Cost Credit	(b) + (e)	1,500.00	Recovered through rates over time
(j)	Installation Charge Collected	(c) + (f)	250.00	Customers paid utility up-front
(k)	Total Revenue Collected	(i) + (j)	1,750.00	
(l)	Total Cost of Installation	(h)	1,700.00	
(m)	Total Refunds Due	(k) - (l)	50.00	

Embedded Cost Credit Refund Examples

Contributed extension from a contributed extenstion

Customer 1 - Contributed extension

(a)	Total Cost of Installation		1,000.00	
(b)	Embedded Cost Credit		750.00	Recovered through rates over time
(c)	Installation Charge	(a) - (b)	250.00	Customer 1 pays utility up-front

Customer 2 - Contributed extension

(d)	Total Cost of Installation		800.00	
(e)	Embedded Cost Credit		750.00	Recovered through rates over time
(f)	Installation Charge	(d) - (e), floor of 0	50.00	Customer 2 pays utility up-front
(g)	Utility Refunds Customer 1	(e) - (d), floor of 0	-	

Combined

(h)	Total Cost of Installation	(a) + (d)	1,800.00	
(i)	Embedded Cost Credit	(b) + (e)	1,500.00	Recovered through rates over time
(j)	Installation Charge Collected	(c) + (f)	300.00	Customers paid utility up-front
(k)	Total Revenue Collected	(i) + (j)	1,800.00	
(l)	Total Cost of Installation	(h)	1,800.00	
(m)	Total Refunds Due	(k) - (l)	-	

Other Scenarios and True-ups

- Modification to existing distribution and service facilities
  - ➢PSC 113.1008
    - Distribution facility modifications requiring contribution
      - Relocation and rebuilding of existing distribution facilities
      - Replacement of overhead with underground facilities
      - Upgrade of distribution facilities
    - Service Facility modifications requiring contribution
      - Overhead upgraded to underground
- Revision of estimates to reflect actual cost
  - ➢PSC 113.1009
    - Differ more than $20 – refund or charge due to customer

Standard Size Transformers

- Every member has a standard size transformer in their tariff.
  - This varies by member.
  - Some members have, or want to, change this to a smaller size transformer.
  - Some members have removed a maximum size transformer.
- Most concerns over the standard size transformer has come from larger EV chargers that require larger transformers to serve the load coupled with low usage.

Standard Size Transformer

106.12 Transformers

The utility shall provide standard design transformers necessary to serve the customer's load at no charge.

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The utility shall provide standard design transformers necessary to serve the customer's load at no charge.

A standard design transformer is a transformer with capacity less than or equal to 300 kVA. If a customer requests or requires additional capacity, the utility shall add to the total cost of installation a charge equal to the cost of the necessary transformer(s) less a credit for the cost of the maximum capacity standard transformer.

Benefits of a Utility Owning the Transformer

- Customer contributed transformers are a negative cashflow
  - PILOT
  - O&M expense
  - Property insurance
- Utility owned transformers are a positive cashflow
  - Depreciation expense – recover cost over time
  - Return on investment

$ 50,000 **Transformer installed cost**

Year	Net Investment Rate Base				Return on NIRB	PILOT		Property Insurance		Cashflow
	BOY	Dep. Exp [1]	Accum Dep	EOY	6.20%	Mill Rate [2]		Mill Rate [2]		
1	$ 50,000	$ 1,515	$ 1,515	$ 48,485	$ 3,006.06	$ 0.01255665	$ (628)	$ 0.00080000	$ (40)	$ 2,338.23
2	48,485	1,515	3,030	46,970	2,912.12	0.01280778	(640)	0.00081600	(41)	2,230.93
3	46,970	1,515	4,545	45,455	2,818.18	0.01306394	(653)	0.00083232	(42)	2,123.37
4	45,455	1,515	6,061	43,939	2,724.24	0.01332522	(666)	0.00084897	(42)	2,015.53
5	43,939	1,515	7,576	42,424	2,630.30	0.01359172	(680)	0.00086595	(43)	1,907.42
6	42,424	1,515	9,091	40,909	2,536.36	0.01386356	(693)	0.00088326	(44)	1,799.02
7	40,909	1,515	10,606	39,394	2,442.42	0.01414083	(707)	0.00090093	(45)	1,690.34
8	39,394	1,515	12,121	37,879	2,348.48	0.01442364	(721)	0.00091895	(46)	1,581.36
9	37,879	1,515	13,636	36,364	2,254.55	0.01471212	(736)	0.00093733	(47)	1,472.07
10	36,364	1,515	15,152	34,848	2,160.61	0.01500636	(750)	0.00095607	(48)	1,362.48
11	34,848	1,515	16,667	33,333	2,066.67	0.01530649	(765)	0.00097520	(49)	1,252.58
12	33,333	1,515	18,182	31,818	1,972.73	0.01561262	(781)	0.00099470	(50)	1,142.36
13	31,818	1,515	19,697	30,303	1,878.79	0.01592487	(796)	0.00101459	(51)	1,031.81
14	30,303	1,515	21,212	28,788	1,784.85	0.01624337	(812)	0.00103489	(52)	920.94
15	28,788	1,515	22,727	27,273	1,690.91	0.01656823	(828)	0.00105558	(53)	809.72
16	27,273	1,515	24,242	25,758	1,596.97	0.01689960	(845)	0.00107669	(54)	698.16
17	25,758	1,515	25,758	24,242	1,503.03	0.01723759	(862)	0.00109823	(55)	586.24
18	24,242	1,515	27,273	22,727	1,409.09	0.01758234	(879)	0.00112019	(56)	473.96
19	22,727	1,515	28,788	21,212	1,315.15	0.01793399	(897)	0.00114260	(57)	361.32
20	21,212	1,515	30,303	19,697	1,221.21	0.01829267	(915)	0.00116545	(58)	248.31
21	19,697	1,515	31,818	18,182	1,127.27	0.01865852	(933)	0.00118876	(59)	134.91
22	18,182	1,515	33,333	16,667	1,033.33	0.01903169	(952)	0.00121253	(61)	21.12
23	16,667	1,515	34,848	15,152	939.39	0.01941233	(971)	0.00123678	(62)	(93.06)
24	15,152	1,515	36,364	13,636	845.45	0.01980057	(990)	0.00126152	(63)	(207.65)
25	13,636	1,515	37,879	12,121	751.52	0.02019658	(1,010)	0.00128675	(64)	(322.65)
26	12,121	1,515	39,394	10,606	657.58	0.02060052	(1,030)	0.00131248	(66)	(438.07)
27	10,606	1,515	40,909	9,091	563.64	0.02101253	(1,051)	0.00133873	(67)	(553.93)
28	9,091	1,515	42,424	7,576	469.70	0.02143278	(1,072)	0.00136551	(68)	(670.22)
29	7,576	1,515	43,939	6,061	375.76	0.02186143	(1,093)	0.00139282	(70)	(786.95)
30	6,061	1,515	45,455	4,545	281.82	0.02229866	(1,115)	0.00142068	(71)	(904.15)
31	4,545	1,515	46,970	3,030	187.88	0.02274463	(1,137)	0.00144909	(72)	(1,021.81)
32	3,030	1,515	48,485	1,515	93.94	0.02319953	(1,160)	0.00147807	(74)	(1,139.94)
33	1,515	1,515	50,000	-	-	0.02366352	(1,183)	0.00150763	(75)	(1,258.56)
		$ 50,000			$ 49,600.00		$ (28,950)		$ (1,844)	$ 18,805

[1] Assumes annual depreciation rate of 3.03%

[2] Mill rates escalated 2.0% annually

Wisconsin Regulatory Method

- Encourages utilities to investment in their system
  - Only way to have positive cashflow
  - Annual plant additions need to be higher than annual depreciation expense
  - Maintain a reliable system

In Summary

- Review and understand your extension rules, and stay consistent with them.
- Investment in your distribution system is vital for long term financial health of the utility.
- Customer contributed assets are negative cashflow.
- As always, we are here to help, contact us with any questions at any time.

Questions?

Basic Utility Accounting and Finance

Building Blocks for Long-Term Financial Health

Tuesday, August 13, 8:30 a.m. – 3:30 p.m.
WPPI Energy, Sun Prairie, Wis.

Attendees will learn foundational concepts and best practice strategies for municipal electric utility application. Topics will include:

- Capital improvement planning
- Project financing
- Relationship between rates and cash flow
- Capitalization vs. maintenance
- Construction overheads
- Cost allocation, budgeting and more.

This training course is provided in partnership with APPA will feature speakers Bethany Ryers and Ryan O'Donnel from Baker Tilly.

Watch for more details and registration to come!

Thank You

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