

Compliance Aggregation

Revenue Metering Sub-Committee Meeting
May 10, 2006
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Compliance Aggregation - Overview

Program developed as a result of the ‘Dispatch Issues Working Group’

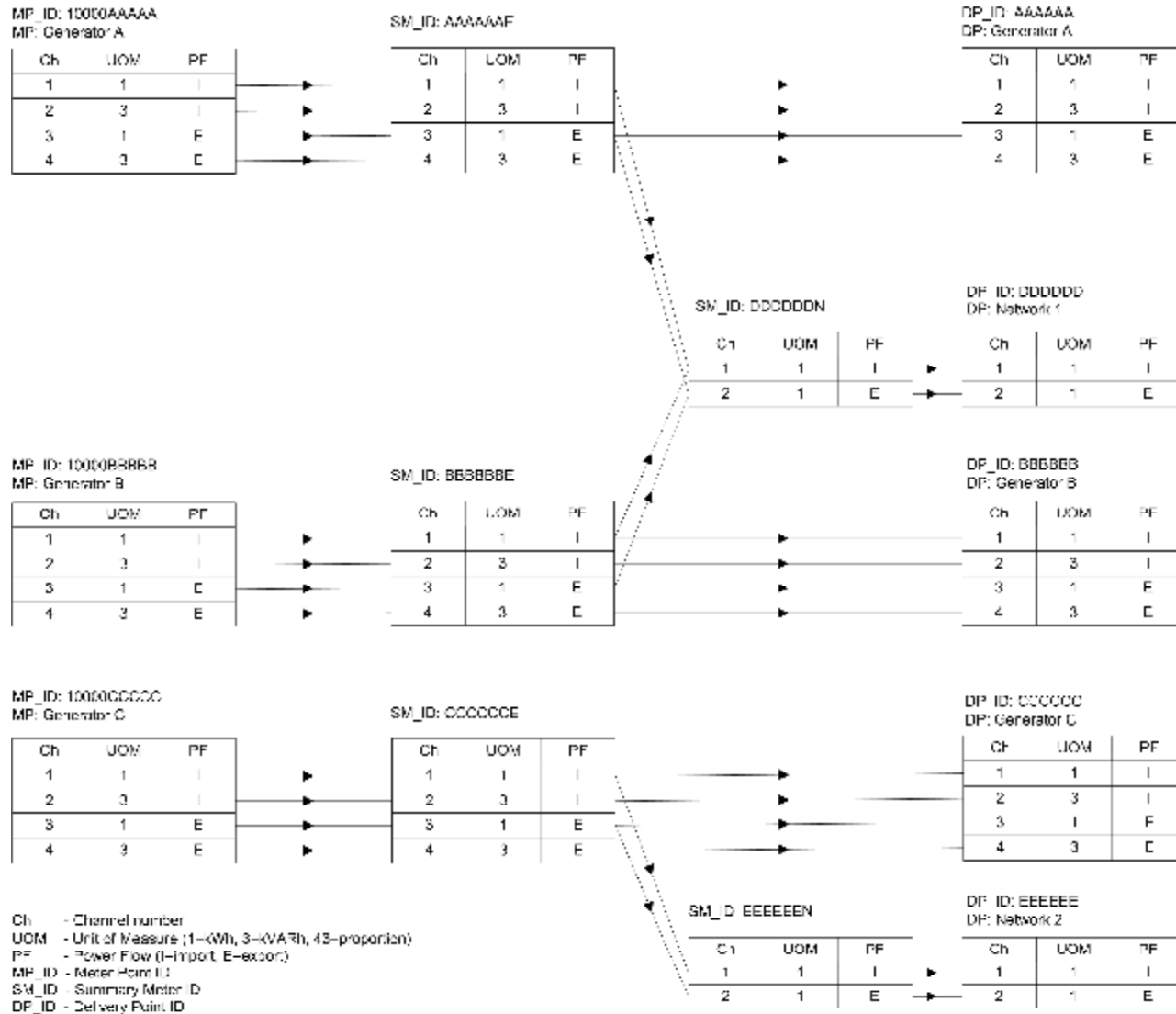
Allows participants to “aggregate” dispatch instructions for two or more separate resources for purposes of compliance

- Many multi-unit hydroelectric stations are modeled as separate resources
- When one unit that was expected to run economically is forced out or de-rated, the water can often physically be run through another unit that wasn’t dispatched. However, IESO market tools and procedures presently don’t allow this flexibility.
- Generators are left to either spill economic water, or be non compliant to dispatch for regulatory reasons.
- Compliance Aggregation would allow MW to be transferred to another related Delivery Point when a unit fails to perform in response to a dispatch.

Compliance Aggregation - MVSTAR

- **Compliance Aggregation is performed in the MVStar system**
 - A Schedule Set redistributes the percentage of the Total Generation (AGG_TOTAL) to the Delivery Points
 - Redistribution is based on the Dispatch Instructions of each Generator
- **A Schedule Set is comprised of:**
 - Shared Meter – AGG_TOTAL (the sum of the generators)
 - SS_SP meters – dispatch instruction based on percentages (the sum of all SS_SP meters is one for each interval)
 - SS_SM meters – reallocation of the AGG_TOTAL to each Delivery Point
- **$SS_SM = SS_SP * AGG_TOTAL$**

Compliance Aggregation Overview of 3 Generators Independently Modeled



Compliance Aggregation Settlement Overview – Actual Model Data



DP: AAAAAA ch.3

Time	Value	FG	AS
0245	2952.52	A	1
0250	2948.42	A	1
0255	2946.66	A	1
0300	2957.32	A	1
0305	2947.03	A	1
0310	2967.52	A	1
0315	2953.47	A	1
0320	2951.75	A	1
0325	2955.57	A	1
0330	2954.32	A	1
0335	2956.06	A	1
0340	2973.72	A	1
0345	2945.13	A	1
0350	2960.37	A	1
0355	2949.97	A	1
0400	2956.63	A	1

DP: BBBBBB ch.3

Time	Value	FG	AS
0245	2967.15	A	1
0250	2964.87	A	1
0255	2964.91	A	1
0300	2974.68	A	1
0305	2963.14	A	1
0310	2985.08	A	1
0315	2974.45	A	1
0320	2971.02	A	1
0325	2975.70	A	1
0330	2971.25	A	1
0335	2974.68	A	1
0340	2991.39	A	1
0345	2960.44	A	1
0350	2977.04	A	1
0355	2968.73	A	1
0400	2977.99	A	1

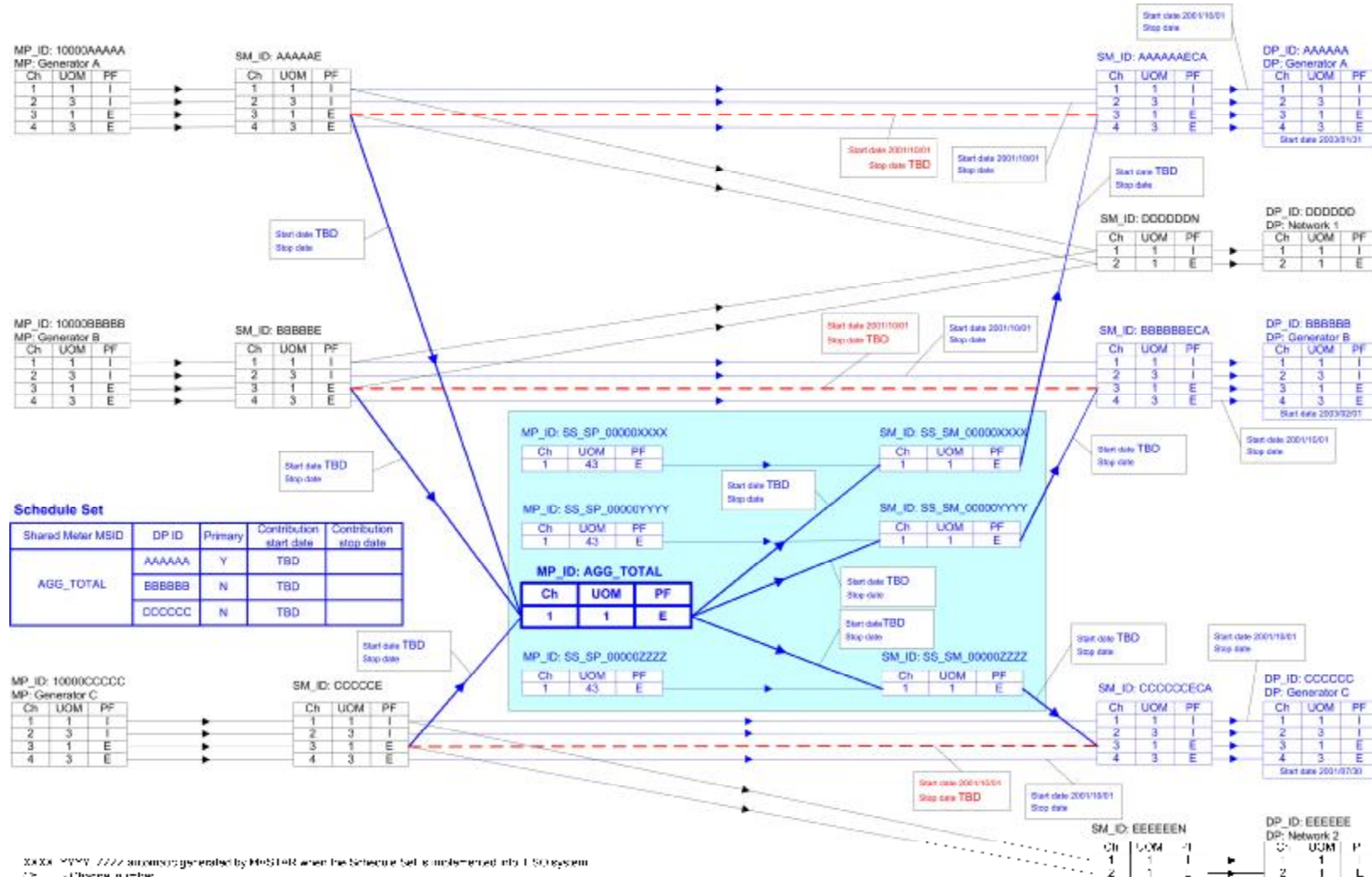
DP: CCCCCC ch.3

Time	Value	FG	AS
0245	.00	A	1
0250	.00	A	1
0255	.00	A	1
0300	.00	A	1
0305	.00	A	1
0310	.00	A	1
0315	.00	A	1
0320	.00	A	1
0325	.00	A	1
0330	.00	A	1
0335	.00	A	1
0340	.00	A	1
0345	.00	A	1
0350	.00	A	1
0355	.00	A	1
0400	.00	A	1



Compliance Aggregation

Overview of 3 Generators using the Compliance Aggregation Model



XXXX YYYY ZZZZ alphanumeric generated by M00144 when the Schedule Set is implemented into IESO system
 Ch - Churny number
 UOM - Unit of Measure (I=KW, 3=KWh, 43=KWh/Export)
 PF - Power Flow (I=Import, E=Export)
 MP_ID - Meter Profile ID
 SM_ID - Summary Meter ID
 DP_ID - Delivery Point ID

Compliance Aggregation Dispatch Instructions



- Values calculated as a percentage based on the Dispatch Instructions for Generator A, B, and C

SS_SP_0000XXXX				SS_SP_0000YYYY				SS_SP_0000ZZZZ			
Time	Value	FG	AS	Time	Value	FG	AS	Time	Value	FG	AS
0245	.50	D		0245	.50	D		0245	.00	D	
0250	.50	D		0250	.50	D		0250	.00	D	
0255	.50	D		0255	.50	D		0255	.00	D	
0300	.50	D		0300	.50	D		0300	.00	D	
0305	.50	D		0305	.50	D		0305	.00	D	
0310	.33	D		0310	.33	D		0310	.33	D	
0315	.33	D		0315	.33	D		0315	.33	D	
0320	.50	D		0320	.50	D		0320	.00	D	
0325	.50	D		0325	.50	D		0325	.00	D	
0330	.50	D		0330	.50	D		0330	.00	D	
0335	.50	D		0335	.50	D		0335	.00	D	
0340	.50	D		0340	.50	D		0340	.00	D	
0345	.50	D		0345	.50	D		0345	.00	D	
0350	.50	D		0350	.50	D		0350	.00	D	
0355	.50	D		0355	.50	D		0355	.00	D	
0400	.50	D		0400	.50	D		0400	.00	D	

Compliance Aggregation Actual Model vs. Compliance Aggregation Model

ACTUAL MODEL

COMPLIANT AGGREGATION MODEL

DP: AAAAAA ch.3				DP: BBBBBB ch.3				DP: CCCCCC ch.3				AGG_TOTAL				DP: AAAAAA ch.3				DP: BBBBBB ch.3				DP: CCCCCC ch.3											
Time	Value	FG	AS	Time	Value	FG	AS	Time	Value	FG	AS	Time	Value	FG	AS	Time	Value	FG	AS	Time	Value	FG	AS	Time	Value	FG	AS	Time	Value	FG	AS	Time	Value	FG	AS
0245	2952.52	A	1	0245	2967.15	A	1	0245	.00	A	1	0245	5919.67	A	1	0245	2959.84	D	1	0245	2959.84	D	1	0245	.00	D	1	0245	.00	D	1				
0250	2948.42	A	1	0250	2964.87	A	1	0250	.00	A	1	0250	5913.29	A	1	0250	2956.64	D	1	0250	2956.64	D	1	0250	.00	D	1	0250	.00	D	1				
0255	2946.66	A	1	0255	2964.91	A	1	0255	.00	A	1	0255	5911.57	A	1	0255	2955.78	D	1	0255	2955.78	D	1	0255	.00	D	1	0255	.00	D	1				
0300	2957.32	A	1	0300	2974.68	A	1	0300	.00	A	1	0300	5932.00	A	1	0300	2966.00	D	1	0300	2966.00	D	1	0300	.00	D	1	0300	.00	D	1				
0305	2947.03	A	1	0305	2963.14	A	1	0305	.00	A	1	0305	5910.16	A	1	0305	2955.08	D	1	0305	2955.08	D	1	0305	.00	D	1	0305	.00	D	1				
0310	2967.52	A	1	0310	2985.08	A	1	0310	.00	A	1	0310	5952.60	A	1	0310	1984.20	D	1	0310	1984.20	D	1	0310	1984.20	D	1	0310	1984.20	D	1				
0315	2953.47	A	1	0315	2974.45	A	1	0315	.00	A	1	0315	5927.92	A	1	0315	1975.97	D	1	0315	1975.97	D	1	0315	1975.97	D	1	0315	1975.97	D	1				
0320	2951.75	A	1	0320	2971.02	A	1	0320	.00	A	1	0320	5922.77	A	1	0320	2961.39	D	1	0320	2961.39	D	1	0320	.00	D	1	0320	.00	D	1				
0325	2955.57	A	1	0325	2975.70	A	1	0325	.00	A	1	0325	5931.27	A	1	0325	2965.63	D	1	0325	2965.63	D	1	0325	.00	D	1	0325	.00	D	1				
0330	2954.32	A	1	0330	2971.25	A	1	0330	.00	A	1	0330	5925.57	A	1	0330	2962.79	D	1	0330	2962.79	D	1	0330	.00	D	1	0330	.00	D	1				
0335	2956.06	A	1	0335	2974.68	A	1	0335	.00	A	1	0335	5930.74	A	1	0335	2965.37	D	1	0335	2965.37	D	1	0335	.00	D	1	0335	.00	D	1				
0340	2973.72	A	1	0340	2991.39	A	1	0340	.00	A	1	0340	5965.10	A	1	0340	2982.55	D	1	0340	2982.55	D	1	0340	.00	D	1	0340	.00	D	1				
0345	2945.13	A	1	0345	2960.44	A	1	0345	.00	A	1	0345	5905.57	A	1	0345	2952.78	D	1	0345	2952.78	D	1	0345	.00	D	1	0345	.00	D	1				
0350	2960.37	A	1	0350	2977.04	A	1	0350	.00	A	1	0350	5937.41	A	1	0350	2968.71	D	1	0350	2968.71	D	1	0350	.00	D	1	0350	.00	D	1				
0355	2949.97	A	1	0355	2968.73	A	1	0355	.00	A	1	0355	5818.71	A	1	0355	2959.35	D	1	0355	2959.35	D	1	0355	.00	D	1	0355	.00	D	1				
0400	2956.63	A	1	0400	2977.99	A	1	0400	.00	A	1	0400	5934.62	A	1	0400	2967.31	D	1	0400	2967.31	D	1	0400	.00	D	1	0400	.00	D	1				

DISPATCH INSTRUCTIONS

SS_SP_0000XXXX				SS_SP_0000YYYY				SS_SP_0000ZZZZ			
Time	Value	FG	AS	Time	Value	FG	AS	Time	Value	FG	AS
0245	.50	D		0245	.50	D		0245	.00	D	
0250	.50	D		0250	.50	D		0250	.00	D	
0255	.50	D		0255	.50	D		0255	.00	D	
0300	.50	D		0300	.50	D		0300	.00	D	
0305	.50	D		0305	.50	D		0305	.00	D	
0310	.33	D		0310	.33	D		0310	.33	D	
0315	.33	D		0315	.33	D		0315	.33	D	
0320	.50	D		0320	.50	D		0320	.00	D	
0325	.50	D		0325	.50	D		0325	.00	D	
0330	.50	D		0330	.50	D		0330	.00	D	
0335	.50	D		0335	.50	D		0335	.00	D	
0340	.50	D		0340	.50	D		0340	.00	D	
0345	.50	D		0345	.50	D		0345	.00	D	
0350	.50	D		0350	.50	D		0350	.00	D	
0355	.50	D		0355	.50	D		0355	.00	D	
0400	.50	D		0400	.50	D		0400	.00	D	

$$AGG_TOTAL = Gen1 + Gen2 + Gen3$$

$$SS_SM = AGG_TOTAL \times SS_SP$$

Compliance Aggregation Registration Process (in development)

1. **MMP requires IESO approval to participate in Compliance Aggregation – Facilities Registration**
 - Security of System
 - River related
2. **Develop Aggregation Model**
 - IESO Wholesale Metering Group and MMP
 - Identification of Delivery Points, meters, etc
 - Schedule Set
 - SS_SP
 - SS_SM
 - Establish Effective Date
 - MMP signs IESO FORM ???? – Compliance Aggregation Model
3. **MSP to submit IESO FORM 1310 - Totalization Table Form and open Hotline Ticket**
4. **IESO implements Compliance Aggregation Model into MVStar**
5. **MSP signs Site Registration Report and Hotline Ticket is closed**

Conditions:

- Use existing Delivery Points
- Compliance Aggregation Model cannot be modified once implemented
 - will require new DP's, Model Build and Compliance Aggregation Model
- A Delivery Point can only contribute to one Schedule Set

Compliance Aggregation Registration Process (in development)



- **Market Manuals, Forms and ISG's are under development**
- **Two MMP's are scheduled to participate in Compliance Aggregation Program late June/early July**
- **Meeting with MMP's scheduled for the week of May 15, 2006**

For more information refer to

http://www.ieso.ca/imoweb/consult/consult_dispatch-issues.asp