



General Distribution

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ISOE INFORMATION SHEET
LIST OF
BWR AND CANDU
SISTER UNIT GROUPS

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In order to compare similar reactors i.e. reactor units with similar designs, sister unit groups have been defined. This work, which has been done some years ago for PWR reactors, has been completed for BWR and CANDU reactors.

The definition of a sister units group is based on the following criteria: same constructor and same "generation". A generation is defined as a group where the reactor unit technology is quite similar. Generation 1 corresponds to the first generation for a constructor, generation 2 to the second one, and so on. The generation 0 is used to define the very first reactors designed by a constructor and corresponds to the oldest reactors that are not really comparable with the others nor even to each other.

This ISOE Information Sheet presents the list of sister unit groups respectively for BWR and CANDU reactors. These lists have been validated by the national coordinators. These sister unit groups will be introduced into the next release of the MADRAS Software. In conjunction new push-buttons will be available in order to perform benchmarking analyses at the level of the unit.

BWR Sister Unit Groups

Sister Unit Group	Plant Unit	Country	Gross Power
ABB Atom			
ABB0	Oskarshamn 1	Sweden	450 MWe
ABB1	Ringhals 1	Sweden	750 MWe
ABB2	Barsebäck 1	Sweden	600 MWe
	Barsebäck 2	Sweden	600 MWe
	Oskarshamn 2	Sweden	600 MWe
ABB3	Forsmark 1	Sweden	900 MWe
	Forsmark 2	Sweden	900 MWe
	TVO 1	Finland	840 MWe
	TVO 2	Finland	840 MWe
ABB4	Forsmark 3	Sweden	1050 MWe
	Oskarshamn 3	Sweden	1050 MWe
General Electric (GE)			
GE0 (BWR1)	Big Rock Point 1	USA	70 MWe
	Dodewaard	Netherlands	60 MWe
	Dresden 1	USA	200 MWe
	Garigliano	Italy	150 MWe
	Gundremmingen A	Germany	240 MWe
	Humboldt Bay 3	USA	70 MWe
GE1 (BWR2)	Oyster Creek 1	USA	650 MWe
	Nine Mile Point 1	USA	650 MWe
	Tsuruga 1	Japan	357 MWe
GE2 (BWR3)	Dresden 2	USA	850 MWe
	Dresden 3	USA	850 MWe
	Fukushima Daiichi 1	Japan	460 MWe
	Garona	Spain	450 MWe
	Millstone 1	USA	650 MWe
	Monticello	USA	550 MWe
	Pilgrim 1	USA	650 MWe
	Quad Cities 1	USA	850 MWe
	Quad Cities 2	USA	850 MWe

Sister Unit Group	Plant Unit	Country	Gross Power
GE3 (BWR4)	Browns Ferry 1	USA	1100 MWe
	Browns Ferry 2	USA	1100 MWe
	Browns Ferry 3	USA	1100 MWe
	Brunswick 1	USA	850 MWe
	Brunswick 2	USA	850 MWe
	Caorso	Italy	850 MWe
	Cooper	USA	800 MWe
	Duane Arnold	USA	550 MWe
	Fermi 2	USA	1100 MWe
	Fitzpatrick	USA	850 MWe
	Fukushima Daiichi 2	Japan	784 MWe
	Hatch 1	USA	850 MWe
	Hatch 2	USA	850 MWe
	Hope Creek	USA	1100 MWe
	Limerick 1	USA	1100 MWe
	Limerick 2	USA	1100 MWe
	Mühleberg	Switzerland	320 MWe
	Peach Bottom 2	USA	1100 MWe
	Peach Bottom 3	USA	1100 MWe
	GE4 (BWR5)	Susquehanna 1	USA
Susquehanna 2		USA	1100 MWe
Vermont Yankee		USA	550 MWe
Fukushima Daiichi 6		Japan	1100 MWe
La Salle 1		USA	1100 MWe
La Salle 2		USA	1100 MWe
Laguna Verde 1		Mexico	650 MWe
Laguna Verde 2		Mexico	650 MWe
GE5 (BWR6)	Nine Mile Point 2	USA	1100 MWe
	Tokai 2	Japan	1100 MWe
	WNP 2	USA	1100 MWe
	Clinton 1	USA	1000 MWe
	Cofrentes	Spain	1000 MWe
	Grand Gulf 1	USA	1300 MWe
	Leibstadt	Switzerland	1000 MWe
Perry 1	USA	1200 MWe	
River Bend 1	USA	1000 MWe	

Sister Unit Group	Plant Unit	Country	Gross Power
Siemens KWU			
S00	Lingen	Germany	240 MWe
	Würgassen	Germany	650 MWe
S69	Brünsbittel	Germany	800 MWe
	Isar 1	Germany	860 MWe
	Philippsburg 1	Germany	860 MWe
	Krümmel	Germany	1260 MWe
S72	Gundremmingen B	Germany	1250 MWe
	Gundremmingen C	Germany	1250 MWe
TOSHIBA - HITACHI			
TOS1 (BWR4)	Fukushima Daiichi 3	Japan	784 MWe
	Fukushima Daiichi 4	Japan	784 MWe
	Fukushima Daiichi 5	Japan	784 MWe
	Hamaoka 1	Japan	540 MWe
	Hamaoka 2	Japan	840 MWe
	Onagawa 1	Japan	524 MWe
	Shimane 1	Japan	460 MWe
TOS2 (BWR5)	Fukushima Daini 1	Japan	1100 MWe
	Fukushima Daini 2	Japan	1100 MWe
	Fukushima Daini 3	Japan	1100 MWe
	Fukushima Daini 4	Japan	1100 MWe
	Hamaoka 3	Japan	1100 MWe
	Hamaoka 4	Japan	1137 MWe
	Kashiwazaki Kariwa 1	Japan	1100 MWe
	Kashiwazaki Kariwa 2	Japan	1100 MWe
	Kashiwazaki Kariwa 3	Japan	1100 MWe
	Kashiwazaki Kariwa 4	Japan	1100 MWe
	Kashiwazaki Kariwa 5	Japan	1100 MWe
	Onagawa 2	Japan	825 MWe
	Shika 1	Japan	540 MWe
	Shimane 2	Japan	820 MWe
GE-TOSHIBA-HITACHI			
ABWR	Kashiwazaki-Kariwa 6	Japan	1356 MWe
	Kashiwazaki-Kariwa 7	Japan	1356 MWe

CANDU Sister Unit Groups

Sister Unit Group	Plant Unit	Country	Model
AECL			
AECL0	Douglas Point	Canada	CANDU 200
AECL1	Gentilly 1	Canada	HW BLWR 250
AECL2	Pickering A 1	Canada	CANDU 500 serie A
	Pickering A 2	Canada	CANDU 500 serie A
	Pickering A 3	Canada	CANDU 500 serie A
	Pickering A 4	Canada	CANDU 500 serie A
	Pickering B 5	Canada	CANDU 500 serie B
	Pickering B 6	Canada	CANDU 500 serie B
	Pickering B 7	Canada	CANDU 500 serie B
	Pickering B 8	Canada	CANDU 500 serie B
AECL3	Point Lepreau 1	Canada	CANDU 600
	Gentilly 2	Canada	CANDU 600
	Cernavoda 1	Romania	CANDU 600
	Embalse 1	Argentina	CANDU 600
	Wolsong 1	Korea	CANDU 600
	Wolsong 2	Korea	CANDU 600
	Wolsong 3	Korea	CANDU 600
AECL4	Bruce A 1	Canada	CANDU 750 serie A
	Bruce A 2	Canada	CANDU 750 serie A
	Bruce A 3	Canada	CANDU 750 serie A
	Bruce A 4	Canada	CANDU 750 serie A
	Bruce B 5	Canada	CANDU 750 serie B
	Bruce B 6	Canada	CANDU 750 serie B
	Bruce B 7	Canada	CANDU 750 serie B
	Bruce B 8	Canada	CANDU 750 serie B
AECL5	Darlington 1	Canada	CANDU 850
	Darlington 2	Canada	CANDU 850
	Darlington 3	Canada	CANDU 850
	Darlington 4	Canada	CANDU 850