SMART POWER GENERATION

Wärtsilä North America, Inc

December, 2012

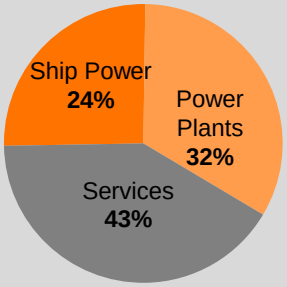
Wayne M. Elmore
Regional Director, Power Plants Sales

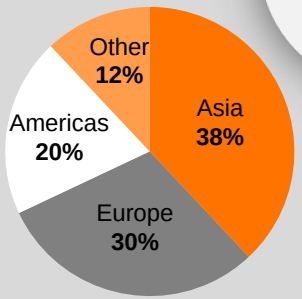
Wärtsilä Corporation – an overview

Solutions for

18,000 professionals in over 70 countries

WÄRTSILÄ





- USD5.5bn sales in 2011 (USD6.0bn in 2010)
- Solid financial standing, EBIT 11,1% in 2011
- Listed in Helsinki, Finland

Do things better than anyone else in our industry

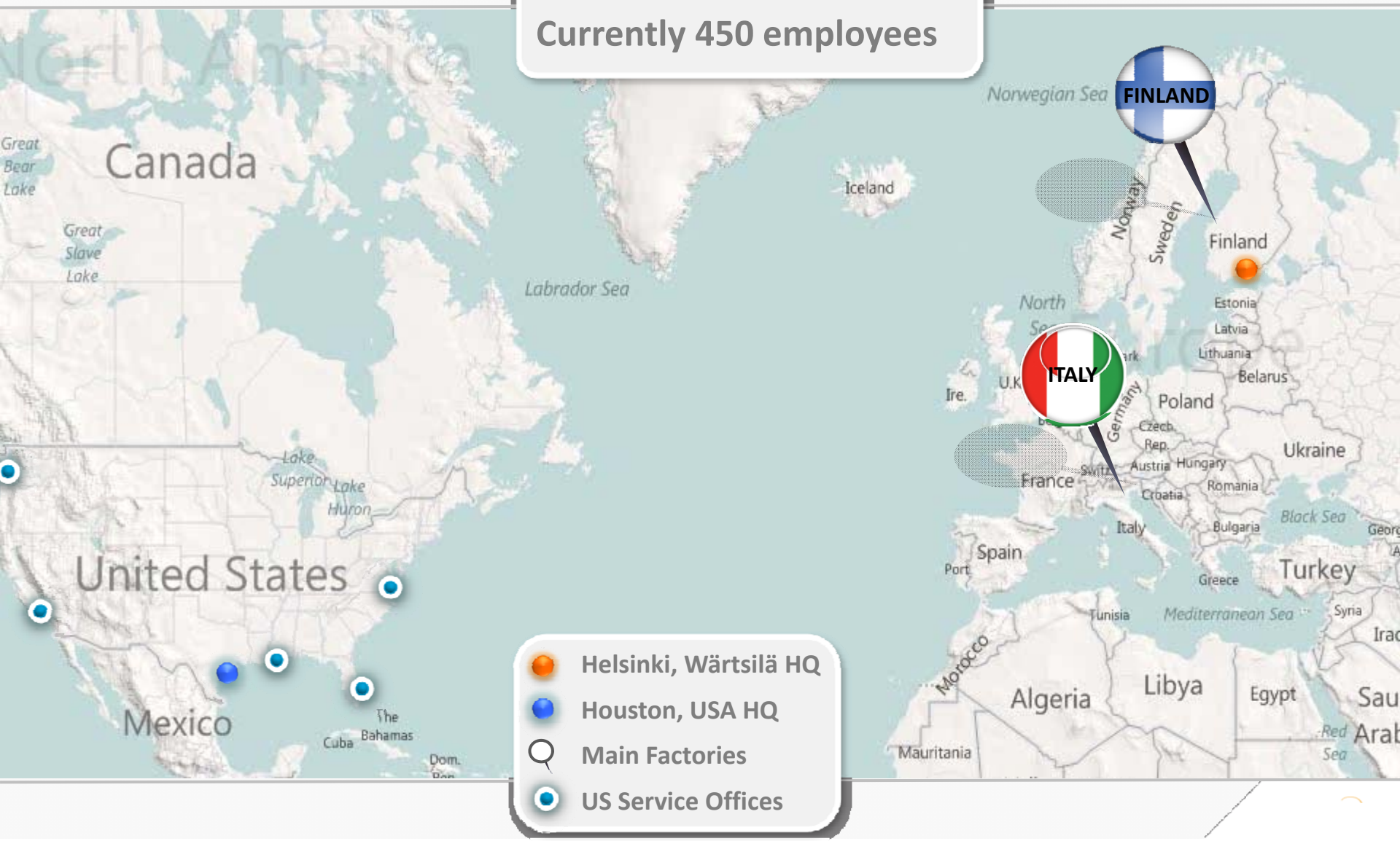
Capture opportunities and make things happen

Foster openness, respect and trust to create excitement

WÄRTSILÄ

About Wärtsilä

Wärtsilä USA since 1979.
Currently 450 employees



Installed base – Wärtsilä Powering the world*

Europe:
Output: 11,8 GW
Plants: 1783
Engines: 3336

Asia:
Output: 17,2 GW
Plants: 1619
Engines: 3487

Americas:
Output: 9,5 GW
Plants: 367
Engines: 1220

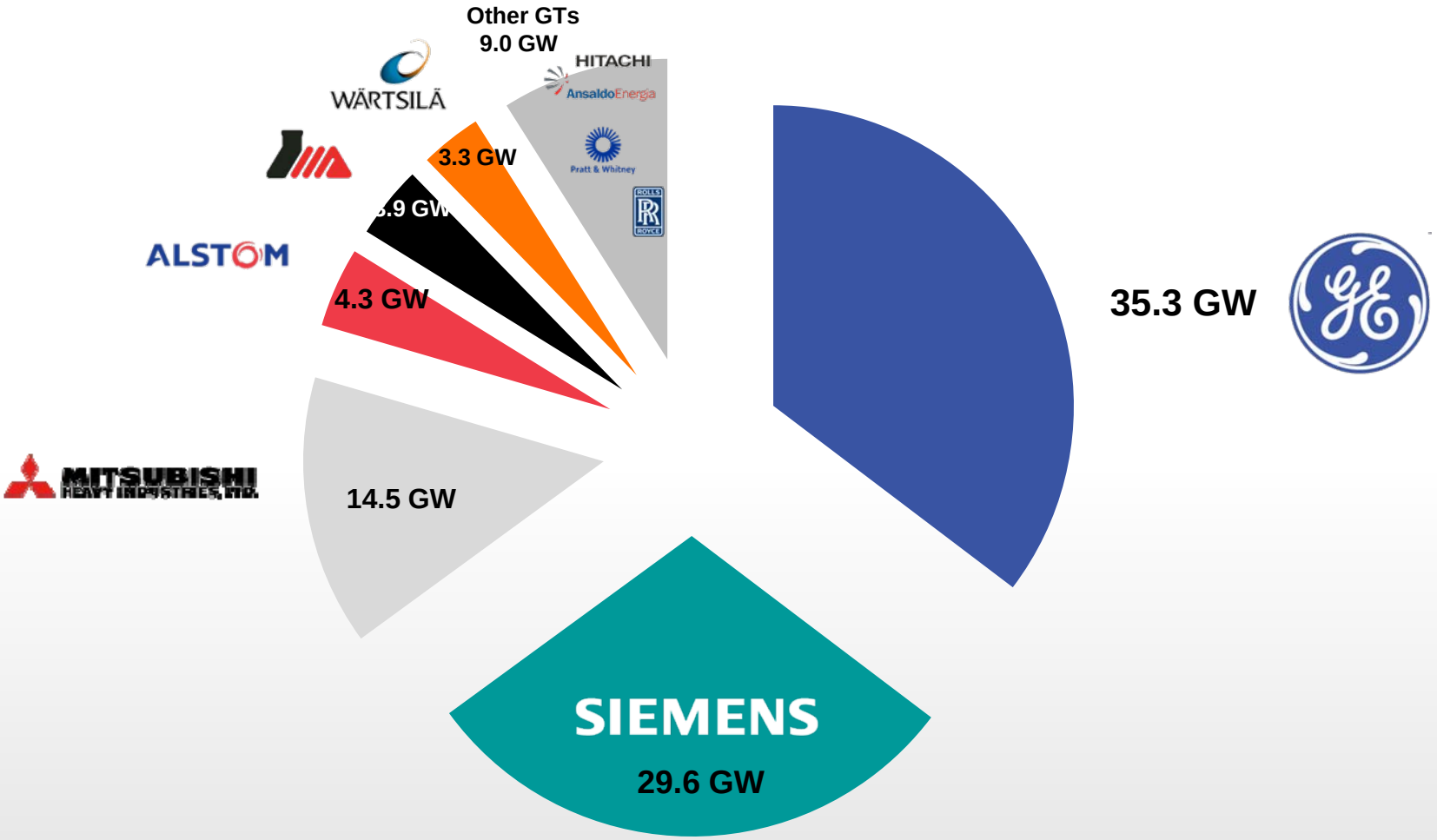
Total: 48,8 GW
Plants: 4599
Engines: 10159
Countries: 169

Africa & Middle East:
Output: 10,4 GW
Plants: 830
Engines: 2116

- Industrial self-generation
- Flexible baseload
- Grid stability & peaking
- Oil & gas

* December 2011

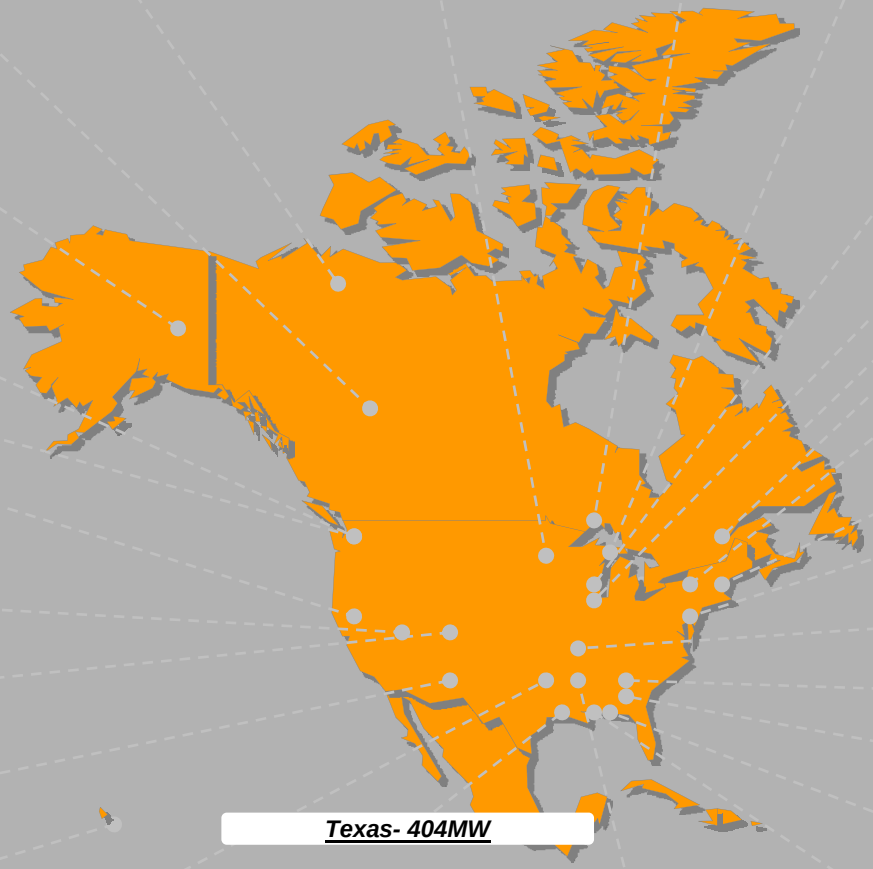
2011 orders by manufacturer



TOTAL MARKET: 99.9 GW

NB. Other combustion engines not included – data from IESG for 2011 not available
NB. Includes all gas and liquid-fuelled power plants with prime movers above 5 MW
NB. Includes estimated output of steam turbines for combined cycles (factor 0.5 for industrial turbines, 0.4 for aeros)

Wärtsilä References in USA & Canada



North West Territories-14 MW
Horn River- 42 MW
Minnesota-23 MW
Ontario-5 MW
Michigan- 17 MW
Illinois-25 MW
Indiana-8 MW
Ohio-11 MW
Alaska- 247 MW
Iles de la Madeleine-67 MW
Pennsylvania-23 MW
Washington- 39 MW
New Jersey -9 MW
Oregon-16 MW
Maryland-31 MW
California- 270 MW
Missouri-12 MW
Nevada -118 MW
Tennessee-12 MW
Colorado-229 MW
Alabama-41 MW
New Mexico - 49MW
Texas- 404MW
Hawaii - 32 MW
Kansas- 87 MW
Arkansas-18 MW
Louisiana-12 MW
Mississippi-12 MW

1873 MW Total Capacity

WÄRTSILÄ

Wärtsilä in The Caribbean

COUNTRY		COUNTRY	
Anguilla	19 MW	Haiti	36 MW
Antigua	81 MW	Jamaica	244 MW
Aruba	98 MW	Martinique	95 MW
Bahamas	49 MW	Nevis	3 MW
Belize	24 MW	Puerto Rico	10 MW
Bermuda	45 MW	St. Kitts	7 MW
Bonaire	8 MW	St. Lucia	78 MW
BVI	33 MW	St. Maarten	114 MW
Cayman Island	21 MW	St. Martin	15 MW
Curacao	49 MW	St. Vincent	17 MW
Dominica	9 MW	Suriname	56 MW
Dominican Republic	1399 MW	Trinidad	11 MW
Grenada	21 MW	Tobago	64 MW
Guyana	144 MW	Turks & Caicos	17 MW

2767 MW Total Capacity

INTERNAL USE ONLY

Wärtsilä in Central America

Country	Total	Project Name	
Guatemala	**374 MW**	Puerto Quetzal Genor Esquintla Planta Arizona	114 MW 40 MW 60 MW 160 MW
Honduras	**465 MW**	Elcosa Lufussa I Lufussa II Enee Roatan	80 MW 80 MW 267 MW 32 MW 6 MW
El Salvador	**434 MW**	Talnique Nejapa Acajutla Soyapango	105 MW 150 MW 148 MW 16 MW
Nicaragua	**62 MW**	Tipitapa Planta Managua	50 MW 12 MW
Costa Rica	**8 MW**	Colima	8 MW
Panama	**96 MW**	PanAm	96 MW

1424 MW Total Capacity

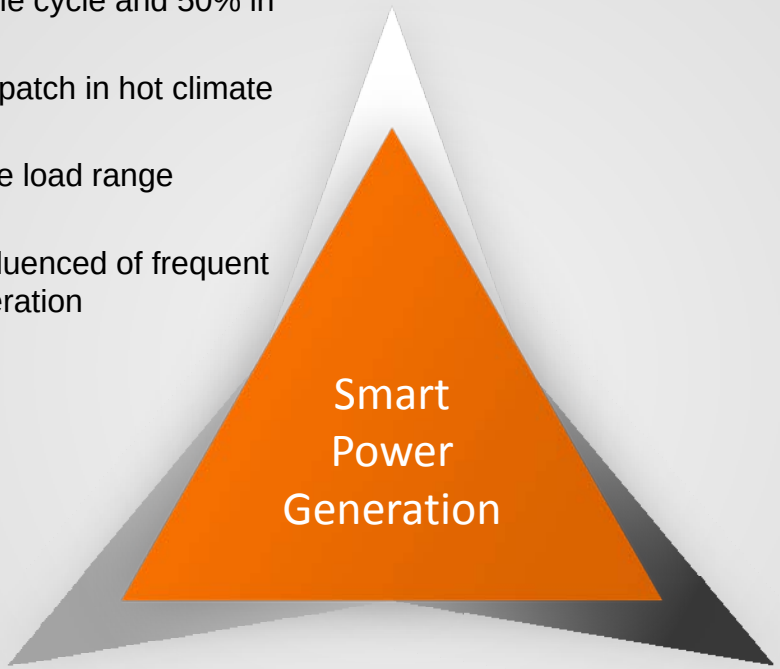
INTERNAL USE ONLY

Wärtsilä – Smart Power Generation

Energy Efficiency

Competitive generation cost and high dispatch

- → Highest efficiency (45% in simple cycle and 50% in combined cycle)
- → No derating enabling higher dispatch in hot climate and at high altitude
- → High plant efficiency over a wide load range due to multiple generating sets
- → Low maintenance costs, not influenced of frequent starts and stops, and cyclic operation
- → Low/no water consumption



Operational Flexibility

Multi tasking plant prepared for future markets

- → Unlimited, super fast, reliable starting and stopping with no impact on maintenance schedule
- → Fast reserve, load following, peaking and base load
- → All ancillary services
- → Grid support, wind enabling

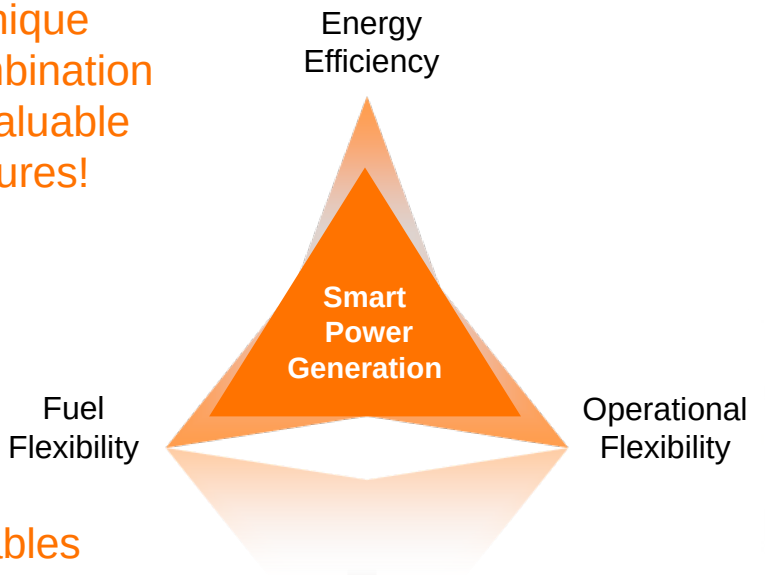
Fuel Flexibility

Continuous choice of most feasible fuel

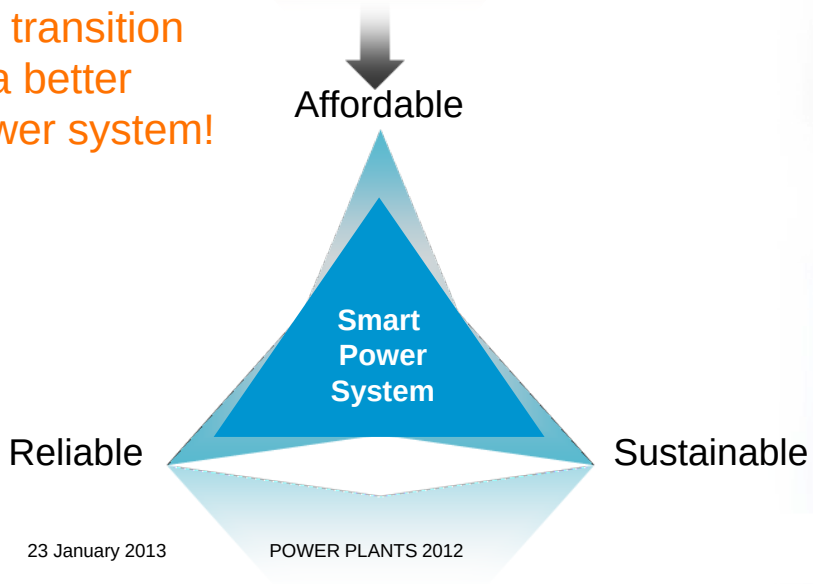
- → Solutions for
  - Liquid and gaseous fuels
  - Renewables
- → Hedge for the future
  - Multi fuel plants
  - Fuel conversions

Smart Power Generation

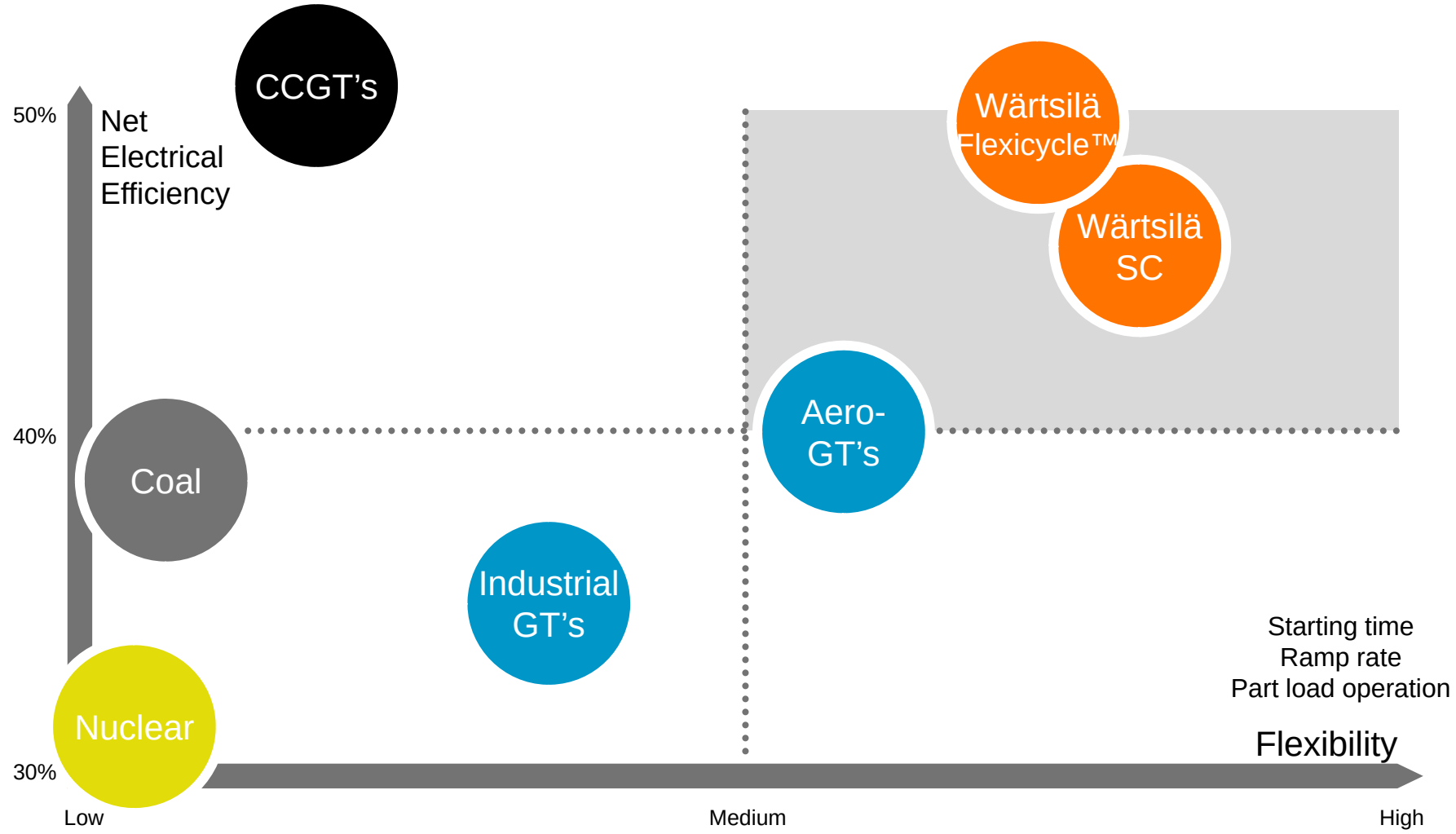
1) All in One! A unique combination of valuable features!



2) Enables the transition to a better power system!



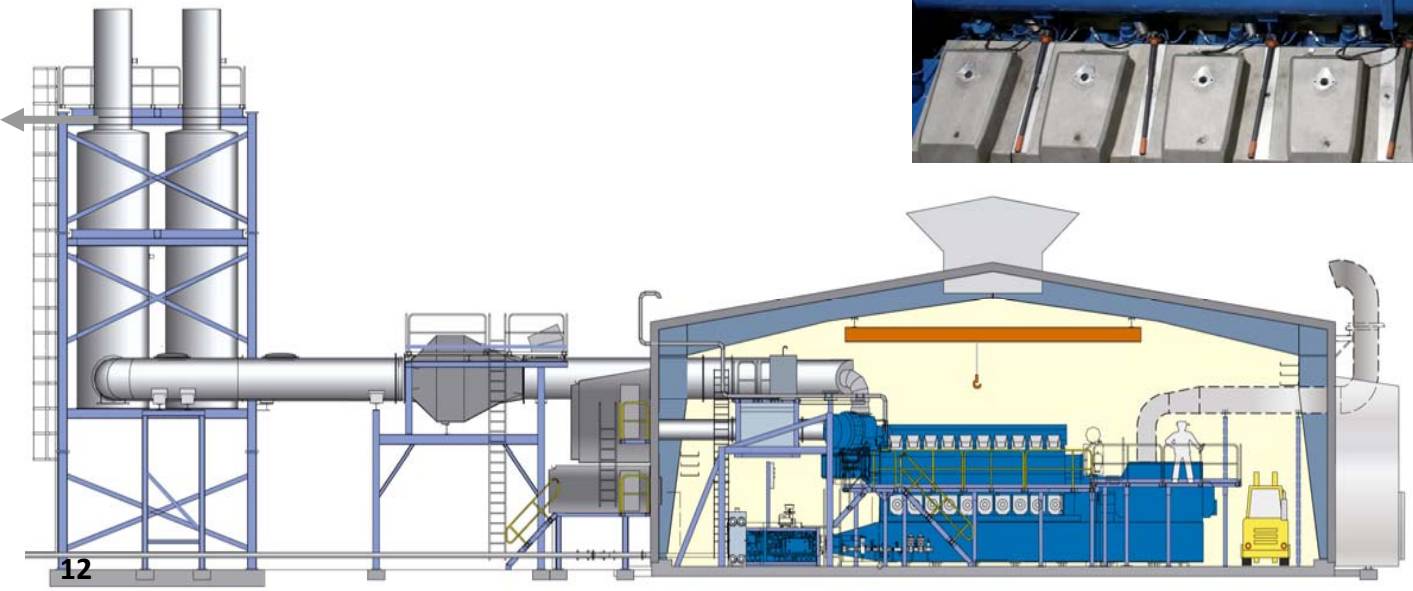
Flexibility vs. Electrical Efficiency



WÄRTSILÄ

Modularity

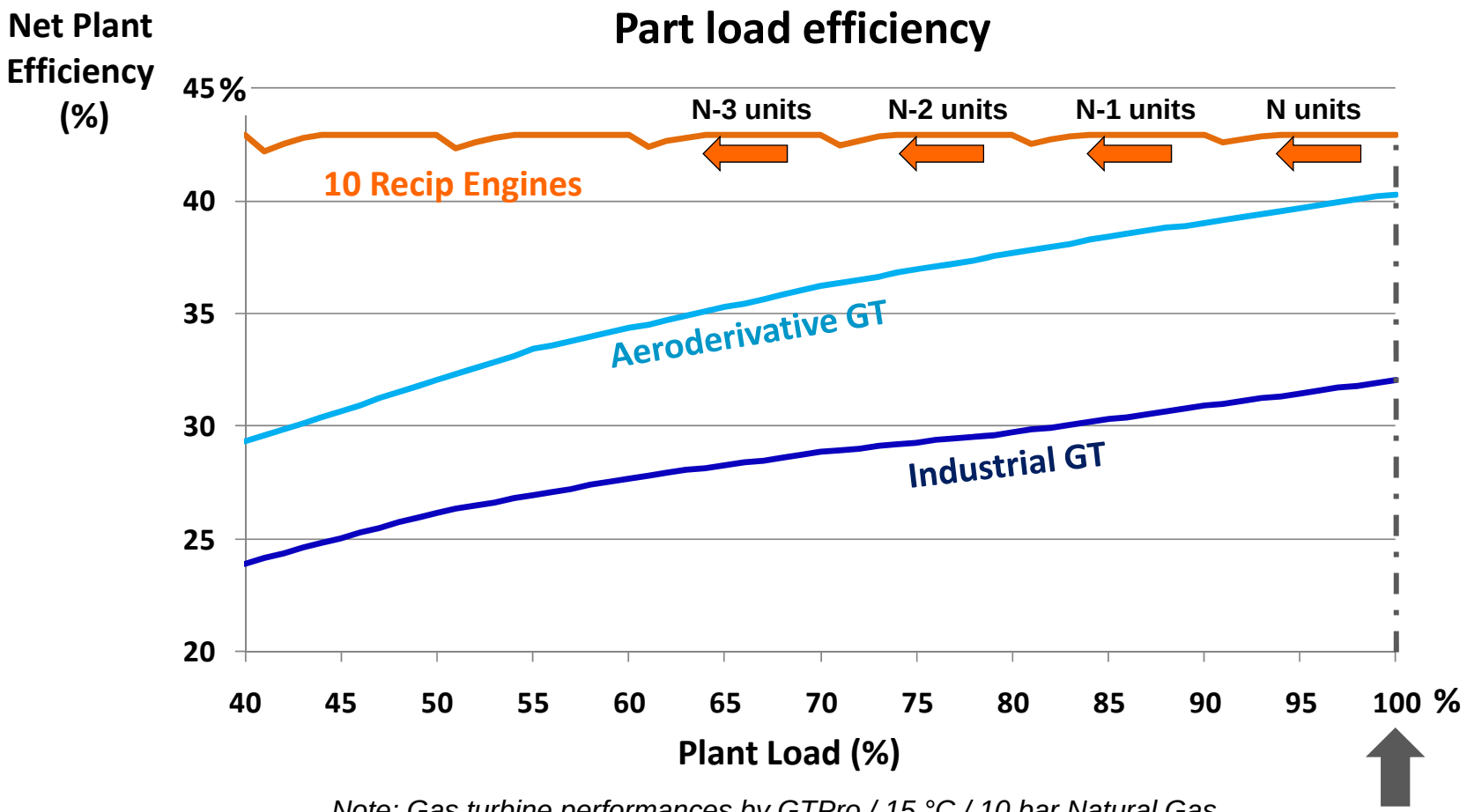
Our modular design allows for **easy capacity additions** and makes it simple for our customers to construct an optimally sized plant



WÄRTSILÄ

Multi-engine advantage

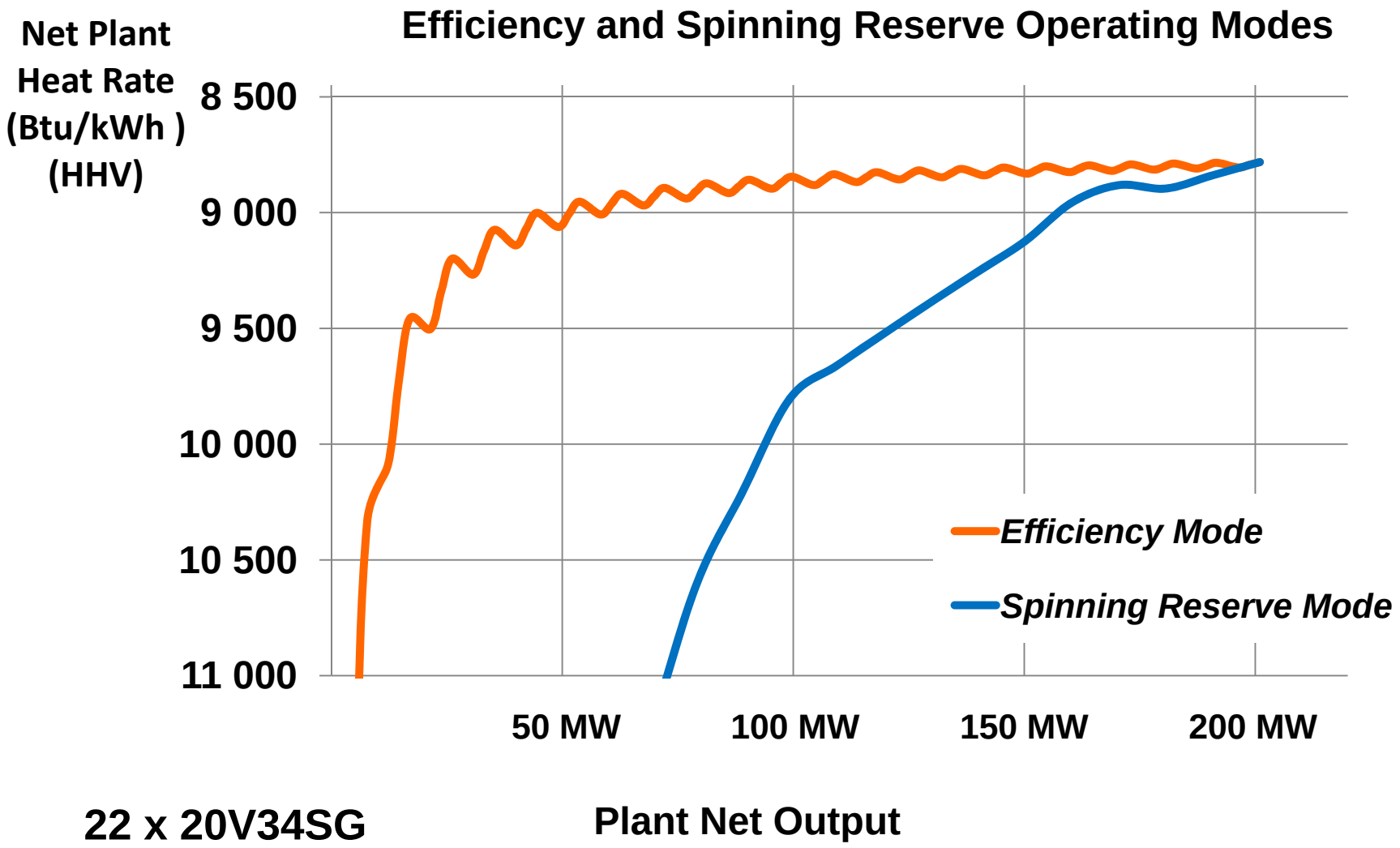
Multi-engine solution allows for a **good partial load** efficiency with a plant turn down ratio of 30%



Note: Gas turbine performances by GTPro / 15 °C / 10 bar Natural Gas

WÄRTSILÄ

Dispatch flexibility

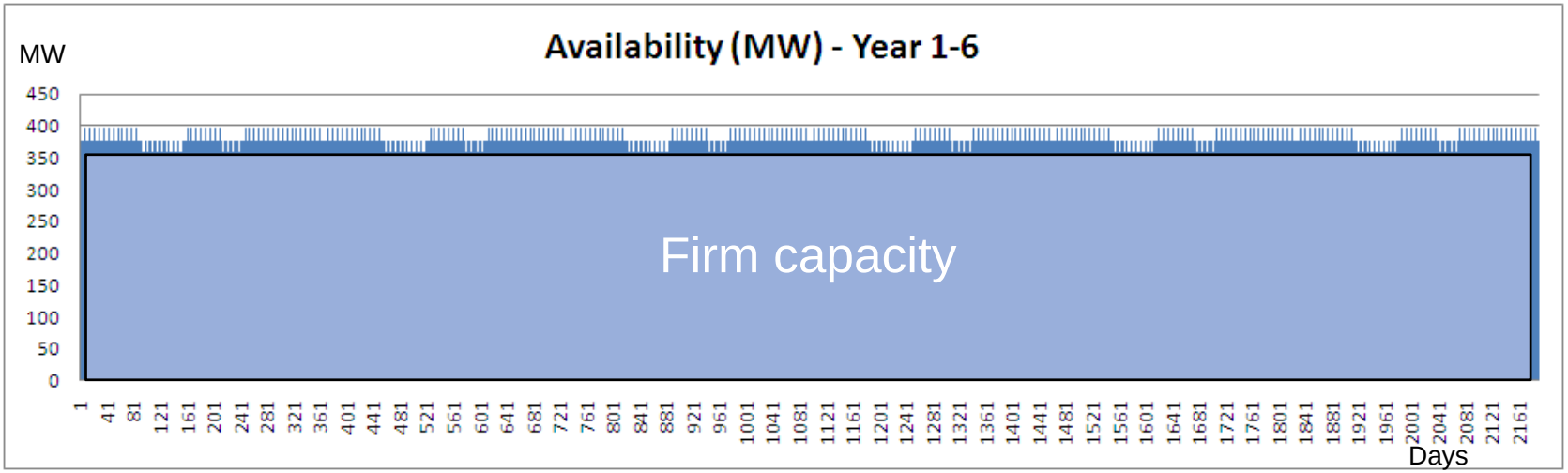


22 x 20V34SG

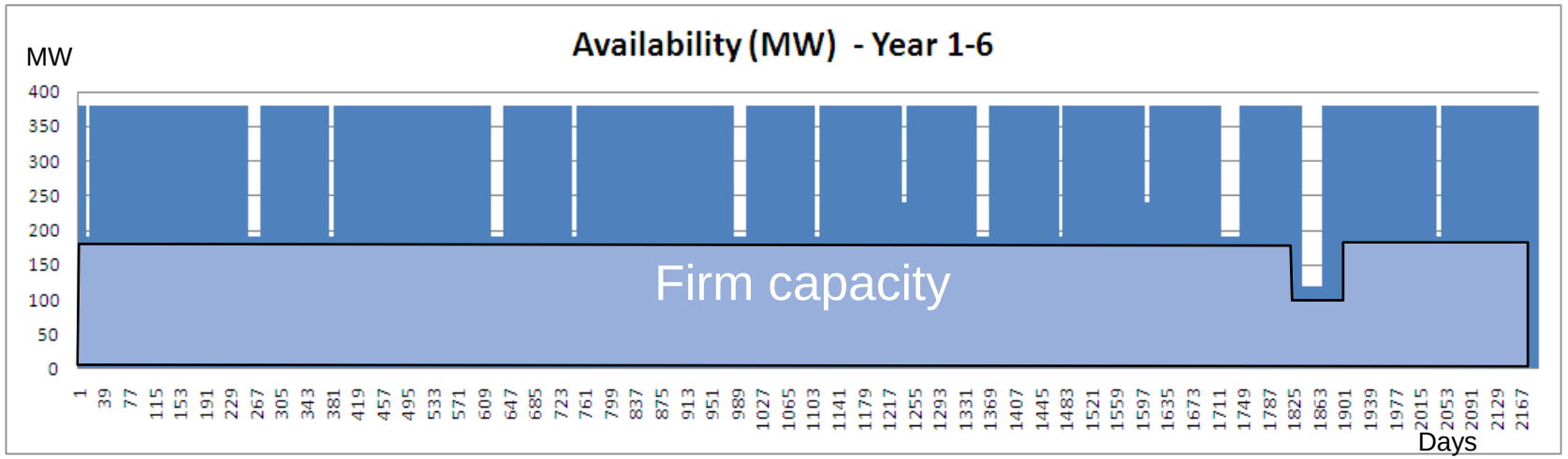
WÄRTSILÄ

Availability

22x18V50SG



CCGT (2-2-1)



Typical reliability data for Wärtsilä gas engines:

- Excellent unit availability
- Excellent unit reliability
- Excellent unit starting reliability

No start penalties & No start-up costs

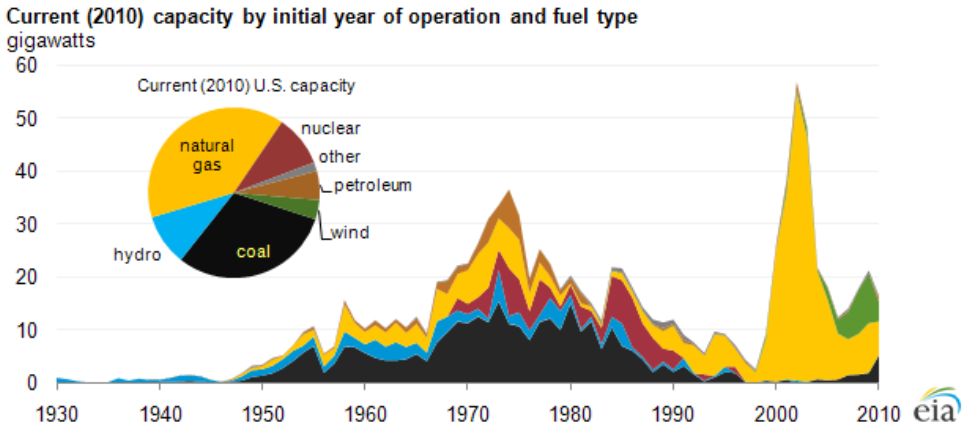
Unlimited starts & stops with **no impact** on cost or maintenance schedule.

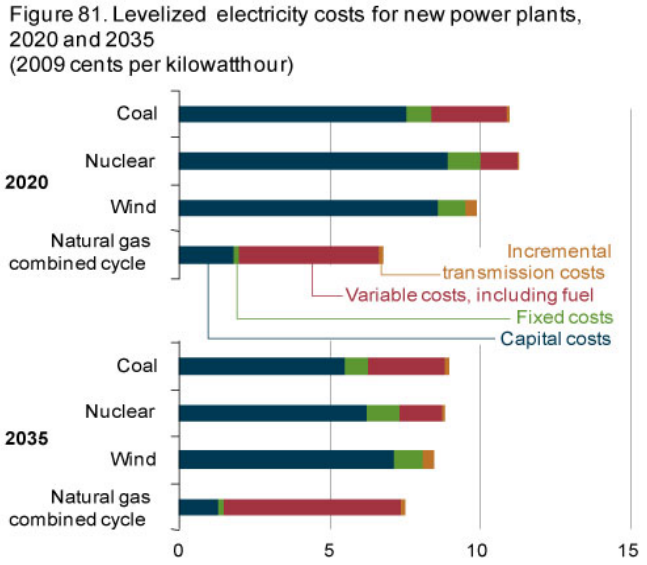
This is unique, no other competing technology offers the same.

Dispatcher's dream plant
Plains End 227 MW
Colorado

WÄRTSILÄ

USA market drivers





Older coal & gas boilers will be replaced per new EPA rules…50 GW opportunity!

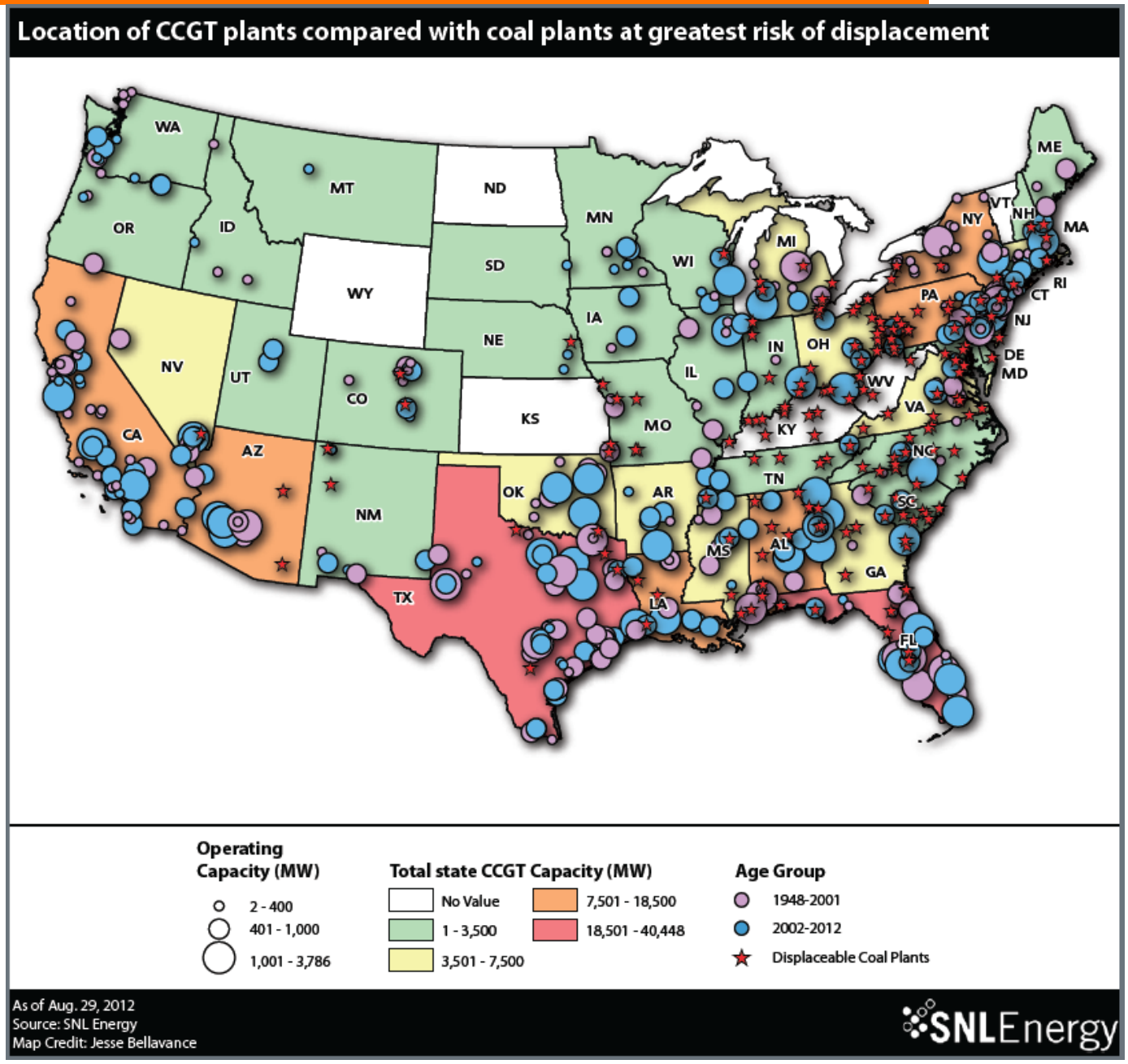
NGCC has lowest LCOE

1 GW of SPG needed for each 2.7 GW of new wind

	2010	2015	2020	2025
East North Central	1.1	2.1	2.7	3.7
East South Central	0.0	0.0	0.0	0.0
Mid-Atlantic	1.3	2.1	2.2	2.4
Mountain 1	1.5	3.9	4.7	5.4
Mountain 2	0.2	0.7	0.7	0.9
New England	0.1	0.8	0.8	0.9
Pacific 1	1.3	1.9	1.9	2.5
Pacific 2	1.1	2.0	2.4	2.4
South Atlantic	0.2	0.7	0.7	0.7
West North Central	2.4	3.7	4.6	5.7
West South Central	3.0	5.6	7.0	8.8
U.S. Lower-48	**12.1**	**23.6**	**27.7**	**33.3**

Sources: EIA & ICF

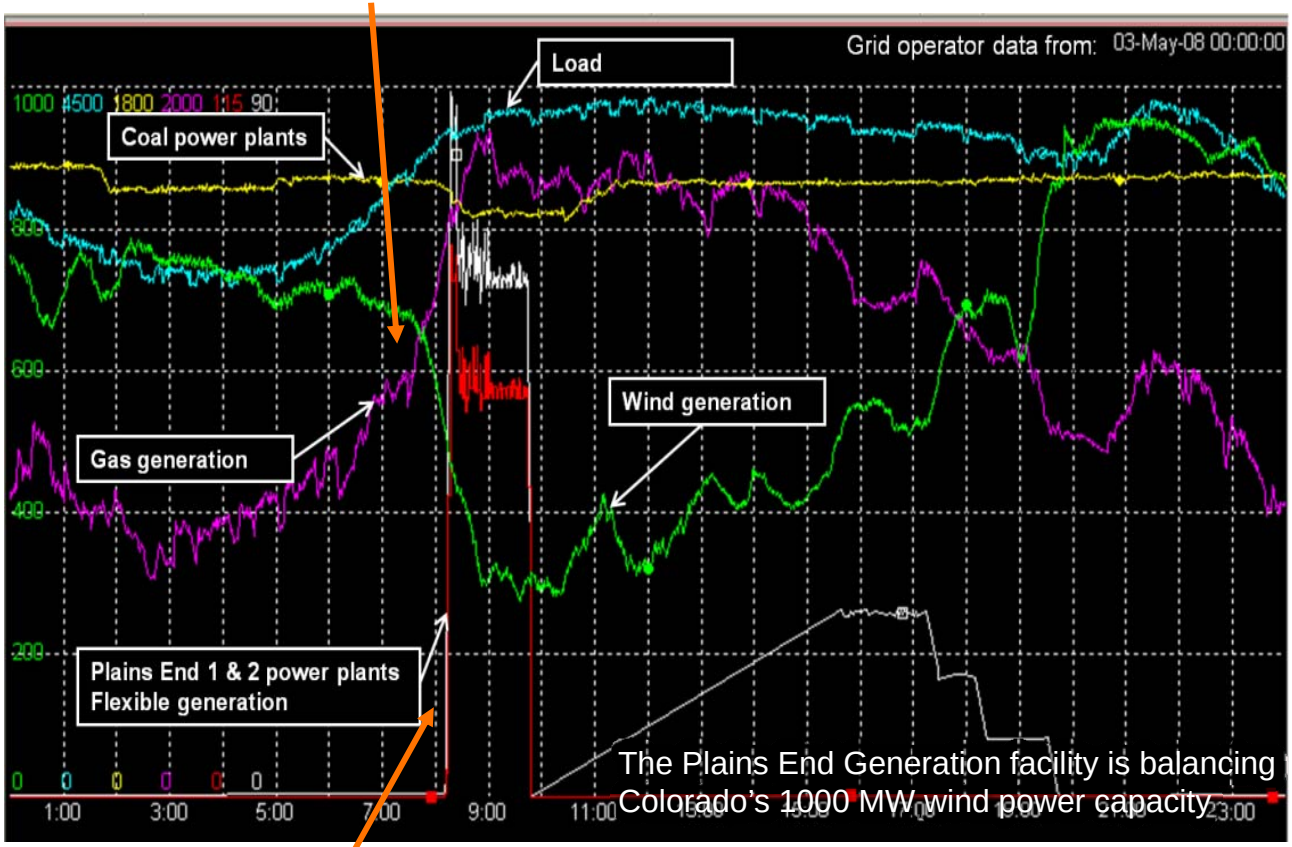
Opportunities for replacing coal power



WÄRTSILÄ

Case Colorado, USA – Grid Stability

Total wind generation drops (green curve) from 700 MW to 350 MW during 1 hour



Screen shot from Colorado Dispatch Center, Xcel Energy, USA

PLAINS END GENERATING FACILITY, COLORADO, USA

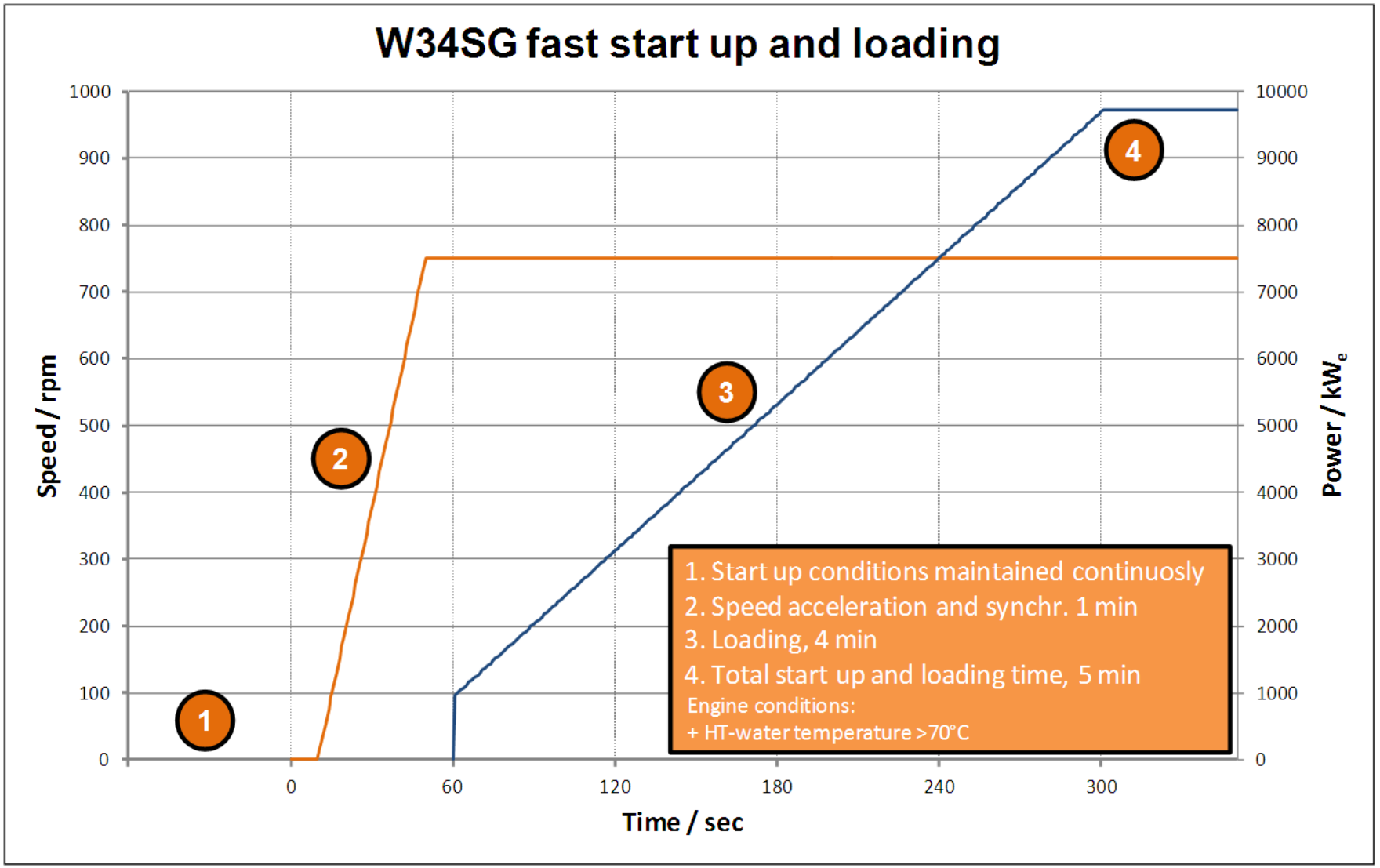
Type:	Grid stability
Engines:	20 x Wärtsilä 18V34SG
	14 x Wärtsilä 20V34SG
Total output:	227 MW
Fuel:	Natural gas
Installed:	2002 and 2008

Remote controlled from Colorado Dispatch Center

Grid stability Power Plants based on gas fired combustion engine gensets are started, providing fast reaction to the change (red and white curves)

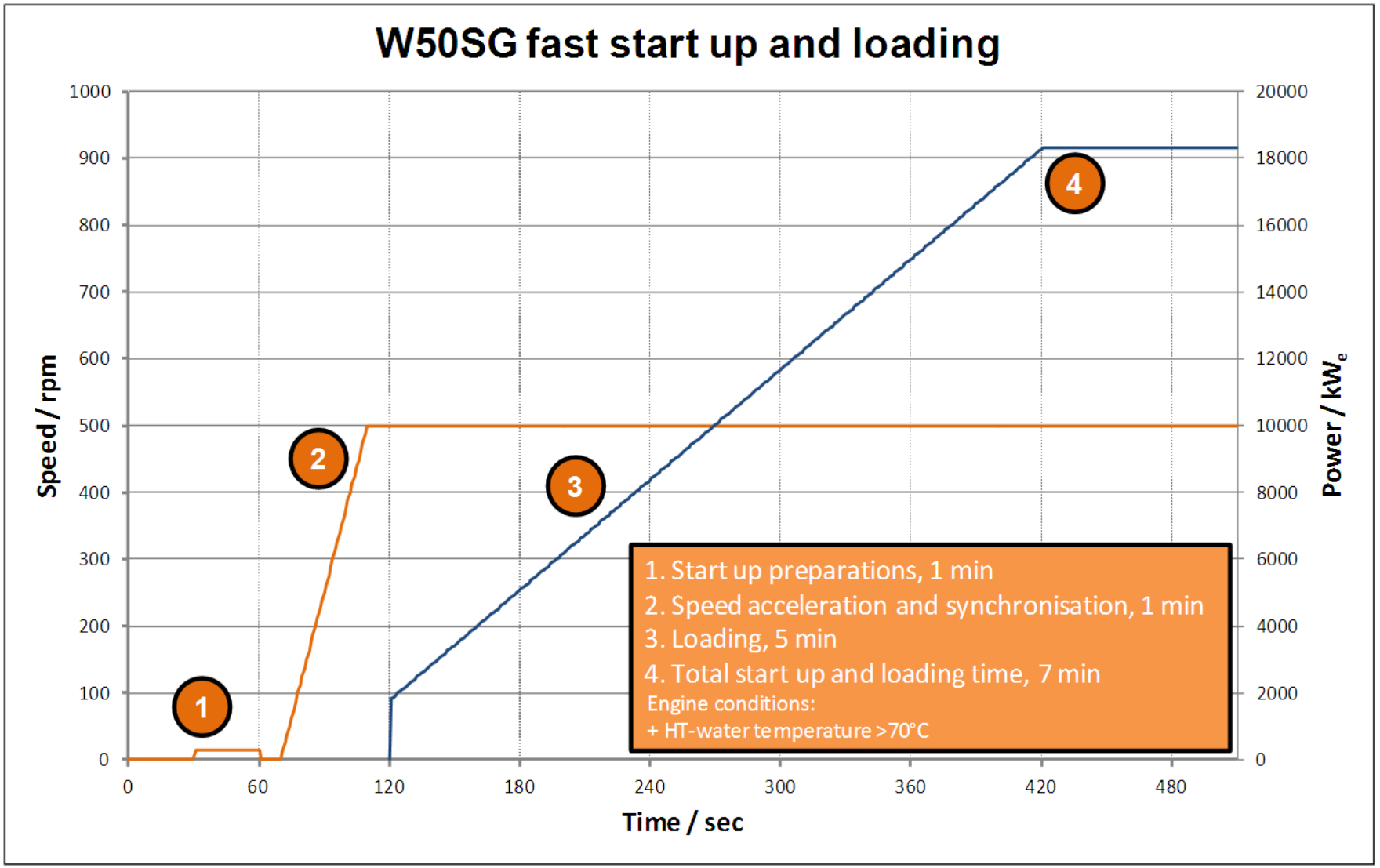
WÄRTSILÄ

W34SG, fast start up and loading



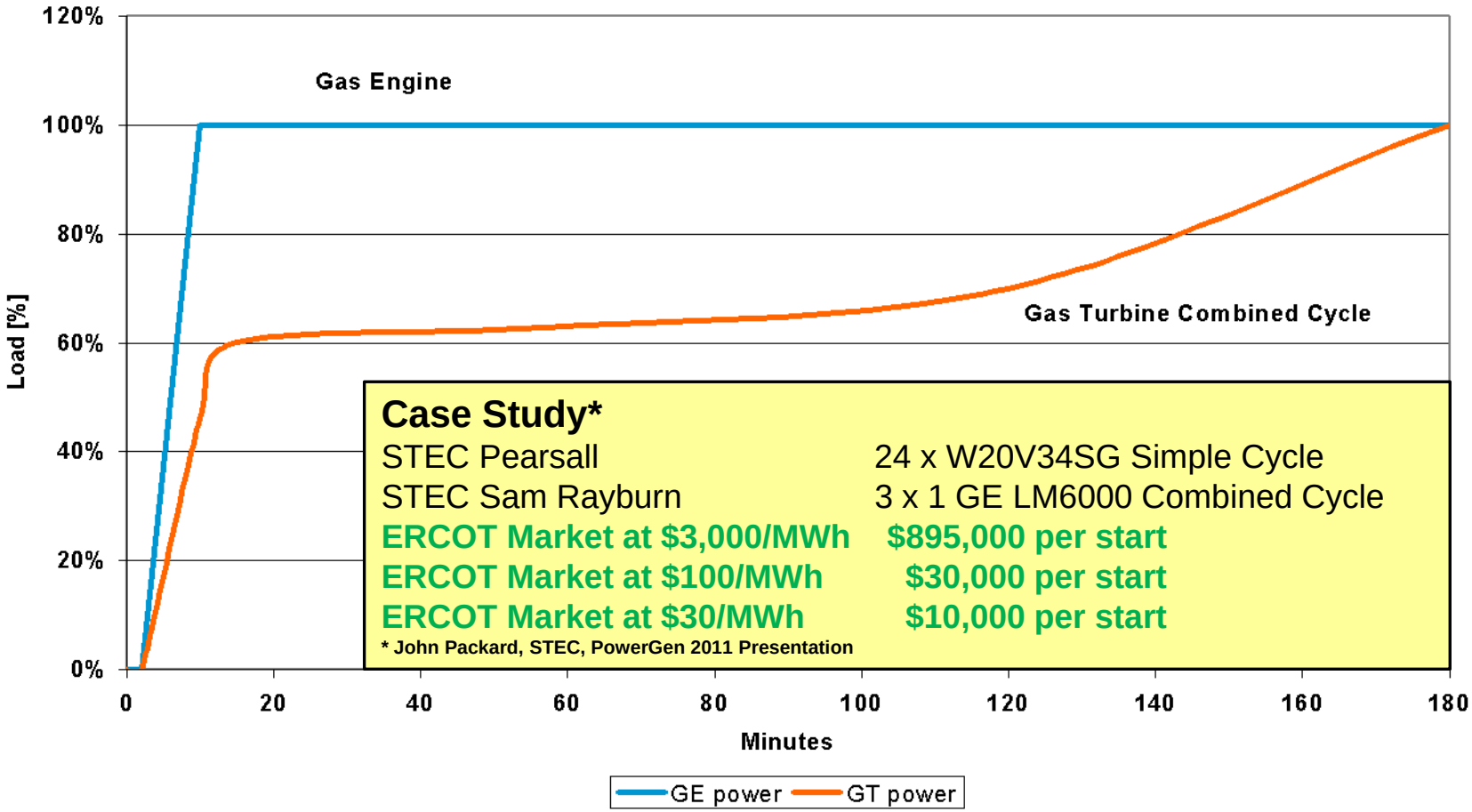
WÄRTSILÄ

W50SG, fast start up and loading



What does quick start mean to a power plant owner?

Start up and loading of a Gas Engine power plant compared to a GTCC



WÄRTSILÄ

Wärtsilä Smart Power Generation in Texas

25 MW – GEUS – Greenville, TX

170 MW – GSEC - Abernathy, TX

203 MW – STEC - Pearsall, TX

GEUS – Greenville, Texas

3 x 20V34SG
25 MW

PG&E Humboldt - Eureka, California

10 x 18V50DF
162 MW

Dominican Republic – over 1,300MW of Wärtsilä plants

108 MW Seaboard Floating Plant

- 108 MW Flexicycle floating power plant based on 18V50DF dual fuel
- Purchased by Seaboard Corp to replace existing floating power plants the first delivered by Wärtsilä in 1989
- In commercial operation 2012 Demonstrated heat rates of 7,000Btu/kWh

430MW Quisqueya I&II IPP

- Two side-by-side Flexicycle dual fuel plants each based on 12 x 18V50DF with common control and systems
- Quisqueya I – owned by Barrick Gold
- Quisqueya II – owned by EGE Haina
- Currently under construction

Wärtsilä installed the first IPP in the D.R. in 1989
The above solutions were considered better alternatives to gas turbines

THANK YOU!

Smart Power Generation

Wayne M. Elmore
Regional Director, Power Plants Sales
Houston, TX
(281) 233-6213
Wayne.Elmore@wartsila.com