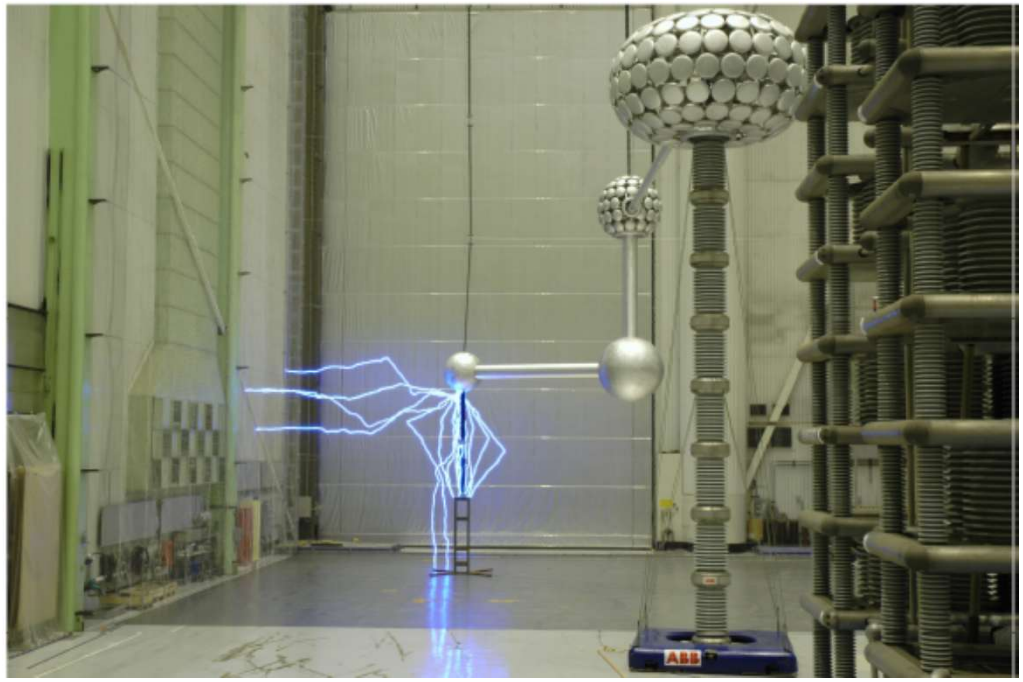
Leadership in HVDC

HVDC Spirit

VBIK 2026-06-10

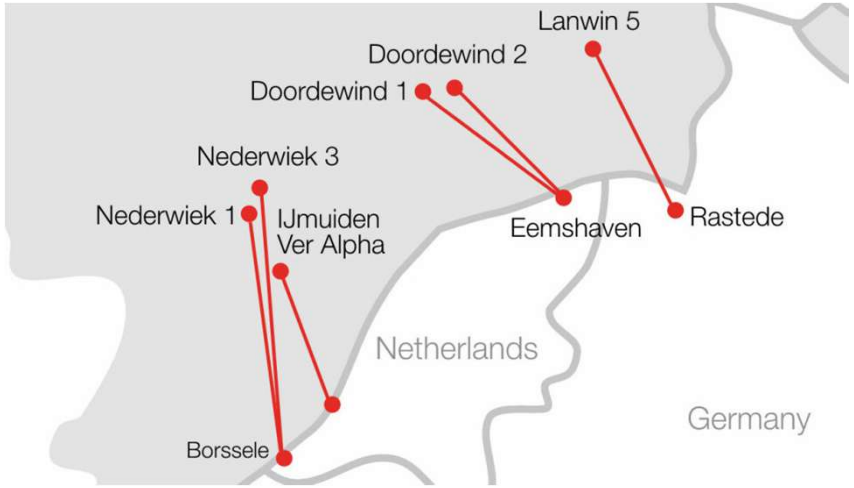




”Biggest order ever to Hitachi Energy for electrical transmissions”

Electrical giant Hitachi Energy has landed a record contract worth 147 billion kronor.

6 transmissions bringing power from offshore wind mills to mainland in Netherlands and Germany



Power 2000 MW/link
Voltage 525 kV

World leadership in HVDC Technology in 70 years

Is HVDC Spirit the best leadership if tested scientifically?











Gunnar Flisberg, born in Frövi
CTH E67
1966-1974 HVDC Main circuit design
1974-1981 Project Manager Inga Shaba HVDC
1977-1979 Commissioning CU proj USA
1981- 1995 HVDC manager sales world wide
1995-2008 Market development China
2008 IVA Energy Prize for 800 kV
2008-2011 Development HVDC 1100 kV
2011-2022 HVDC Consultant
2013- Steam boat captain





Agenda

1. Trust-based leadership is superior to central Control-based leadership

2. What is the ”HVDC Spirit”?

3. Is the HVDC spirit scientifically fulfilling the characteristics of Trust-based leadership?

4. HVDC organisation has gone through certain periods of different types of leadership from 1929 until today. What can we learn from history and science?

Principle of trust - 12 choices for creative and coura organisations

Trust is to see the individual and the situation. Solutions will then be a the situation instead of everyone adapting themselves into the same pattern



Louise Bringselius is one of the leading scientists in Sweden in the area of Trust



1. Trust-based leadership is better than Control-based leadership according to scientific study results

Trust is a silent psychological contract, without papers

- Both parties accept a certain portion of risk when delegating responsibility to the other party
- You need to gradually acquire trust in order to establish reasonable expectations from the other party
- A new-born child´s trust in the mother is 100%
- Trust between parties amplifies itself in practical interference



Trust definition: Person and society

In society we have a silent community contract, which is partly written (laws and local rules) and partly silent (decent behavior between people)

Jan Carlzon, VD SAS, 1985, ”Riv pyramiderna”
”A modern person cannot be controlled with orders and instructions. Instead give him information about the goal and the way to get there.
Give him responsability and authority. Then a lot of energy is released.”



Trust benefits company operations

- Flat organisations need individuals that have courage and trust to act
- Calling anyone in industry that you do not know*
- Trust is the most important parameter to secure an order*
- Innovation grows in companies when the employees feel trust*
- Balance between Trust-based leadership and ” Control-based leadership”
- Trust with customer engineering team*
- Trust between people exceeds trust between organisations*
- Trust in the company supports honesty*
- Profit sharing benefits loyalty among employees



Trust is a phenomenon that keeps a society together

- The war in Ukraine, development of drones for all purposes
- Trust is high in Nordic countries
  Sweden 64%, Norway 74%, Spain 19%, U S 40%, Great Britain 46%
- Expertise gives a basis for trust as expertise is respected in Sweden
- Snowfall at E22*
- Criminality is counteracted by cooperation between police, shops, community social workers etc*

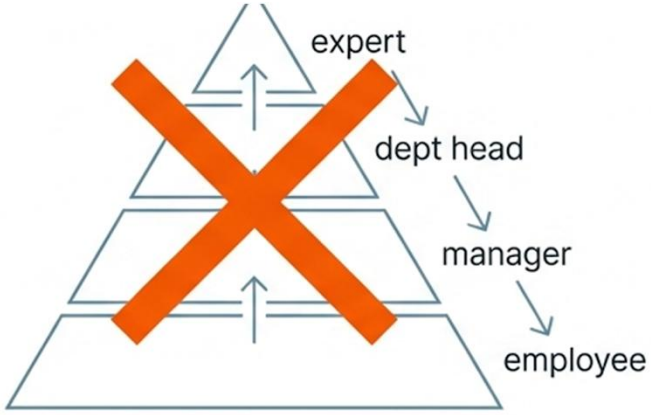


Chancellor Axel Oxenstierna 1583 - 1654

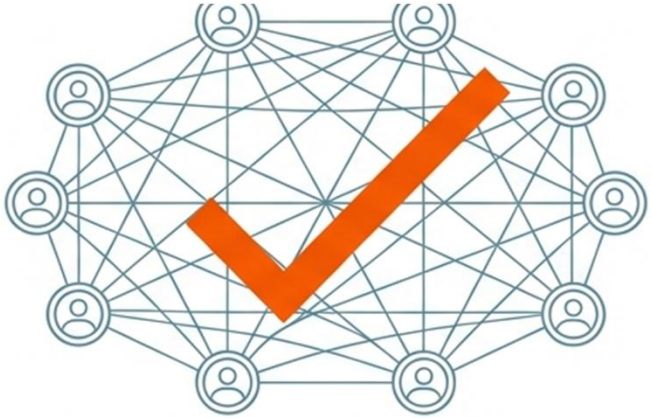
Threats against trust

- Detailed control – Atom crew*
- Distrust – overconfidence of standardization –think modules
- Organisation forms the individual – no decision – no risk to get fired*
- Technical specialists – career - should be ranked higher than middle managers





The Corporate Chain



The Ludvika Way

The Rule

Free Information Flow. Any individual can approach *any** expert directly to ask for help. No need to go manager-to-manager to allocate resources.

Impact

Status was derived from expertise, not title. If you didn't know the answer, you referred the question to someone who did, regardless of their rank.

Trust-based leadership versus central Control-based leadership

2. The ”HVDC Spirit”

Bo Normark held a presentation on HVDC History/Technology/Leadership in April 2026



New Voltage Source Technology (HVDC Light)



New cable technology

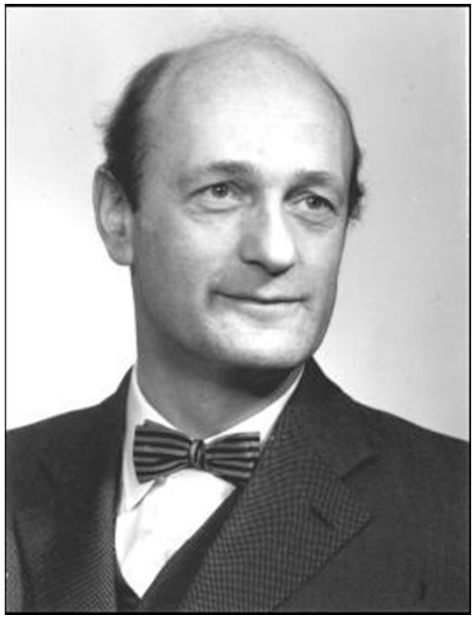


New cable technology



New high-speed computers

Uno Lamm laid the ground work technically for HVDC as well as the ”HVDC Spirit”



HVDC Spirit is partly written company instructions and partly unwritten trust between management and employees and between employees



Uno Lamm predicted 1929 about mercury arc valves working properly, which happened in 1954

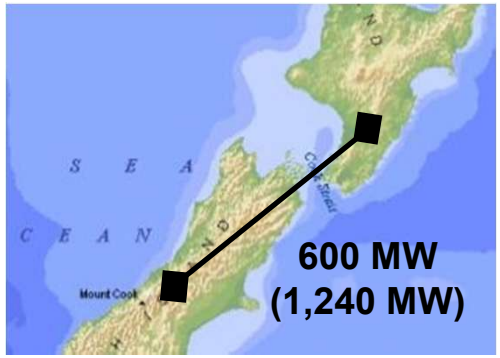
Uno Lamm had a humanistic approach also in technical issues*

Electricity transmission from northern hydro power stations to industrial load in southern Sweden*

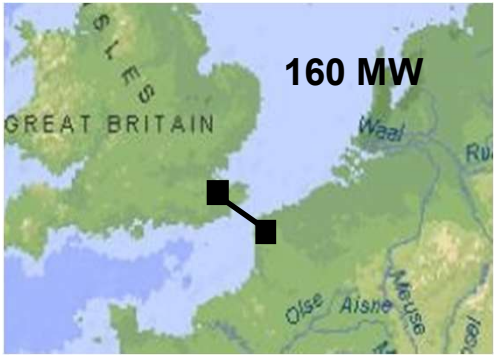
HVDC spirit – personal loyalty

- A trust exist between management and employees
- Whenever during 24 hours you pass HVDC office people were working
- Final assembly of bidding documents to Quebec-New England HVDC project*
- Submittal of bid for Leyte – Luzon*

New Zealand 1965



Cross Channel 1961



HVDC spirit – group loyalty and trust

- Including atmosphere
- Encouraging innovation and experiments*
- Delegated responsibility and mandate
- High degree of autonomy*
- Internal motivation. Shared purpose and engagement
- Good profit margin*



Sakuma 1965, 300 MW btb, 50/60 Hz

3. Is the HVDC spirit scientifically fulfilling the characteristics of Trust-based leadership?

Trust – between Hitachi Energy and customer
Success criteria to win a new order in competition

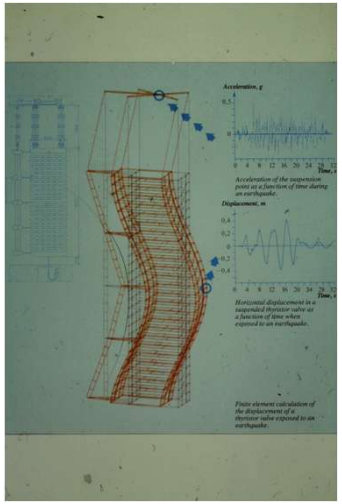


Relation between HVDC organisation in Ludvika and local Hitachi Energy management

- If trust exists, Hitachi Energy will win order*
- China exception*

Before bidding stage

- Hitachi Energy has superior technology giving better performance or lower cost*
- Bonneville Power Administration*



General reputation of Hitachi Energy/customer based upon earlier orders

- Establish trust before bidding*
- Honesty*

Purpose driven operations – concentrate on few goals

Trust Principle

- Joint purpose should be easily understood and could be embraced by everybody
- Simple and clear goals

HVDC Spirit – focus on goals that bring value to the customer

- Assist customer with study to accommodate a new HVDC link into his system
- Give courses to help customer to understand theory and application of HVDC
- Invite customer to HVDC transmissions in operation to demonstrate functionality

Goals in HVDC organisation

- Increase market
- Get order for next project
- Fulfill the order in time within budget
- Be service minded towards customers*



Free flow of information

Trust principle - Interaction between individuals is applicable as an HVDC Spirit
One individual can search for information by asking anybody else in the organisation including managers independent upon rank

HVDC Spirit - Appointment of a Specialist
Certain engineers are very capable in their profession but not interested in a management career. These engineers are appointed to ”Specialist” with a career and authority in decision making in technical matters.



Free flow of information, documentation system

HVDC Spirit

PowDoc – an excellent data base

All official documents are referred to this data base. Documents are classified and can be searched on ”title”, ”issue date”, ”author”, ”project”, and category of content

Hidraw – documentation of control and protection by block diagrams. Easy to read and interprete

- Correction of faults can be made easily by engineers who are not capable of code reading
- Signal levels anywhere in the control system is available easily during commissioning

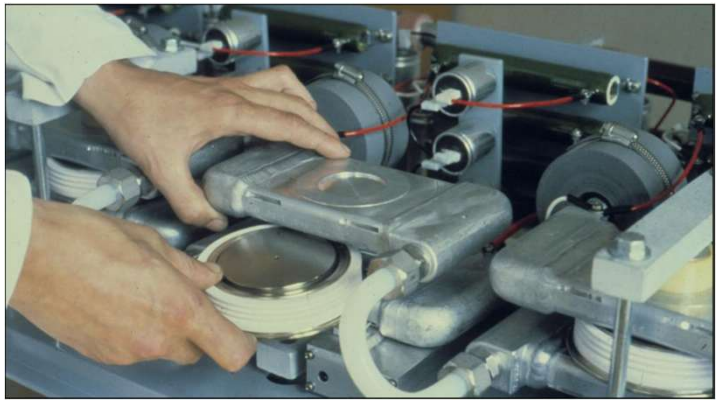
Remote control to be avoided in favour of dialogue

Trust Principles

- Give up remote control and adopt dialogue between managers and subordinates
- Avoid unnecessary reporting and bureaucracy required by central staff functions
- Manager supports initiatives from employees and learns from his organisation

HVDC Spirit applies Trust Principles

- Hitachi Energy management approved ”all” proposals of HVDC development
- Working in project creates a feeling of trust between the team members as well as between H E and the customer*
- Encourages new ideas by building prototypes



Prototype water cooled valve, 133 kV, 2000 A
Installed in a commercial scheme in Sylmar



Psychological safety

Scientific preferences also embraced by Hitachi Energy

- No punishment for dissent
- Encouraging diverse viewpoint without fear
- People shall be allowed to fail*
- Mistakes shall be analyzed in order to be avoided in the future



Cooperation with external entities, HVDC Spirit

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Give license to competitors to receive market acceptance

- Give license to General Electric and subsequently to form consortium to open up US market

Cooperation with customers to evaluate new designs

- Trollhättan Laboratory to test mercury arc valves (Vattenfall) in 1940s

Cooperaton with external entities with supplementary services or products

- Cables with NKT in Karlskrona



Decentralization, delegation



Trust principle in agreement with HVDC Spirit

- Far reaching delegation/decentralization
- Flat organisation (few layers of command)
- From blind obedience to integrity and judgement
- Mandate, autonomy and resources

HVDC Spirit

- Sales Manager has large freedom to act
- Project Manager has a ”risk fund” at his disposal
- Percy Barnevik entering as president in1980, subdivided big divisions into minor units responsible for own development, marketing and sales, profit and loss
- Percy Barnevik cut down substantially on central staff functions

Care of employees

Trust principle

A condition for trust is a humanistic view on man

- Trust means that the employer will care for personal problems with his emplyees. Adaptations for an employee are signs of consideration and trust
- A small small token of appreciation may have a significant impact on the emplyee
- Research shows that bottom line result is better for enterprises that care about employees

HVDC Spirit

- Rehabilitation of employees*
- Active work to counteract discrimination because of race, gender and belief*



Conclusions comparison Trust Principle and HVD

- **HVDC spirit is defined as conditions existing from 1930 up t**
- **HVDC Spirit follows Trust principles to 90% as per intervie**
  and managers

-

Trust Principle/HVDC Spirit leadership is scientifically prov
to Control principles

- Flat organisations
- Courageous employees
- Engagement resulting in loyalty to th
- Innovations
- Efficiency
- Higher profit



4. HVDC organisation has gone through periods of different types of leadership from 1929 until today. What can we learn from history and science

The level of HVDC spirit was actively maintained during the period 1930s -2000s

Rifts in HVDC Spirit during the latest 26 years but still existing

- Documentation system transformation from PowDoc to XECM system was performed so it became very difficult to retrieve older documents.
- Delegation to lower levels has been deleted. Employees have to ask for decisions at higher level
- Managers deciding are rarely in Ludvika and employees are then stuck while waiting for decision
- Reporting to staff functions and management is voluminous and takes time
- Responsibility for HVDC sales and development taken over by level ”Grid Integration”
- Adherence to the principle of trust, scientifically proved:
  Year 1930 - 2000: Above 90%
  Year 2000 - 2015: Dropping to less than 50%
  Year 2015 - 2026: Slowly increasing from bottom level year 2015

Measures to increase the HVDC Spirit in the organisation

Ludvika has been considered a most important hub as expertise in many transmission disciplines are available, both hardware and software

1. Why not move headquarter for Business area Grid Integration as well as Business Unit HVDC to Sweden, preferably Ludvika, where gravity of operations is located?
2. Why not move the sales and development units including manager for HVDC to Ludvika

Decentralization increases loyalty and makes operation easier. Faster finalization of project is the most efficient way to increase profit in project operations

1. Why not reduce the quantity of people at staff functions
2. Why not reduce the amount of reporting to staff functions

Technical specialists are a rare species as they take a long time to gain experience

Measure: Introduce ranking ”Specialist” who may be equal to manager rank in first, second or third level in line organisation. Management should appreciate their skill and reward them accordingly with career and monatary remueration


Thank you!