

The logo for 'umove' features the word 'umove' in a lowercase, black, sans-serif font. The letter 'u' is partially obscured by a solid orange circle. The entire logo is set against a light gray, semi-circular background that arches over the text.

umove

Movia UITP

April 13, 2023

Mikael Drasbek Kanstrup

Movia UITP workshop

Operational setup, has it changed?

Umove, who are we?

Quality & Service levels – has anything changed?

Buses – what have been the impact on the fleet?

New ways of working – what have changed?

Tender risks – and how Movia have handled the contractual risks?

Other - questions?

Movia UITP workshop

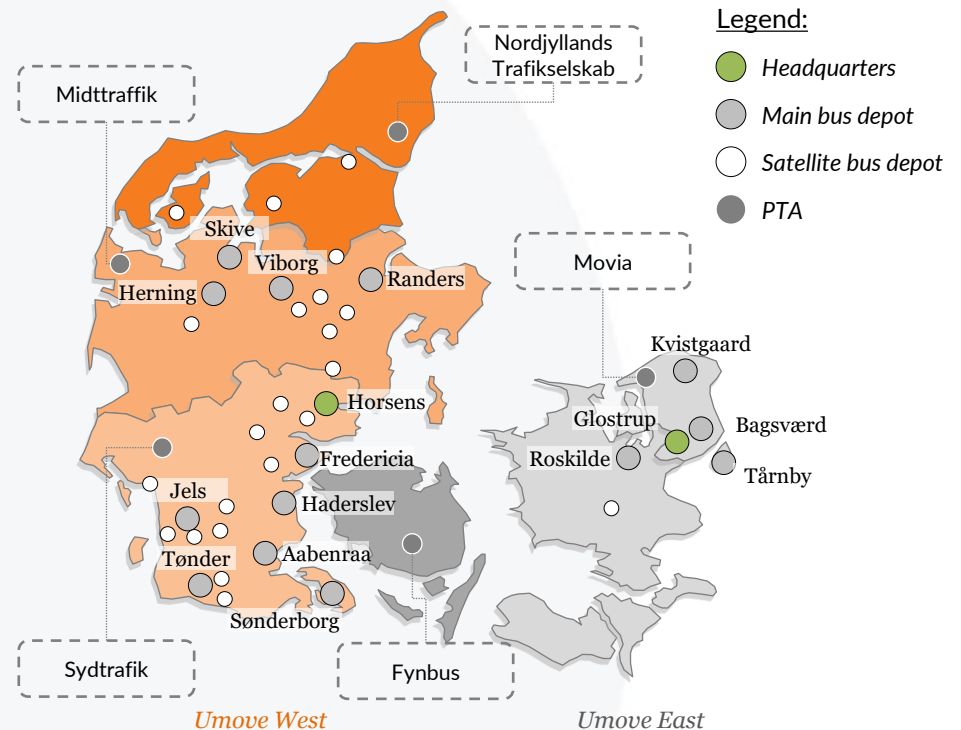
Umove – the #1 bus public transport operator in Denmark

Investment highlights

- Umove will be the **#1 bus operator in Denmark** end of 2023
- **Entrepreneurial:** Strong growth over the last 10 years
- **First mover** – introducing electric buses in Roskilde in 2019
- **Strong cash flow:** 98% of the company's revenues are generated through regulated operations with public transport authorities (PTAs)
- **Strong track record** of winning offensive tenders and creating value
- **Favorable market dynamics** driven by the continued shift to **electric vehicles** resulting in long contracts, higher capital intensity
- **Lean organization** with 95% of employees being bus drivers

Broad geographic positioning

Umove serves 4 out of 5 PTAs in Denmark



Key Figures



~1,650
Employees



~630
Buses

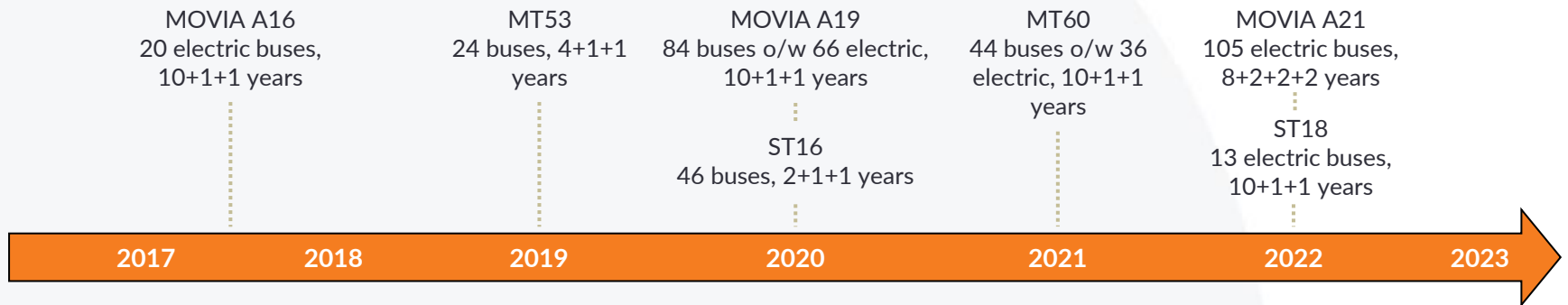


14
Bus depots

Movia UITP workshop

Umove – growth driven by EV contract wins

Offensive tender track record



Movia UITP workshop

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Movia UITP workshop

Service levels, Movia 2020 - 2021

Kontrakt	Linje	Plansatte vogntimer	Kørte vogntimer	Udgående vogntimer	Tilbudt servicegrad	Opnået servicegrad
A16 - I, Umove A160101	841	1.922	1.922		99,96 %	100,00 %
A16 - I, Umove A160101	840	1.992	1.992		99,96 %	100,00 %
A16 - I, Umove A160101	803	164	164		99,96 %	100,00 %
A16 - I, Umove A160101	802	302	302		99,96 %	100,00 %
A16 - I, Umove A160101	353	51	51		99,96 %	100,00 %
A16 - I, Umove A160101	342	8.535	8.529	6	99,96 %	99,93 %
A16 - V, Umove A160510	212	5.066	5.066		99,95 %	100,00 %
A16 - V, Umove A160510	209	890	890		99,95 %	100,00 %
A16 - V, Umove A160510	208	441	441		99,95 %	100,00 %
A16 - V, Umove A160510	206	3.559	3.559		99,95 %	100,00 %
A16 - V, Umove A160510	205	1.994	1.994		99,95 %	100,00 %
A16 - V, Umove A160510	204	4.078	4.078		99,95 %	100,00 %
A16 - V, Umove A160510	203	4.666	4.665	0	99,95 %	99,99 %
A16 - V, Umove A160509	202A	16.370	16.369	1	99,95 %	99,99 %
A16 - V, Umove A160510	202A	1.135	1.135		99,95 %	100,00 %
A16 - V, Umove A160509	201A	27.632	27.630	2	99,95 %	99,99 %
A16 - V, Umove A160510	201A	24	24		99,95 %	100,00 %

Movia UITP workshop

Service levels, Movia 2021 - 2022

Kontrakt	Linje	Plansatte vogntimer	Kørte vogntimer	Udgående vogntimer	Tilbudt servicegrad	Opnået servicegrad
A16 - I, Umove A160101	134	73	71	2	99,96 %	97,34 %
A16 - I, Umove A160101	342	8.566	8.561	5	99,96 %	99,94 %
A16 - I, Umove A160101	802	5.593	5.590	3	99,96 %	99,94 %
A16 - I, Umove A160101	803	3.188	3.187	0	99,96 %	99,99 %
A16 - V, Umove A160509	201A	27.676	27.675	1	99,95 %	100,00 %
A16 - V, Umove A160509	202A	16.395	16.392	3	99,95 %	99,98 %
A16 - V, Umove A160510	203	4.672	4.672	0	99,95 %	99,99 %
A16 - V, Umove A160510	204	4.082	4.082		99,95 %	100,00 %
A16 - V, Umove A160510	205	1.997	1.997	0	99,95 %	99,98 %
A16 - V, Umove A160510	206	3.561	3.561		99,95 %	100,00 %
A16 - V, Umove A160510	208	441	441		99,95 %	100,00 %
A16 - V, Umove A160510	209	894	894		99,95 %	100,00 %
A16 - V, Umove A160510	212	5.072	5.072	0	99,95 %	100,00 %
A16 - V, Umove A160510	201A	23	23		99,95 %	100,00 %
A16 - V, Umove A160510	202A	1.131	1.131		99,95 %	100,00 %
A19 - I, Umove A190101	133	5.760	5.759	1	99,98 %	99,99 %
A19 - I, Umove A190101	1A	56.958	56.954	4	99,98 %	99,99 %
A19 - I, Umove A190102	164	39.530	39.521	9	99,98 %	99,98 %
A19 - I, Umove A190103	10	24.843	24.838	5	99,98 %	99,98 %
A19 - I, Umove A190103	11	37.077	37.071	6	99,98 %	99,98 %
A19 - I, Umove A190108	179	11.622	11.620	2	99,98 %	99,98 %
A19 - I, Umove A190109	182	7.719	7.716	3	99,98 %	99,97 %
A19 - I, Umove A190109	183	9.279	9.276	3	99,98 %	99,96 %
A19 - I, Umove A190110	196	4.599	4.597	1	99,98 %	99,97 %
A19 - I, Umove A190110	197	5.502	5.501	1	99,98 %	99,99 %
A19 - I, Umove A190110	198	2.172	2.172	0	99,98 %	100,00 %
A19 - I, Umove A190110	354	20.340	20.336	3	99,98 %	99,98 %
A19 - I, Umove A190112	402	1.676	1.676		99,98 %	100,00 %
A19 - I, Umove A190112	404	406	406		99,98 %	100,00 %
A19 - I, Umove A190112	406	121	121		99,98 %	100,00 %
A19 - I, Umove A190112	408	596	596		99,98 %	100,00 %
A19 - I, Umove A190112	411	1.661	1.661		99,98 %	100,00 %
A19 - I, Umove A190112	401A	7.427	7.427		99,98 %	100,00 %

Movia UITP workshop

Service levels, Movia 2022 - 2023

Kontrakt	Linje	Plansatte vogntimer	Kørte vogntimer	Udgående vogntimer	Tilbudt servicegrad	Opnået servicegrad
A16 - I, Umove A160101	134	640	639		1	99,96 %
A16 - I, Umove A160101	342	4.252	4.252			99,96 %
A16 - I, Umove A160101	802	2.773	2.773		1	99,96 %
A16 - I, Umove A160101	803	1.550	1.549		0	99,96 %
A16 - V, Umove A160509	201A	13.620	13.620			99,95 %
A16 - V, Umove A160509	202A	8.074	8.074			99,95 %
A16 - V, Umove A160510	203	2.302	2.302			99,95 %
A16 - V, Umove A160510	204	2.013	2.013			99,95 %
A16 - V, Umove A160510	205	984	984			99,95 %
A16 - V, Umove A160510	206	1.758	1.758			99,95 %
A16 - V, Umove A160510	208	215	215			99,95 %
A16 - V, Umove A160510	209	435	435			99,95 %
A16 - V, Umove A160510	212	2.502	2.502			99,95 %
A16 - V, Umove A160510	201A	13	13			99,95 %
A16 - V, Umove A160510	202A	607	607			99,95 %
A19 - I, Umove A190101	133	5.639	5.638		1	99,98 %
A19 - I, Umove A190101	1A	57.231	57.229		2	99,98 %
A19 - I, Umove A190102	164	38.144	38.136		8	99,98 %
A19 - I, Umove A190103	10	23.388	23.388			99,98 %
A19 - I, Umove A190103	11	36.320	36.319		1	99,98 %
A19 - I, Umove A190108	179	10.949	10.949			99,98 %
A19 - I, Umove A190109	182	7.300	7.300			99,98 %
A19 - I, Umove A190109	183	8.758	8.755		3	99,98 %
A19 - I, Umove A190110	196	4.317	4.317			99,98 %
A19 - I, Umove A190110	197	5.174	5.174			99,98 %
A19 - I, Umove A190110	198	2.043	2.043			99,98 %
A19 - I, Umove A190110	354	19.167	19.167		0	99,98 %
A19 - I, Umove A190112	402	1.633	1.632		0	99,98 %
A19 - I, Umove A190112	404	387	387			99,98 %
A19 - I, Umove A190112	406	131	131			99,98 %
A19 - I, Umove A190112	408	614	614			99,98 %
A19 - I, Umove A190112	411	1.590	1.590			99,98 %
A19 - I, Umove A190112	401A	7.202	7.202			99,98 %

Movia UITP workshop

Customer experience/quality, Movia 2021 – 2023 (EV's)

Aftalt kvalitetsindeks

Kontrakt	Tilbudt kvalitetsindeks	Opnået kvalitetsindeks	Difference Kvalitetsindeks
A16 - V, Umove A160509	870	878	8
A16 - V, Umove A160510	870	885	15

Aftalt kvalitetsindeks

Kontrakt	Tilbudt kvalitetsindeks	Opnået kvalitetsindeks	Difference Kvalitetsindeks
A16 - V, Umove A160509	870	869	-1
A16 - V, Umove A160510	870	875	5
A19 - I, Umove A190101	870	921	51

Aftalt kvalitetsindeks

Kontrakt	Tilbudt kvalitetsindeks	Opnået kvalitetsindeks	Difference Kvalitetsindeks
A16 - V, Umove A160509	870	866	-4
A16 - V, Umove A160510	870	872	2
A19 - I, Umove A190101	870	866	-4

Movia UITP workshop

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Movia UITP workshop

A shift toward zero-emission fleets

An electrification of the market in which Umove is particularly successful

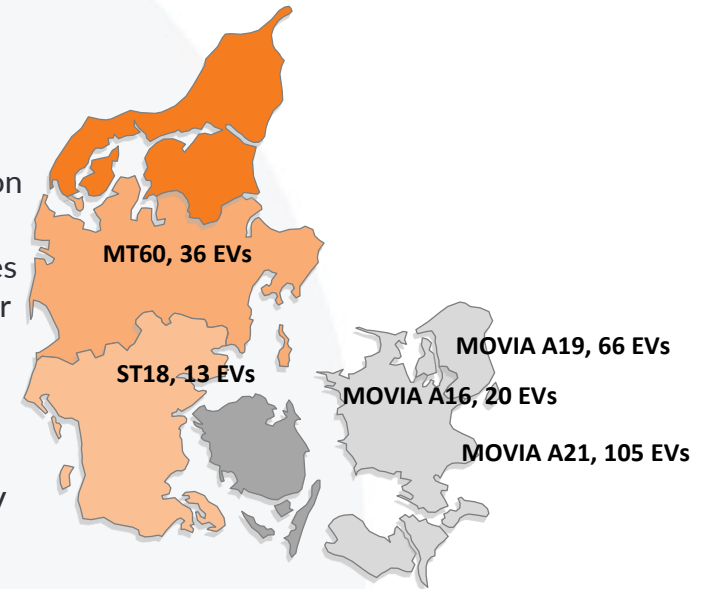
In a nutshell

- Political objective that in 2030 public transport must be emission free in Denmark
- In March 2018, Umove was the first bus operator to be awarded a fully electric contract with Movia A16 (City operations of Roskilde). This contract started in April 2019 with 20 electric vehicles and has a duration of 10+2 years. Since then, 70%-90% of the tenders required the operation of emission free
- Building on this early success, Umove has been awarded 240 electric vehicles which corresponds to 27% of the total EV buses that has been out for tender
- In June 2021 Umove was the first operator to be awarded a fully electric contract on regional operation in Mid Jutland

Characteristics of electric contracts

- **Long contracts:** duration up to 14 years, allowing full depreciation of the EV fleet and infrastructure.
- **Higher CAPEX:**
 - Vehicles: the higher cost of an electric bus is compensated by the lower maintenance and propellant costs.
 - Depot: EV operations require side capex such as chargers, cabling, transformers and grid connection
- **Sourcing:** Chinese electric bus manufacturers have been ahead of European manufacturers that are gradually catching-up. Most of Umove electric buses are provided by Yutong. Chinese buses have very high quality and battery efficiency and they outperform the leading European brands

Location of Umove EV operations



Movia UITP workshop

A shift toward zero-emission fleets

An electrification of the market in which Umove is particularly successful

Infrastructure

- Currently two charging options:
 - (i) During operation (Opportunity)
 - (ii) at the depot (Umove solution)
- 4 important things to consider
- Amps, size of batteries, technical solution and location
- **Amps:** The service hours of the operation influence the capex in Amps. The number of amps...
- Decides how fast you can charge the bus (currently up to 150KWH per bus – one bus charge for 1-2 hours)
- Decides how many buses you can charge at the same time (i.e. during night due to price)
- Depends on the size of the batteries in the bus
- **Size of battery:** Balance between range and capex – winter/summer and change of buses
- **Technical solution:** European standards (CCS-Type2) or Chinese (GBT) charging guns. Currently we only have experience with the GBT allowing us to shuffle the buses between the depots
- **Location:** To maximize range of batteries of the bus depot location very important due to range of batteries

Type of charging system



Charge during operations



Charge at the depot

Movia UITP workshop

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An electrification of the market in which Umove is particularly successful

Operational experiences

- Re-educate drivers, mechanics and management team
- Tools to monitor EV performance is required
- SOC is an important KPI to monitor several times per day
 - To low capacity can influence the following days operation as it takes time to recharge batteries to 100%
- Drivers can re-generate batteries up to 30% just by having the right behavior

Over the contract life, electric operations can be price competitive for PTA compared diesel operations depending on:

- Price of electricity which is very different from a country to another
- Intensiveness of operations in which the low maintenance and propellant costs can overcompensate the high capex
- Contract length

Operational experiences



Movia UITP workshop

Buses – what have been the impact on the fleet?

A16 – Movia tender

First Danish tender based solely on 100% electric vehicles, i.e. choice between:

- Depot charged
 - Operator solely responsible for acquisition and installation of charging infrastructure*,
 - Operator solely responsible for maintenance of charging infrastructure,
 - Operator solely responsible for charging of buses during night.
- Opportunity charged
 - Movia responsible for acquisition, installation and maintenance of charging infrastructure,
 - Operator reliable upon charging at end-stations.
- 17 Operational Vehicles + 3 Spare Vehicles (requirement) ~ 18% spare vehicles capacity (high)

*Charging infrastructure ~ GRID, (transformer stations), cables, charging equipment

Movia UITP workshop

Buses – what have been the impact on the fleet?

A19 & A21 – Movia tenders

No longer a possible to opportunity charge via Movia setup.

- Only depot charged offers where
 - Operator responsible for aquisition and installation of charging infratsructure,
 - Operator responsible for maintenance of charging infrastructure,
 - Operator responsible for charging of buses during night,
- Spare Vehicles still approx 1 for each 10 Operational Vehicles ~ i.e. 10% spare capacity (standard)

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Movia UITP workshop

New ways of working – what have changed?

A green agenda means:

Larger investments,

- EV-buses,
- GRID,
- Charging infrastructure,

Less flexibility,

- Moving a bus from a depot to another is not trivial,
- Deviation, due to road-works etc. is not trivial,

Depot

- Own or Rent?
 - Investments in Charging Infrastructure are high => leasing of depots becomes less attractive

Lower cost to fuel / propellant,

Lower cost to maintenance,

Digitalization process, i.e. advanced planning software – dual planning purpose:

- Driver schedules AND
- Battery usage / energy consumption.

Business case perspective:

- EBIT (profitability)
- IRR% (return on investment)



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New ways of working – what have changed?

Example – route 150S (regional operation) / 15m EV buses

Below table provide a snapshot of the planned usage of the batteries of the 28 buses.

Min of SOC after%	Vognløb																												
Time	1	10	11	12	13	14	15	16	17	18	19	2	20	21	22	23	24	25	26	27	28	3	4	5	6	7	8	9	
4		92,12%											99,05%																
5		84,69%										91,31%											99,05%	92,12%	100,00%	99,05%	100,00%	100,00%	
6		76,95%	92,12%	92,12%	99,05%	92,12%	92,12%	99,05%	96,31%	100,00%	98,33%	100,00%	83,88%	100,00%	100,00%	100,00%	100,00%	100,00%				88,20%	84,69%	92,12%	91,31%	91,56%	92,12%	99,05%	
7		72,57%	84,69%	82,03%	91,31%	85,14%	87,74%	91,31%	88,58%	87,74%	93,72%	89,00%	73,03%	92,96%	89,00%	99,05%	93,72%	92,96%	99,05%	92,96%	93,72%	98,33%	81,22%	76,95%	84,69%	83,88%	91,31%	84,69%	91,31%
8		61,91%	77,19%	78,67%	83,88%	76,39%	78,74%	86,93%	83,96%	83,25%	84,72%	82,52%	66,55%	84,58%	81,40%	91,31%	86,29%	86,48%	91,31%	86,60%	86,29%	93,72%	74,75%	72,57%	76,95%	76,27%	83,88%	76,95%	83,88%
9			69,31%	70,29%	76,15%	68,51%	74,13%	82,32%	76,75%	75,82%	77,51%	79,29%	63,20%		72,54%	82,94%	78,67%	80,13%	83,88%	77,74%	83,45%	84,85%	63,75%	61,04%	68,57%	70,10%	68,51%	68,57%	71,77%
10				70,29%	68,72%		65,75%	74,89%	69,13%	68,08%		70,43%	54,45%		67,92%		78,55%	71,27%	76,15%	73,24%	81,79%	80,34%	92,66%	60,09%	94,08%	92,21%			70,10%
11					61,10%		65,75%	67,15%	64,63%	59,70%	69,77%	65,93%	48,41%		59,54%		71,12%	71,14%	67,27%	68,75%		75,73%		59,14%					86,16%
12					60,98%	68,51%	81,81%	58,77%	60,02%		60,90%	61,31%		83,63%	59,54%		63,50%	62,76%	67,15%	64,25%	80,84%	68,30%		51,52%					74,04%
13		61,91%		62,41%	53,55%	62,23%	74,07%	69,55%	52,59%	59,70%	57,66%	52,44%		75,89%		82,94%	54,64%	86,57%	59,72%	59,63%	73,10%	92,66%	48,28%	87,80%			60,63%	66,90%	65,17%
14		54,03%	67,64%	54,98%	45,81%	53,36%	66,64%	61,66%	44,97%	53,42%	51,19%	45,97%	46,75%	67,02%		81,99%	48,04%	85,63%	51,99%	52,20%	65,67%	56,18%	81,66%	41,81%	78,93%	86,05%	54,15%	57,91%	60,69%
15		46,60%	58,65%	47,36%	36,82%	45,93%	58,90%	54,23%	38,49%	45,99%	44,71%	36,97%	37,75%	60,55%		71,13%	43,66%	77,89%	45,51%	44,46%	57,93%	51,57%	78,30%	35,33%	71,50%	85,93%	49,77%	53,30%	53,26%
16		38,86%	54,04%	47,24%	32,44%	38,19%	51,47%	46,50%	32,02%	38,25%	38,23%	32,59%	33,14%	51,55%	85,81%	64,66%	34,67%	70,46%	39,03%	37,03%	51,46%	42,57%	70,87%	28,86%	63,89%	78,50%	40,78%	45,87%	45,52%
17		31,43%	45,28%	39,81%	23,44%	30,76%	43,74%	39,07%	25,66%	30,82%	27,24%	28,10%	24,39%	45,51%	78,07%	58,18%	30,17%	62,72%	32,80%	29,42%	45,23%	38,19%	63,13%	19,45%	63,76%	70,76%	28,52%		38,09%
18		23,69%	37,40%	32,07%	21,78%	23,15%	36,31%	31,33%	17,78%	29,88%		19,89%	16,50%		70,64%	54,82%	24,14%	55,29%	24,92%	29,30%	37,34%	33,70%	55,70%	19,45%	56,33%	63,33%		38,25%	30,35%
19		15,31%		23,69%	16,98%	28,57%	22,95%			58,41%					63,02%	47,39%		47,68%		20,92%		48,09%			48,60%	51,35%		30,70%	21,97%
20			100,00%			22,52%				50,67%					58,52%	39,66%		38,82%				40,54%			41,17%	42,49%	100,00%		
21			99,05%							43,24%					54,03%	35,28%						25,82%			33,43%	37,87%		16,91%	
22			91,31%												46,48%	30,66%									29,05%	30,44%			
23			86,93%													22,28%									24,05%	22,95%			
24		15,31%	82,32%	23,69%	21,78%		22,52%	22,95%	17,78%	26,75%	27,24%	19,89%	16,50%	45,51%	38,86%	22,28%	24,14%	23,53%	24,92%	20,92%	37,34%	25,82%	16,17%	19,45%	16,06%	15,07%		16,91%	21,97%
25			75,11%							18,87%				100,00%	38,74%			15,15%											
26		100,00%	67,37%	100,00%	100,00%	60,31%	100,00%	100,00%	100,00%		100,00%	100,00%	100,00%		23,98%	100,00%	100,00%		100,00%	100,00%	100,00%	100,00%	100,00%	100,00%		100,00%	93,84%		
27			61,32%												23,86%											100,00%	79,08%		
28			100,00%								100,00%				15,48%			100,00%									71,20%		
29																											100,00%		
30					100,00%																								
31															100,00%														
Hovedtotal		15,31%	37,40%	23,69%	21,78%	16,98%	22,52%	22,95%	17,78%	18,87%	27,24%	19,89%	16,50%	45,51%	15,48%	22,28%	24,14%	15,15%	24,92%	20,92%	37,34%	25,82%	16,17%	19,45%	16,06%	15,07%	28,52%	16,91%	21,97%

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- Depot charged
 - Operator solely responsible for acquisition and installation of charging infrastructure*,
 - Operator solely responsible for maintenance of charging infrastructure,
 - Operator solely responsible for charging of buses during night.
 - Opportunity charged
 - Movia responsible for acquisition, installation and maintenance of charging infrastructure,
 - Operator reliable upon charging at end-stations.
 - Ordinary contract period duration extended
 - 10 + 2 years, from previously 6 + 2 + 2 + 2 years.
 - 17 Operational Vehicles + 3 Spare Vehicles (requirement) ~ 18% spare vehicles capacity (high)
 - Bus requirements unchanged from A16 to A21.
 - Usage of temporary buses (diesel) allowed for a period (A16).
-
- 'Depot free of charge' have been used especially in Jutland (where 'free' land is available)

Movia UITP workshop

Operational setup, has it changed?

Umove, who are we?

Quality & Service levels – has anything changed?

Buses – what have been the impact on the fleet?

New ways of working – what have changed?

Tender risks – and how Movia have handled the contractual risks?

Other - questions?

Movia UITP workshop

Other - questions?

