

# Extreme Weather Impacts on European Networks of Transport - EWENT

Proposal for the call TPT.2008.1. Assessing  
disruptive effects of extreme weather events on  
operation and performance of EU transport system

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## Goal and research strategy

The goal of EWENT project is **to assess the impacts of extreme weather events on EU transport system**. These impacts are monetised. EWENT will also evaluate the efficiency, applicability and finance needs for adoption and mitigation measures which will dampen and reduce the costs of weather impacts. The methodological approach is based on generic risk management framework that follows a standardised process from identification of hazardous phenomena (extreme weather), followed by impact assessment and closed by mitigation and risk control measures.

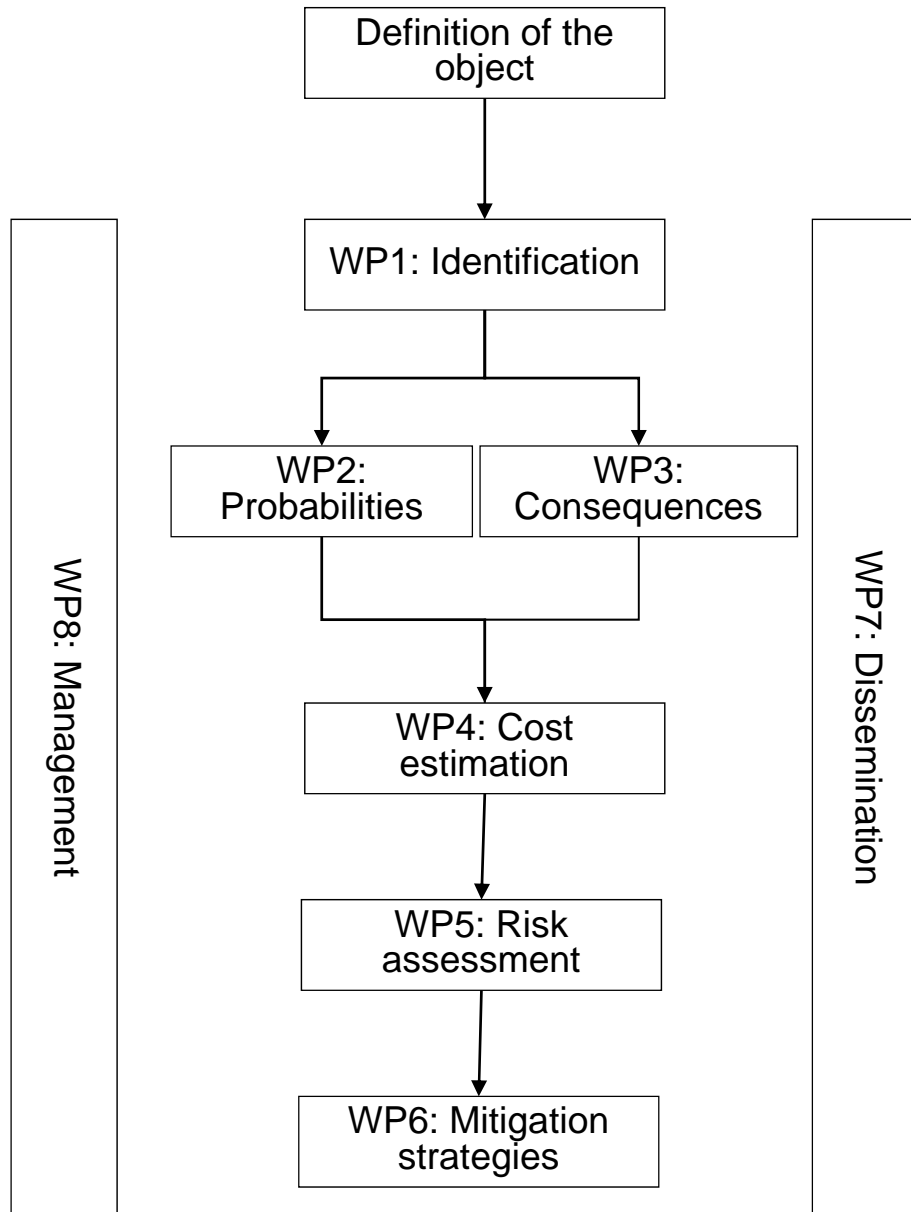
EWENT will start this by identifying the hazardous phenomena, their probability and consequences and proceed to assessing the expected economic losses caused by extreme weather when it impacts the European transport system, taking also into account the present and expected future quality of weather forecasting and warning services within Europe.

EWENT will apply **the IEC 60300-3-9 risk management standard framework** all the way through its research process and the project's work breakdown also follows the standard structure (see slide no 4).

## The consortium

List of participants:

<b>Participant no.</b>	<b>Participant organisation name</b>	<b>Short name</b>	<b>Country</b>
1 (Coordinator)	VTT Technical Research Centre of Finland	VTT	FI
2	German Aerospace Center	DLR	DE
3	Institute of Transport Economics	TÖI	NO
4	Foreca Consulting Ltd	Foreca	FI
5	Finnish Meteorological Institute	FMI	FI
6	Meteorological Service of Cyprus	CYMET	CY
7	Österreichische Wasserstraßen Gmbh	via donau	AT
8	European Severe Storms Laboratory	ESSL	DE
9	World Meteorological Organisation	WMO	UN



OBJECTIVE: Risk management strategy for the EU transport system to prepare for and mitigate the impacts and costs of extreme weather phenomena

WP1: Extreme weather phenomena that have potential internal and external cost impacts on EU transport system; the threshold criteria for weather parameters

WP2: The probability of extreme weather and scenarios for increased probabilities and intensity

WP3: Impact mechanisms for system failures or disturbances (mobility meltdown, reduced safety and security) and operational failures (predictable mobility of passengers and goods); impacts on selected transport system performance indicators

WP4: Estimation of expected costs of extreme weather on time axis, based on identified impacts and scenarios: infrastructure (material damages), operations and traffic (accidents, time delays)

WP5: Evaluation of likely scenarios and most relevant costs; listing of prospective mitigation and adaptive strategies; risk panorama for EU transportation system

WP6: Assessing the effectiveness and preliminary investments required by different mitigation strategies on time axis; e.g. new weather information services, new institutional co-operative models (especially between authority functions and across national boundaries), development needs of standards and engineering guidelines for transportation infrastructures

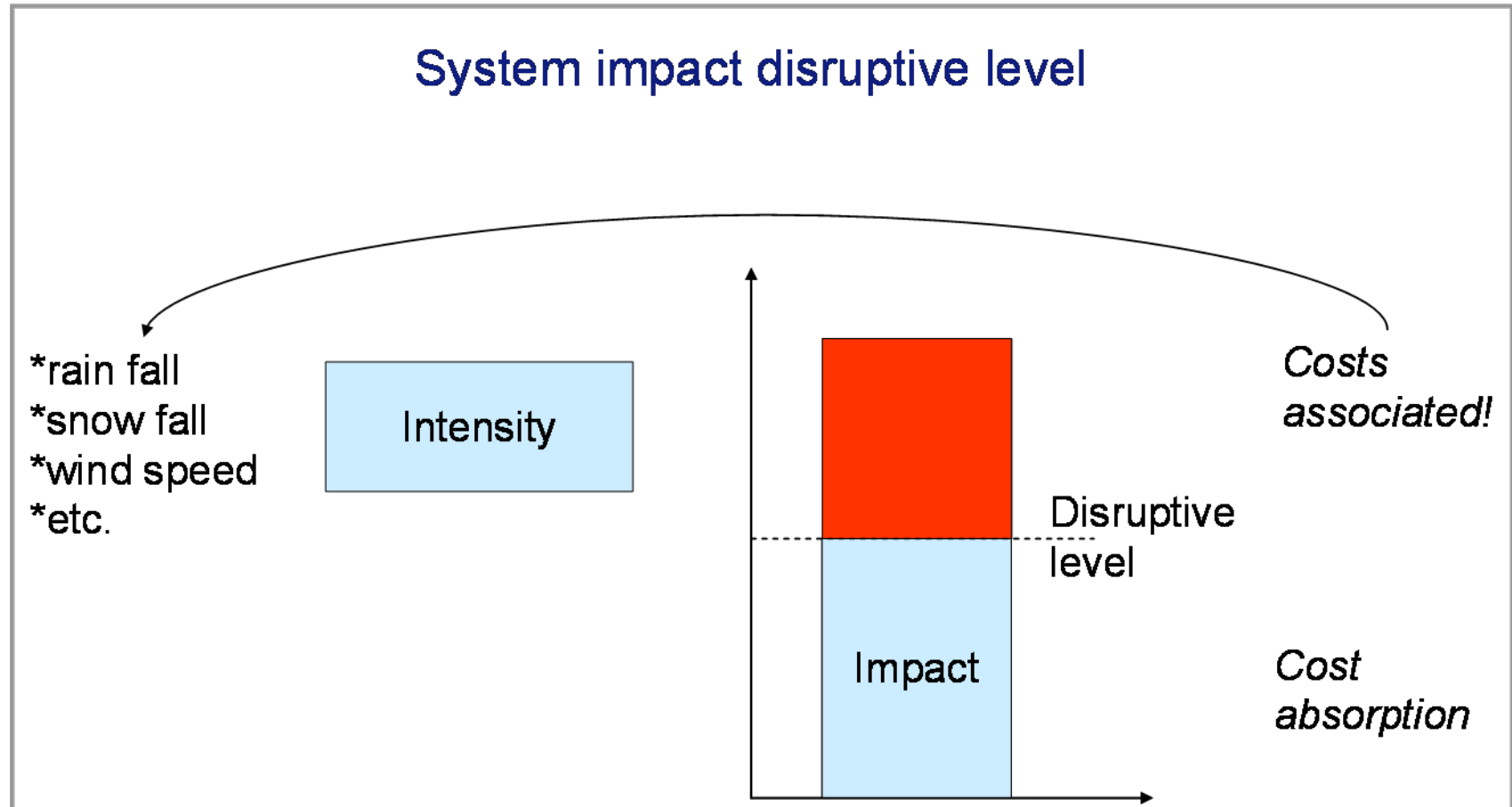
## Modal coverage

Depth of analysis	Aviation		Land transport				Marine & waterways			
	Passenger	Freight	Road		Rail		Light	Ocean	Short sea /coastal	Inland ww
			Passenger	Freight	Passenger	Freight				Freight
Detailed	X	X	X	X	X	X				X
Brief							X		X	
Excluded								X		

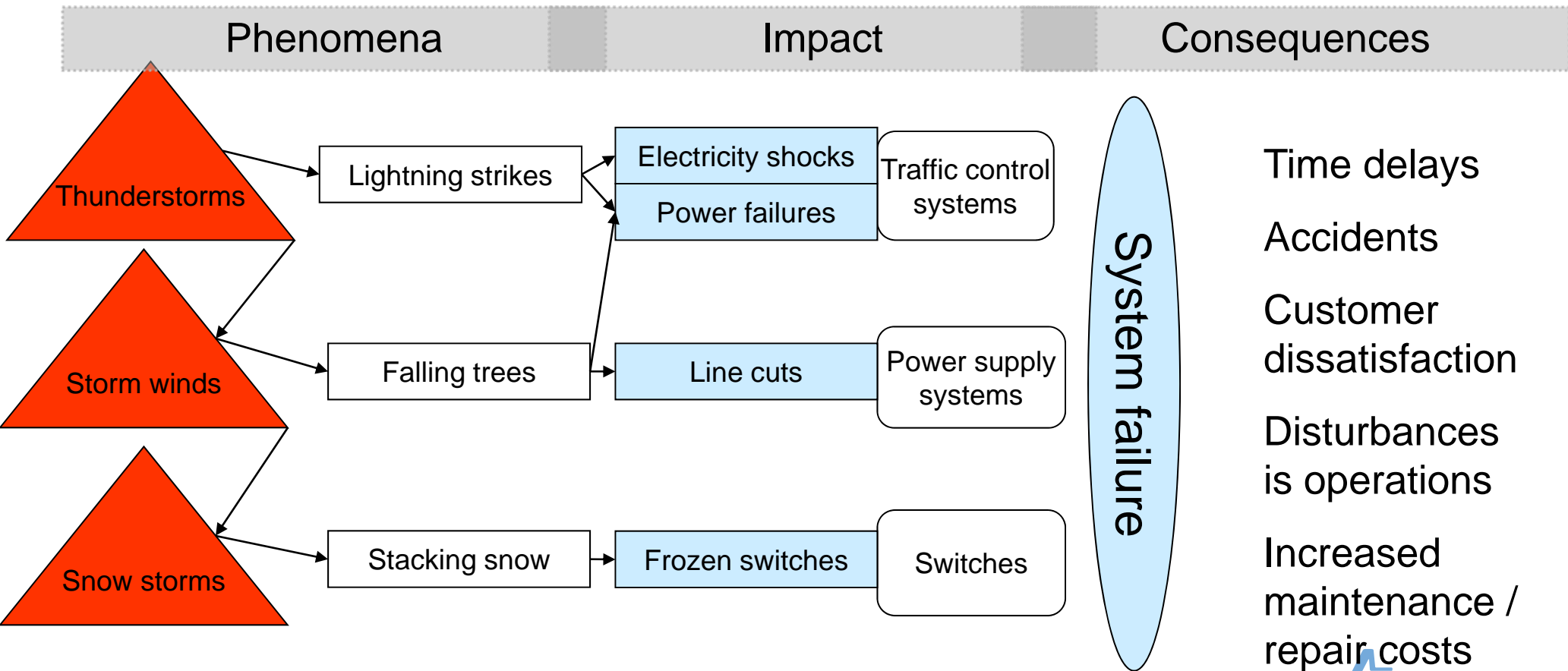
The transport system is viewed from three angles:

- **infrastructure**; these are direct material damages or deterioration of physical infrastructures
- **operations**; these are harmful impacts on traffic safety and transport reliability (both freight and passenger)
- **indirect impacts to third parties**, e.g. supply chain customers and industrial actors.

# Cost impact vs. cost absorption



# Impact analysis – example railways



## Indicators & cost assessment & economic analysis

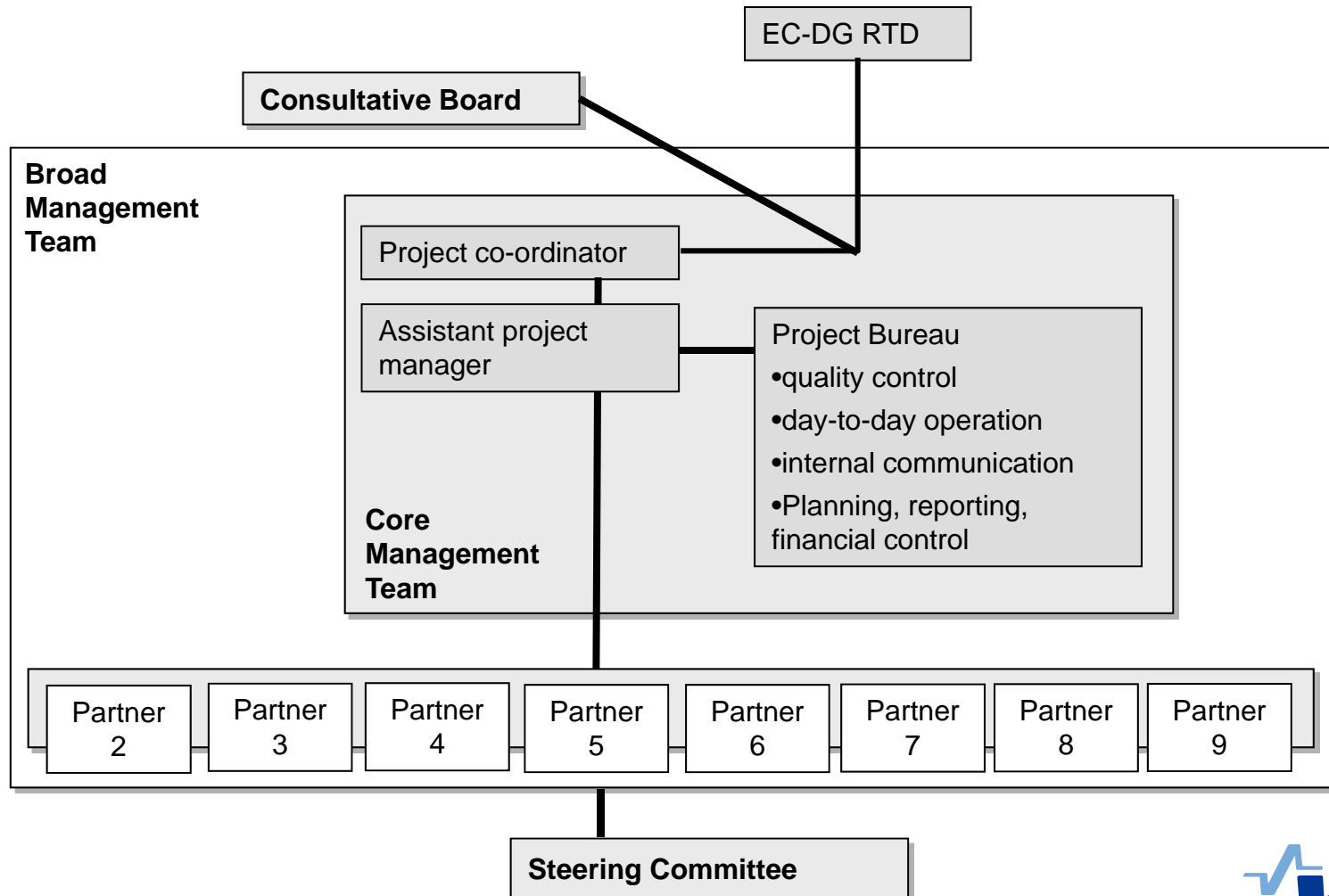
Performance indicator	Cost item	Method for unit values	Source or reference	Notes
Safety	Accidents	WTP	eIMPACT study or alternative EU covering studies	Covers material and human losses (injuries, fatalities)
Time, reliability, profitability, revenues	Time	WTP	eIMPACT study or alternative EU covering studies	Covers both passenger time and freight time; freight time must be upscaled from road transportation to other modes
Reliability, profitability, revenues	Hindered journeys and transports	Opportunity cost of a transport; WTP	Indirect assessment from other studies	The most uncertain cost item to assess
Accessibility, cost (infrastructure investments and repair)	Damage to infrastructures	Historical cost (market cost); some available through insurance sector	Other studies, statistics from selected countries and up-scaling	Up-scaling across EU-27 can be done by e.g. purchasing power parities (ppp) adjustments for countries from where there is no data
Cost (maintenance, operation)	Increased maintenance	Historical cost (market)	Other studies, statistics from selected countries and up-scaling	Up-scaling can be done by e.g. purchasing power parities (ppp) adjustments for countries from where there is no data



## Schedule & other info (preliminary)

- The project will be likely to start in December 2009.
- Duration: 30 months.
- Total budget: ca 2 MEUR

# Overall management architecture



## Key persons (foreseen, to be confirmed)

<u>Policy Officer:</u>	Dr Karsten Krause	European Commission
<u>Coordinator:</u>	Dr Pekka Leviäkangas	VTT
<u>Core Management Team:</u>	Dr Leviäkangas, Ms Molarius, Dr Veikko Rouhiainen, Dr Lasse Makkonen, Ms Ulla Peltonen, Ms Anu Tuominen, Mr Pekka Kulmala – all from VTT	
<u>Broad Management Team:</u>	Dr Leviäkangas, Ms Molarius	VTT
	Dr Frank Rehm	DLR
	Dr Johanna Ludvigsen	TÖI
	Dr Pirkko Saarikivi	Foreca Consulting
	Dr Pertti Nurmi	FMI
	Dr Silas Michaelidis	CYMET
	Dr Juha Schweighofer	via donau
	Dr Nikolai Dotzek	ESSL
	Mr Dimitar Ivanov	WMO

## Key body members (invited, to be confirmed, changes possible)

### Consultative Board:

Dr. Nancy Saichs, EIB  
 Mr. Martti Mäkelä, Ministry of Transport Finland  
 Dr. Cristina Pronello, Politecnico di Turin  
 Dr. Olaf Novak, Allianz  
 (Dr Karsten Krause      European Commission)

### “Steersmen”:

NN	VTT
OO	DLR
PP	FMI
QQ, ”steersman”	to be nominated by the SC



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